

Title V Block Grant
Massachusetts MCH Needs Assessment 2010
Section II of the MCH Application
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I. Needs Assessment Process

Goals and Vision

The Massachusetts Department of Public Health (MDPH), the state Title V agency, completes a comprehensive statewide Needs Assessment every 5 years with the goal of identifying the current system's strengths and gaps in services and the health needs of women, infants and children, including those with special health care needs. The mission of the Massachusetts Title V agency is to "actively work to improve and to protect the health and well-being of women, children, and families to achieve their optimal development and health outcomes." The Needs Assessment informs how MDPH sets priorities to support its mission with a particular focus on services and infrastructure. These priorities are codified into a top ten, which are compared against pre-defined National and State Performance Measures.

Leadership

To conduct the 2010 Comprehensive Needs Assessment (CNA), the Massachusetts Title V Director and the Director of the Bureau of Family Health and Nutrition (BFHN), Ron Benham, appointed a Steering Group to guide the Needs Assessment process. Engaging the Steering Group was critical to ensure alignment of priorities and activities following the Needs Assessment. The Massachusetts Department of Public Health, as a state agency, historically has had a deep commitment to maternal and child health. This commitment remains vital under the leadership of Commissioner John Auerbach. Accordingly, key members of his staff, including Lauren Smith, Medical Director, Ed Dyke, Director of Grants and Development, as well as representatives from other Bureaus at MDPH with Title V leadership and staff participated on the Steering Group to ensure that needs assessment data and priorities selection reflected both the commitment of the entire agency and included the analysis of all the Department's resources for maternal and child health.

Since the last Needs Assessment in 2005, the MDPH has restructured its Bureaus. The Bureau of Family Health and Nutrition (BFHN) works in coordination with several other Bureaus and Offices within MDPH to cover the needs of the Title V populations. These include:

- Bureau of Community Health Access and Promotion (BCHAP)
- Bureau of Environmental Health (BEH)
- Bureau of Health Care Safety and Quality
- Bureau of Health Information, Statistics, Research and Evaluation (BHISRE)
- Bureau of Infectious Disease Prevention, Response and Services (BIDPRS)
- Bureau of Substance Abuse Services (BSAS)
- Emergency Preparedness Bureau (EPB)
- Office of Healthy Communities
- Office of Health Equity

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The steering group provided direction, input, and guidance as well as opened doors to stakeholders and provided resources for the Needs Assessment.

To carry out the daily assignments related to gathering data to conduct the Needs Assessment, Ron Benham appointed a Project Team, which he personally led. Under the Steering Group's guidance, the Project Team carried out all research and analysis; led interviews, focus groups and surveys; documented findings; and engaged stakeholders in the prioritization process. The Project Team assigned specific tasks to sub-teams and workgroups throughout the undertaking.

The Project Team consisted of a core team of Title V leaders, lead by Ron Benham, and supported by division management, epidemiologists, several interns, and an outside consultancy, The Ripples Group. The Project Team consisted of:

- Ron Benham – Massachusetts Title V Director, Director of the Bureau of Family Health and Nutrition (BFHN)
- Hafsatou Diop, MD, MPH – Director of the Office of Data Translation (ODT), PRAMS Director, State MCH Epidemiologist
- Karin Downs, RN, MPH – Asst. Director for Clinical Affairs, Division of Perinatal, Early Childhood and Special Health Needs, BFHN
- Ed Dyke – Director of Grants and Development, MDPH
- Kathy Messenger – Massachusetts BFHN Senior Budget Planner
- Susan Manning, MD, MPH – CDR, U.S. Public Health Service, Maternal and Child Health Epidemiology Assignee, MDPH
- The Ripples Group
- Graduate intern staff – Nicholas McNeill, James Miller, Hayley Skinner, Claudia Catalano

As a result, under the guidance of the Steering Group and the technical expertise of the work group, the 2010-2015 Comprehensive Needs Assessment has been completed with broad leadership at MDPH along with extensive stakeholder involvement across the state.

Methodology

The Massachusetts Needs Assessment effort took over 12 months to complete with activities falling into two phases following kick off in June 2009. The first consisted of initial data collection, analysis and interviews to create an initial draft of the Needs Assessment document. During the second phase, the Needs Assessment draft was refined with further stakeholder involvement, including public hearings, to develop the final Needs Assessment with priorities and measures for the next five years. At the initial meeting with the Steering Group in July 2009, the Project Team proposed a timeline based on the two phased approach and initial areas for data collection.

The Project Team collected data from primary and secondary sources (see in figure 1-1) on the MCH populations' needs and the state's capacity to meet them. To write the initial Needs Assessment draft, the Project Team organized the work to systematically complete each section in the guidance (Process and Partnership, MCH Populations, Capacity, Selection of State Priorities, and Selection of State Measures). Members of the Project Team also conducted internal interviews with MDPH staff and

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with external stakeholders, such as community and family representatives, physicians, and local program directors. In addition to interviews, the team conducted focus groups with mothers and families served by Title V, with all these engagement activities occurring over several months from July 2009 through January 2010, and with more than 70 interviews conducted.

The Project Team utilized many datasets to collect information on MCH Populations and organized its work around four categories: demographics; pregnant women, mothers, and infants; children and adolescents; and children and youth with special health care needs. A designated member of the Project Team with a graduate student intern led a subcommittee that worked on each population subsection, supporting data collection, analysis, and writing.

To determine the state's Title V Capacity, the Project Team researched current issues and legislation and reached out to the many MCH relevant programs throughout MDPH. This outreach enabled the team to document programmatic changes and obtain programs' input on their perception of MCH needs. Capacity review in Massachusetts would be incomplete without a review of the impact of health reform, with its successes in expanding the pool of insured individuals and improving access to quality care.

The Project Team met weekly to discuss their work and its impact on determining priorities for the state. These discussions were the basis for developing and refining priorities, and the Project Team regularly reported their work to the Steering Group.

The Steering Group met with the Project Team five times over the course of the year. The Project Team began these meetings with an initial presentation of their work. The presentations were followed by a discussion of the impact of recent findings on priorities for the state. The Steering Group suggested additional contacts for internal and external interviews. The Steering Group assisted the Project Team to integrate, prioritize and align information from the research and analysis. At the first Steering Group meeting, participants defined the roles and responsibilities for the Project Team and the Steering Group and the goals for the Needs Assessment. They identified internal MDPH stakeholders to include in the interview process. At the second Steering Group meeting, participants focused on findings from data collection and internal interviews and identified external interview candidates. The third and fourth Steering group meetings focused on refining draft priorities and translating priorities into relevant state measures for public feedback. The fifth Steering Group meeting included a review of public hearing findings and finalization of priorities and measures.

Starting in November 2009 the Project Team conducted a series of focus groups with mothers and families of children and youth with special health care needs (CYSHCN). A total of 15 focus groups directly added to the Needs Assessment findings.

In addition to focus groups, the Project Team developed a youth survey to augment data collection and gain insight into priority areas for youth, since focus groups with them are limited by their age and mobility. Similarly, a CYSHCN survey created a new understanding of priority needs that would have been difficult to determine through a focus group. Focus groups and later public hearings centered on seeking direct feedback to proposed priorities and measures in an attempt to give participants a clear understanding of options for priorities the Project Team was considering.

With initial drafting of the Population and Capacity Needs sections complete, the Project Team organized public hearings across the state in March and April 2010. The

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hearings served as both feedback sessions on the draft priorities and an opportunity for stakeholders to comment on the direction of Title V resources following the Needs Assessment. In advance of the Public Hearings, the document was posted on the Mass.gov website to allow public review and included a link to send any written feedback to the Project Team. The comments from the hearings and website supported the draft priorities and measures as presented and the Steering Group agreed that the comments did not lead to required further refinement of priorities based on the comments. Steering Group assistance included assessing whether any ideas or recommendations had been covered previously or if they represented significant new ideas requiring further research, which they did not. However, the feedback will be used to inform action planning and spending allocations following the Needs Assessment.

Following the final public hearing, the Project Team reviewed feedback from all stakeholders as well as additional data to develop the final priorities and performance measures. The refinement process included input from MDPH Bureaus to ensure priorities aligned across the entire agency. The Project Team completed all documentation for Federal submission and for public posting of the final Needs Assessment document.

Needs Assessment Timeline

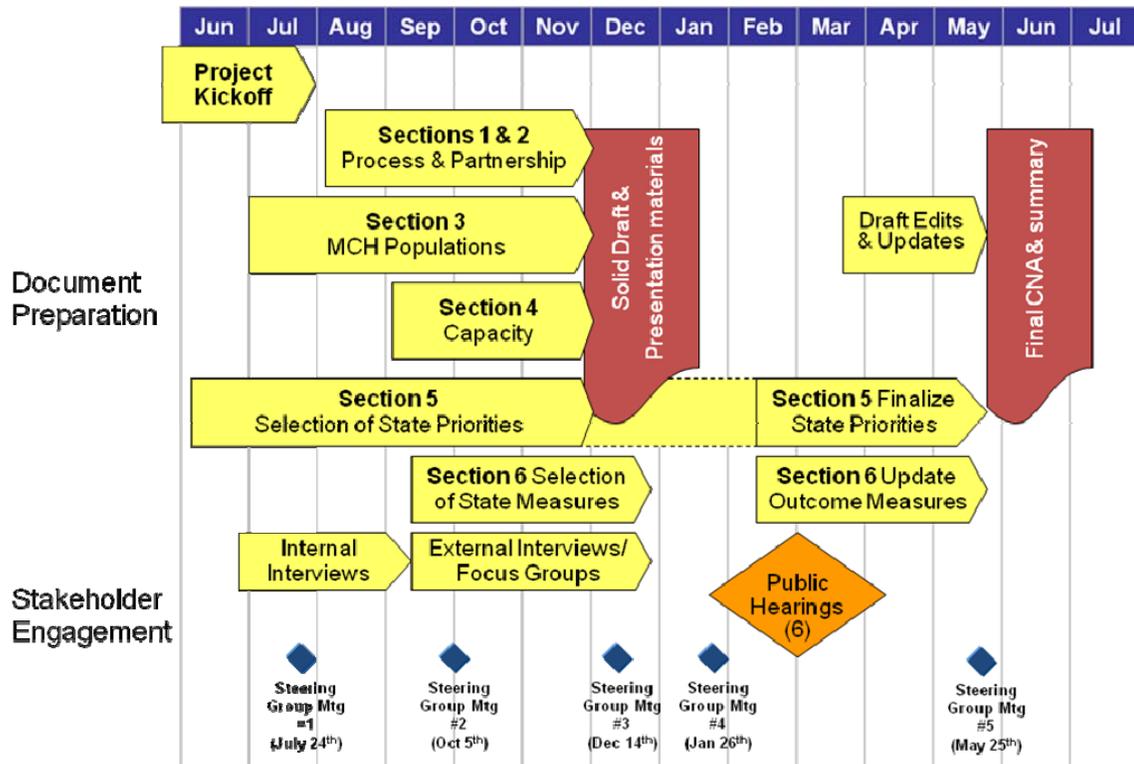


Figure 1-1

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Prioritization Process

The Project Team identified and considered a range of priorities through brainstorming, data analysis and stakeholder engagement. As seen in Figure 1-2, once the Project Team generated a list of potential priorities, the group then systematically narrowed their priorities with further analysis and feedback. Priorities were screened for their impact and feasibility. Measures for each priority were developed over time as the priorities became more refined.

Priorities to Actions Process

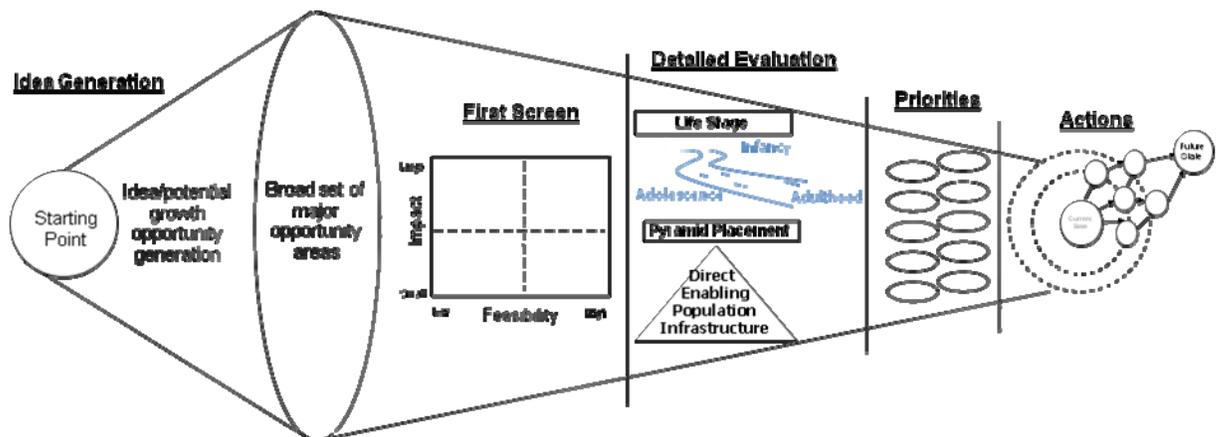


Figure 1-2

To determine priorities, the Project Team defined a set of principles based upon the Title V guidance to refine the extensive list of priority concepts and ideas.

These principles included:

- Promote health and wellbeing of MCH populations
- Eliminate disparities by targeting the increasingly diverse MCH populations in Massachusetts
- Integrate life course perspective and social determinants of health into all programs
- Ensure community engagement through essential allies and others
- Ensure parent involvement, including fathers
- Target interventions as early as possible and focus on teachable moments

The team then applied a screening process that leveraged all available data and evidence, and incorporated the input of stakeholders. Past lessons learned within MDPH programs and activities also informed which priorities were selected.

The team used two basic criteria to guide the selection process:

1. What is the likely impact?
2. What is the feasibility of success?

“Potential Impact” was determined by the number of people affected (incidence and prevalence); the effect on quality of life and long-term outcomes for individuals, populations and across generations; reduction on disparities, such as socio-economic,

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cultural, geographic, racial or ethnic disparities; and effect on collaboration among a wide range of stakeholders.

“Feasibility” was determined by the level of MDPH expertise in an area under consideration; political and organizational will (internal champions); the resources available and relative cost; leadership vs. follower position for a particular issue; whether the priority aligned with the core MCH mission; the availability of government and community partners and resources to leverage the work of MDPH; and whether there is a synergistic effect among multiple priorities.

The Project Team assessed all priorities under consideration from the stakeholder interviews and focus groups using these criteria. They also assessed available data to support decision making. The Team then conducted a more detailed evaluation to determine where priorities fell along the life course continuum and selected priorities that could be translated into services or systems change. To accomplish this task, both the Project Team and the Steering Group spent many hours discussing and reviewing data. External research, including literature reviews, surveys, key-opinion-leader interviews and focus groups influenced the relative importance of the priorities. Based on this evaluation, the Project Team identified a preliminary shorter list of twenty two potential priorities from which ten would emerge as the MCH priorities for Massachusetts.

Following the selection of priorities, MDPH will improve the areas identified in the Needs Assessment, as well as set targets for each state and federal measure based on achievable results. Where appropriate, the performance measures will be integrated into the balanced scorecard process used by the divisions within the Massachusetts Title V agency and reviewed quarterly to monitor progress and improve allocation of resources to support BFHN goals.

The Needs Assessment document will support the Title V program and its leadership through the next five years. It is both a source of data and a reference for planning actions to improve each priority and performance measure. The Needs Assessment becomes a frequent source for information on the MCH populations and assists programs in identifying available data. In addition, the Needs Assessment is a public document allowing community stakeholders and researchers a source of information and reference for state priorities.

Stakeholder Involvement

A critical component of our approach was soliciting feedback from the participants and families we serve as well as providers and advocates in the community who through contract or affiliation assist us to assure maternal and child health throughout the Commonwealth.

In an effort to ensure that stakeholders were kept fully informed the Needs Assessment at each step of the process, the Project Team and Steering Group engaged stakeholders through a variety of means. Beginning with internal interviews with MDPH staff from a variety of programs within MDPH, the Project Team refined its knowledge of potential issues and improved the value of information collected during key informant interviews with external stakeholders outside of MDPH programs. Two surveys focused on youth and their families revealed needs specific to youth populations in the state.

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Focus groups allowed feedback and refinement of several draft priorities before they were presented to public audiences. The engagement strategies are detailed in Figure 1-3 and were as follows:

Internal Interviews	External Interviews	Surveys	Focus Groups (FG)
Target: Mother and Infant Population			
15 DPH Program Staff	6 External Key Informants		<ul style="list-style-type: none"> • WIC Mothers (6 participants) • Teen Mothers (12 participants) • Suburban Mothers (20 participants) • 3 FG for Urban Black/Hispanic Mothers (27 participants total) • 6 FG for Home Visiting (48 participants total) <ul style="list-style-type: none"> • 2 FG for post-partum depression • 2 FG for domestic violence • 2 FG for new mothers
Target: Children & Adolescent Population			
8 DPH Program Staff	9 External Key Informants	Adolescent Survey (184 responses)	
Target: CYSHCN Population			
12 DPH Program Staff	30 External Key Informants (20 from Partners for Youth with Disabilities)	CYSHCN Survey (459 responses)	<ul style="list-style-type: none"> • Young Adult Council (7 participants) • Parents of EI (10 participants) • Families of CYSHCN whose preferred language was Spanish (15 participants)
Target: Capacity			
8 DPH Program Staff			

Figure 1-3 Stakeholder Engagement

Internal Interviews

In order to improve MDPH engagement and build understanding of the MCH Block Grant and Needs Assessment process, the Project Team conducted 43 interviews with program leaders across MDPH. These interviews influenced the initial determination of need priorities as the Project Team began to analyze data related to each MCH population.

External Interviews

Following the internal interviews, the Project Team conducted 45 interviews with external (outside of MDPH) community experts across an extensive distribution of

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providers and organizations, such as hospitals, community health centers, community health workers, and advocates. Twenty of the interviews were with individuals affiliated with Partners for Youth with Disabilities to improve understanding and awareness of the unique challenges to engaging directly with CYSHCN, such as physical, verbal, and cognitive. Important consideration was given to ensure representation across the three MCH populations.

Focus Groups

In addition to stakeholder interviews, the Project Team conducted a total of 15 focus groups to inform and refine priorities. The Project Team directly held six focus groups to elicit information on developing MCH priorities. As part of each focus group, the Project Team tested different priorities to ensure relevance to the target population for each. These focus groups included:

- Families of children with special health care needs whose preferred language was Spanish to gain insight into navigating multiple systems of care for their families. A Spanish translator was present as the focus group was conducted in Spanish. (Springfield MA – 18 participants)
- Parents of EI participants to understand the challenges of navigating the early childhood system of care (Natick MA – 10 participants)
- Youth with disabilities from western Massachusetts, many of whom were in the process of transitioning to adulthood, to gain perspective on living with disabilities in a lower income area that has many rural services. Focus group attendees were members of the Young Adult Council, which helps provide feedback for MDPH CYSHCN programs. (Springfield MA – 7 Participants)
- Urban WIC participants to gain perspective on low income and racially diverse new mothers (WIC Cambridge – 6 Participants)
- Suburban mothers to gain perspective on maternal and infant health needs for a predominately white, middle class area of the state (Needham MA – 20 Participants)
- Teen mothers from an economically depressed urban high school to underscore the challenges of being a young mother while remaining in school (Fall River MA – 12 Participants)

The team also used information collected from mothers in nine prior focus groups over the previous two years.

- Three focus groups with urban Black and Hispanic mothers in Western Massachusetts in low-income communities to understand their experience of racism in the health care system (Western MA – 27 Participants)
- Six focus groups centered on improving bonding and attachment, nurturing early infant care giving, and decreasing family violence. New mothers were recruited through the Early Intervention Partnership Program (EIPP) in the Massachusetts communities of Somerville and Fall River. EIPP is a high-risk maternal and newborn screening, assessment and service system that provides home-based intervention to educate high risk pregnant and postpartum women and their families about maternal

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and child health issues and to connect vulnerable families to community services and health care. (48 Participants total)

- Two groups of low-income women to understand their challenges in finding support and care for postpartum depression
- Two groups of women who experienced domestic violence to gain insight into community and social systems response
- Two groups of low-income women who recently gave birth to understand their experiences as new mothers

The Needs Assessment focus groups centered on the needs of mothers and CYSHCN, while overlapping with the issues of children and adolescents. Stakeholder feedback of children and adolescents came largely through a direct survey of youth.

Surveys

The Project Team developed two surveys to collect direct participant and target population data. The first survey was targeted at high school age youth, to identify the relative needs and issues for this hard to reach group. The survey helped get students' perspectives on what they considered important to add to understanding from other available surveys that focus more on self-reported behavior choices or health outcomes. The youth survey received 184 responses.

The second survey was directed at families of youth with special health care needs in order to better inform the priorities and goals for CYSHCN over the next five years. The families of CYSHCN survey received 459 responses. Both surveys collected information on the critical period of transition into adulthood, which also represents a unique time for learning both positive and negative behaviors.

Public Hearings

After priorities were refined and drafted, the Title V Director, with support from the Project Team, convened a series of public hearings to review the major findings of the Needs Assessment and proposed priorities. The hearings were conducted across the state in six different locations identified for their ease of access for the community and appropriateness for the discussion. The locations represented the five major areas of the state (Northeast, Metro Boston, Southeast, Central, and Western) and a separate hearing for Boston as the capital and largest population center. The hearings allowed stakeholders to testify on the appropriateness of the priorities and further inform the needs of the MCH populations. With extensive notification of local program offices and additional marketing support from each of the MDPH regional coordinators, 33 attendees participated in six Public Hearings. Despite low turnout, MDPH considered the hearings as an invaluable opportunity to receive direct public reaction to the proposed priorities.

In addition to the public hearings, a draft of the Needs Assessment was available to public feedback via posting on the state website to enable members of the community to review the findings prior to the Public Hearings and to submit questions and comments. A total of nine comments came through the website which included similar recommendations and issues to those raised in the other venues.

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Methods for Assessing Population Needs

To assess the needs of each of the three MCH populations (mothers and infants, children and adolescents, and children with special health care needs) across the state, the Project Team approached each population with similar methods. The Project Team divided the population data collection into three components: data driven strengths and needs; input from MDPH internal program leadership; and input from external stakeholders. As there was considerable overlap between the populations and their providers and advocates (e.g., teen mothers), the Project Team did not isolate data collection from engagement, and instead worked across populations with attention on ensuring equal engagement and overall representation. The information on MCH Populations was then used both for reporting in the Needs Assessment and as part of the analysis of impact and feasibility of potential state priorities.

Methods for Assessing State Capacity

Similar to the assessment of population needs, assessment of capacity was as much as possible a data driven approach along with incorporation of feedback, especially from internal stakeholders. The Project Team efforts to assess capacity in the state fell into three categories: stakeholder input on capacity needs; collection of program efforts and state public and private resources; and analysis of existing capacity by the Steering Group to identify strengths, shortages, and emerging needs. Programs were considered for their impact on their target population, including direct and enabling services, population-based services, and infrastructure building services. The placement of program efforts along the spectrum of impact from direct to infrastructure building aided in determining the gap between current services and where service improvements are needed to effect change underlying each priority.

The Project Team used every interaction with stakeholders - including interviews, focus groups, and public hearings - as an opportunity to understand better the capacity of services and ask stakeholders their opinions on gaps and need for capacity building activities and resources. Stakeholders within agencies reported on program efforts while participants gave feedback on successes and outstanding needs.

The Project Team engaged in a broad assessment of the state's capacity to provide services, both through community providers and through state program efforts. Recent information on provider shortages due to the economic crisis and changes from the State's innovative health care reform all informed the capacity needs.

The extensive engagement process contributed to a deeper understanding of the state's overall capacity needs and the specific needs of each MCH population group. The Project Team worked in coordination with the Steering Group to identify capacity priority areas for review and ultimate inclusion into Massachusetts' ten priorities, which ultimately included one focused solely on capacity building.

Data Sources

State data to identify strengths and weaknesses within each population came from a variety of sources, including MassCHIP, an application that provides access to an

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extensive collection of public health statistics such as surveillance data and vital statistics. Comparisons were made to national indicators, such as the MCHB CSHCN measures and Healthy People objectives. For example, Massachusetts birth data were compared annually to national birth outcome measures published by the National Center for Health Statistics. Similar state and national comparisons are done using the Youth Risk Behavior Survey (YRBS) and Behavioral Risk Surveillance System (BRFSS). Trends were monitored using these and other state, regional and national data sources. In addition, data were stratified and analyzed at a number of sub-state geographic levels and for population subgroups. Population stratifiers included race, ethnicity, language, economic status, age, gender, disability or special health needs status, and other characteristics, depending on the data source and question.

The following datasets represented key sources of information for quantitative analysis supporting the Needs Assessment. The multitude of datasets was necessary because the broad range of needs of MCH populations required multiple data references, including several based on direct survey of the MCH populations. Further detail on these datasets can be found in Section 5 of this document.

Registry of Vital Records/Vital Statistics

The Registry collects, processes, corrects and issues copies of birth, death, marriage and divorce records that occur in Massachusetts. The information that is collected on the nearly 250,000 annual vital events (births, deaths and marriages) that occur in Massachusetts forms the primary research database for physicians and other health providers, genealogists, historians, demographers and other researchers.

MassCHIP

MassCHIP was developed by the Massachusetts Department of Public Health to assist communities and professionals in health planning. MassCHIP provides access to 36 health status, health outcome, program utilization, and demographic data sets. It currently has over 4,000 active users working in a variety of settings, including hospitals, HMOs, government agencies, universities, community health centers, and local boards of health.

YHS/ YRBS

The Massachusetts Department of Elementary and Secondary Education (DESE) - in collaboration with the Centers for Disease Control and Prevention (CDC) and the Massachusetts Department of Public Health - conducts the Youth Risk Behavior Survey (YRBS) in randomly selected public high schools in every odd-numbered year. The YRBS focuses on the major risk behaviors that threaten the health and safety of young people. This anonymous survey includes questions about tobacco use, alcohol and other drug use, sexual behaviors that might lead to unintended pregnancy or sexually transmitted disease, dietary behaviors, physical activity, and behaviors associated with intentional or unintentional injuries. Data from the YRBS provide accurate estimates of the prevalence of risk behaviors

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among public high school students in the Commonwealth, and are important for planning health education and risk prevention programs.

The Massachusetts Youth Health Survey (YHS) is the Massachusetts Department of Public Health's (MDPH) surveillance project, through the University of Massachusetts Center for Survey Research (CSR), to assess the health of youth and young adults in grades 6-12. The YHS is used primarily for surveillance and needs assessment activities; statistics developed are used for block grant reporting to the Health Resources Services Administration (HRSA) and the Substance Abuse and Mental Health Services Administration (SAMHSA). The survey contains health status questions in addition to questions about risk behaviors and protective factors.

BRFSS

The Health Survey Program operates the Behavioral Risk Factor Surveillance System (BRFSS) in Massachusetts. The BRFSS has been conducted by the Health Survey Program at the Department of Public Health since 1986 and by our survey vendor, Abt SRBI, since 2008. The survey began as a landline telephone survey; however, starting in 2009, Massachusetts cellular telephone numbers will be included in the survey. In 2010, a mail survey will be conducted in addition to the landline and cellular telephone surveys.

HCFP

The Division of Health Care Finance and Policy (Division) collects patient-level data for Massachusetts acute care hospital inpatients, observation patients, and emergency room patients to support the Division's analyses of such issues as preventable hospitalizations, hospital market analysis, alternative care settings, the patient care continuum, and comparative costs and outcomes in acute care hospitals. It also conducts an annual household survey of health insurance coverage that is used to monitor the implementation of health care reform in the state; those data are used for a National Performance Measure and a Health Systems Capacity Indicator.

PRAMS

PRAMS, the Pregnancy Risk Assessment Monitoring System, is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. Initiated in 1987, the goal of the PRAMS project is to improve the health of mothers and infants by reducing adverse outcomes such as low birth weight, infant mortality and morbidity, and maternal morbidity. PRAMS provides state-specific data for planning and assessing health programs and for describing maternal experiences that may contribute to maternal and infant health.

PRAMS provides data not available from other sources about pregnancy and the first few months after birth. These data can be used to identify groups of women and infants at high risk for health problems, to monitor changes in health

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status, and to measure progress towards goals in improving the health of mothers and infants.

H1N1 Supplemental

PRAMS received supplemental funding from CDC PRAMS to collect data on seasonal and H1N1 influenza vaccine utilization among pregnant women in MA and identify barriers for not receiving vaccination. Since December 2009, the influenza supplemental survey has been added to the current PRAMS survey at the end of the survey and the influenza data collection process has begun. So far, most mothers who have completed the PRAMS survey also completed the influenza survey.

WIC Datasets (PNSS, PedNSS)

Massachusetts WIC services are currently provided via a distributed information system with independent applications operating at each WIC site. The WIC information system was developed in the 1980s and transferred from Illinois to Massachusetts in 1991. WIC data systems provide the information needed to populate the PedNSS (Pediatric Nutrition Surveillance System) and PNSS (Pregnancy Nutrition Surveillance System) files. This data is aggregated by the CDC to give each WIC program better information for program review.

Further primary data came from interviews, focus groups, surveys and public hearings.

Determining Priorities for Massachusetts (Linkages between Assessment, Capacity, and Priorities)

The MDPH Project Team, along with a Steering Group of senior health leaders and other stakeholders, reviewed several iterations of the state priorities, each time informed by the latest data and stakeholder feedback. At the beginning, the Project Team developed a large list of potential priorities for Massachusetts that the team refined through analysis, interviews, and focus groups to determine the state's top priorities. These priorities included priorities from the 2005 Needs Assessment as well as new ideas that emerged from the discussion of trends and the knowledge of participants in the process. The team also compared Massachusetts proposed priorities to those identified in other states' MCH Needs Assessments.

Throughout the process, the Project Team came back to the third principle of using both the life course and health equity models of public health care to guide discussion and focus on the core issues being considered.

Public Health Framework

Two public health models were applied to the discussion of priorities and state measures: the Life Course Model and the Healthy Equity Model. The Life Course Model¹ of maternal, child and adolescent health posits that a complex interplay of

¹ Based on the work of Michael Lu and Neal Halfon

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biological, behavioral, psychological, and social factors impact health outcomes across the span of a person's life. These factors can be either protective or harmful. Furthermore, the health and socioeconomic status of one generation directly affects the health status of the next generation. Two key components of the life course model include: 1) understanding the pathways and trajectories that lead to a multitude of health outcomes, and 2) focusing on the impact of early programming or exposure to risk that may have long term health consequences. The model also suggests that there are critical or sensitive periods of development that may lend themselves to more effective interventions.

The Health Equity Model underscores that disparities exist in individual as well as population health outcomes due to differential access to economic opportunities, community resources and social factors. Economic opportunities may include adequate income, jobs and educational opportunities. Community resources may include access to quality housing, quality schools, recreational facilities, healthy foods, transportation resources, health care and a clean and safe environment. Social factors may include social network and support, leadership, political influence, organizational networks and experience of racism. The role of public health is to establish public policy to achieve health equity and promote population based strategies.

Dissemination

Findings and priorities were disseminated through ongoing engagement with stakeholders and through a public hearing process. Stakeholders were informed of the Needs Assessment process and findings to date in every interview and focus group. The Steering Group were a key resource for distributing findings, as they reported to each of their respective staff. The Steering Group will be a major distributor of the final Needs Assessment findings, priorities, and measures.

The final version of the Needs Assessment, Priorities, and Measures - in addition to the annual block grant submission - will replace the previous Needs Assessment and annual submission on the Massachusetts MCH Block Grant Information and Program Links website, which is part of Mass.gov.

Strengths and Weaknesses of Process

MDPH's approach to the Needs Assessment was comprehensive and inclusive. MDPH allocated significant resources to create a truly comprehensive Needs Assessment which began more than a year before the final submission date to arrange resources and identify a clear approach to guide activities. The approach included significant stakeholder input to be incorporated throughout the process. The multi-tiered advisory and working groups allowed comprehensive discussion at both strategic and practical levels. This interaction has also continued the building of relationships within MDPH and between MDPH and the community.

Given the many strengths, a potential weakness was having the Needs Assessment performed by an internal group. Contracting with external researchers to perform the entire Needs Assessment would have arguably reduced bias toward or against specific populations. However, this approach would have reduced the partnership building post-

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Needs Assessment as the outreach and feedback process of the Needs Assessment helps encourage longer term coordination as activities supporting the priorities are executed over the next five years. In an effort to reduce the downside of an internally driven Needs Assessment process, BFHN engaged the Ripples Group to support the assessment and facilitate a more comprehensive view from different perspectives.

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2. Partnerships and Collaborations

MDPH has built a network of partnerships with state and local agencies which collaborated with MDPH during the Needs Assessment and will participate in the ongoing implementation of MCH programs. A comprehensive list of affiliated organizations is in Appendix 3 and in the MCH Application section 3E “State Agency Coordination” and includes other HRSA programs, governmental agencies, and private organizations. In addition to these partnerships, MDPH works closely with programs within the Department of Public Health who coordinate services across the direct and population based services. As both MDPH and external partners - such as community health centers, hospitals, and local programs - are a crucial aspect of service delivery, the project team sought ongoing feedback in developing MCH state priorities and measures. Some of these partners include:

- State and local MCH programs that were core to the execution of the needs assessment, as they are regularly called upon to give input and assist in strategic planning for the Title V agency
- Other HRSA programs who collaborate with the Title V Agency and are part of ongoing relationships that were leveraged for the Needs Assessment either as key informants and sources for the analysis of state capacity to provide services (e.g., Primary Health Care) or as representation on the Steering Group to advise the overall Needs Assessment process (e.g., HIV/AIDS)
- Other programs within the State Department of Health that have similar roles to the other HRSA programs mentioned above either as key informants, information sources, or serving as part of the Steering Group.
 - Two examples of note are the Bureau of Substance Abuse Services and the Bureau of Community Health Access and Promotion, which were important information sources and advisors
 - Another area of note are the several offices and programs (e.g., Registry of Vital Records and Statistics, Injury Surveillance Program, Health Survey Program/Behavioral Risk Factor Surveillance System) that played a more significant role in understanding the incidence and prevalence of health issues and helped guide the development of several of the new performance measures
- Other governmental agencies and other local public and private organizations that have ongoing collaborative roles with the Title V agency assisted in the Needs Assessment either through providing information that informed the understanding of ongoing and/or emerging issues in the state or through participation in key informant interviews

Stakeholders’ opinions were part of each step of the Needs Assessment process, from defining the initial set of priorities and developing population research areas, to assessing capacity and determining final priorities. Inclusive of surveys executed specifically for the Needs Assessment, approximately eight hundred stakeholders were engaged to provide feedback for the Needs Assessment, with over 90% of those coming

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from outside MDPH. While stakeholder engagement required more expense in time and effort, it was critical to get this level of involvement to ensure the resulting priorities would be relevant to the populations served.

The collaboration and coordination involved in the Needs Assessment is an outgrowth of the ongoing collaboration with the community and within the state throughout the year. The ongoing collaboration with other bureaus within MDPH allowed for a strong advisory Steering Group with representation from each of the bureaus working directly with the MCH populations.

The Massachusetts Title V program uses the Life Course perspective to focus close attention on the needs of at-risk and under-served populations at critical life transition points and time periods. The program uses a health equity perspective to mitigate the impact of unequal access to health. Both perspectives require close attention to emerging trends and understanding of individual family needs through stakeholder involvement.

The project team conducted 88 interviews of representatives from programs, providers, and agencies to gain insight into their needs and their impressions of services provided to date. The interviews focused on individual population needs to inform priorities. For state, local program, and provider stakeholders, interviews included questions on their capacity to serve the MCH populations, such as data systems, methods of external engagement, workforce development and needs, and ability to respond to emerging and crisis public health issues. Individuals interviewed for the Needs Assessment included representatives from a wide variety of programs, agencies, and institutions supporting the needs of MCH populations, including the following examples:

- Bay State Medical Center, Maternal & Fetal Medicine
- Boston Public Health Commission
- Boston University School of Public Health
- Boston Thrive in 5
- Bureau of Substance Abuse Services
- Care Coordination Program
- Catalyst Center for CYSHCN
- Center for Families at Children's Hospital Boston
- Center for the Study and Prevention of Injury, Violence, and Suicide
- Children's Hospital Boston
- Early Intervention
- Education Development Center Inc.
- Family to Family Health Information Center
- Family Planning Program (Title X)
- Federation for Children with Special Needs
- Head Start
- Healthy Start Initiatives in Boston and Worcester
- Injury Prevention and Control Program
- Institute for Health & Recovery
- Massachusetts Alliance on Teen Pregnancy
- Massachusetts Breastfeeding Coalition
- Massachusetts Center for Birth Defects Research and Prevention

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- The Massachusetts Consortium for CYSHCN (closed in 2009)
- MASSTART
- Office of Oral Health
- Partners for Youth with Disabilities
- Pediatric Palliative Care Program
- Perinatal HIV/AIDS Program
- Refugee and Immigrant Health Program
- Safe Spaces for GLBT Youth
- WIC

Fifteen focus groups of consumers also informed the assessment and gave a more complete picture of current needs or reactions to potential priorities for the next five years. The focus groups were conducted strategically across the state to represent different locations, income levels, cultures, and health care needs. These included the following:

CYSHCN

- Spanish Speaking Families of children with special health care needs to gain insight into navigating multiple systems of care for their families (Western MA – 15 participants)
- Parents of EI participants to understand the challenges of navigating the early childhood system of care (Natick – 10 participants)
- Western Massachusetts youth with disabilities, many of whom were in the process of transitioning to adulthood, to gain perspective on living with disabilities in a lower income area which has many rural services (YAC/ Springfield – 7 participants)

Maternal

- Urban WIC participants to gain perspective on low income and racially diverse new mothers (WIC Cambridge – 6 Participants)
- Suburban mothers to gain perspective on maternal and infant health needs for a predominately white, middle class area of the state (Needham – 20 Participants)
- Teen mothers from an economically depressed urban high school to underscore the challenges and needs of being a young mother while remaining in school (Fall River – 12 Participants)
- Three focus groups with urban Black and Hispanic mothers in Western Massachusetts in low-income communities to understand their experience of racism in the health care system (Western MA – 27 Participants)

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- Six focus groups focusing on the different needs of the maternal home visiting population, EIPP (Somerville and Fall River – 48 participants)
 - Two groups of low-income women to understand their challenges in finding support and care for postpartum depression
 - Two groups of women who experienced domestic violence to gain insight into community and social systems response
 - Two groups of low-income women who recently gave birth to understand their experiences as new mothers

The project team created two survey instruments for the adolescent population and for families with youth with special health care needs to help provide quantitative feedback on the issues facing those populations and to complement the existing PRAMS survey of women who have recently given birth. The youth survey was critical as one of the main venues for feedback, especially on violence and bullying, from the adolescent population. It had nearly 200 respondents, with the majority collected during the Connecting for Change conference for youth leaders across the state. The CYSHCN survey provided insights into families understanding of available resources and the need for transition and mental services among other issues which are more detailed in section 3D.

Finally, the findings of the Needs Assessment were opened to public feedback via posting on the state website and through public hearings to allow members of the community to publicly voice their questions, opinions and concerns. Public Hearings occurred in the following locations:

Region	Venue
Central	Worcester Public Library
Northeast	Tewksbury Hospital
Western	Holyoke Health Center
Boston	Department of Public Health Main Office
Southeast	Southeast Regional Office in New Bedford
Metro Boston	Needham Public Library

Figure 2-1

The collaboration process relied heavily on pre-existing partnerships and relationships that MDPH has built over time. The Needs Assessment timeframe does not give sufficient time to build solid relationships with stakeholders but it does provide several opportunities to begin or build upon existing relationships. The Project Team used the external interview process to engage with many members of the provider

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community, as well as focus groups to engage with families. The next Needs Assessment will likely have even greater input, as the Children with Special Health Care Needs Program further develops its list of essential allies.

Collaborations are further detailed in population sections where the results of the focus groups and survey findings are presented in further detail.

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Massachusetts Introduction

Massachusetts has long been at the forefront of public health. The State's population overall has high levels of income and education built upon a diversified economic base. These advantages have translated into a history of good availability and access to health services including a history of strong support for funding of health and social service programs. "During the 1700's, the smallpox inoculation was pioneered, the first pure food legislation was enacted and the first public clinics were opened."¹ More recently, the state has served as a model for the nation by instituting comprehensive health care reform, significantly reducing the ranks of the uninsured and requiring all residents to have health insurance.

According to Milton Kotelchuck, Chair Emeritus and Professor at the Boston University School of Public Health, maternal and child health status in Massachusetts is good, "especially compared with to U.S. national rates."² However, there still remains room for improvement. Infant mortality rates have not improved since 2000 and low birth weight and prematurity rates have deteriorated in the past decade. As a result of these and other factors, the need for special health and educational services, especially early intervention, has increased.

A significant trend in Massachusetts, as well as in many other parts of the country, is that births have become more diverse in terms of maternal race, ethnicity and age. At the same time, disparities in maternal and child health outcomes, according to Kotelchuck, and many others, "remain glaring."³ Many social determinants of health, including income, education, ethnicity and related, well known factors have contributed to these disparities.

3A. State Overview Demographics

Geography and Demographics

Massachusetts is the 15th largest state by population, based on 2008 estimates.⁴ In recent years, international migration into the state and births by foreign-born mothers have nearly offset the migration out of the state. The estimated population of Massachusetts grew by 2.3% between 2000 and 2008.⁵ The Commonwealth's 6,497,967 residents included the following:

- 15.9% (1,033,950) females aged 0-24 years
- 16.2% (1,058,962) males aged 0-24 years
- 13.8% (895,299) women aged 25-44 years⁶

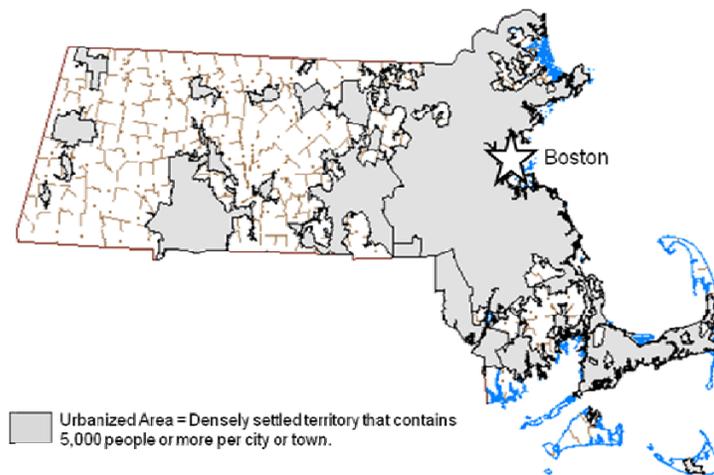
Residents live in a wide mix of urban, suburban and rural areas. The eastern part of the state, excluding Cape Cod and the Islands, is relatively dense and urbanized compared to the west, which is mostly rural. According to 2008 census estimates, nearly 63% (4,103,594) of the Massachusetts population lives within the group of eastern counties immediately surrounding and including Boston.⁷ The largest cities in the state are:

- Boston in the east (pop. 609,023),⁸ the state capital
- Worcester in central Massachusetts (pop. 175,011)⁹

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- Springfield in the west (pop. 150,640)¹⁰
- Cambridge in the east (pop. 105,596)¹⁰
- Lowell in the northeast (pop. 103,615)¹⁰

Population centers in the state include cities now challenged by economic downturns in agriculture, manufacturing, fishing, and most recently the financial downturn impacting the value of housing. These areas include Worcester, Springfield, and Lowell.



Source: Oliver MassGIS Viewer MA, 2000 Urban Boundaries

Figure 3A-1

Two islands, Martha's Vineyard and Nantucket are located 5 and 16 miles off the Cape Cod shore. With a combined year-round population of approximately 27,000¹¹ and a summer population that swells to five times that number, these rural island communities face challenges in meeting their health care needs similar to the rural areas in other parts of the state.

Rural areas predominate in the western section of the state, where the Berkshire Mountains separate many small towns with limited health services. Franklin County in the northwest has just 102 people per square mile.¹² Less than a fifth of Massachusetts' residents live in communities that cover about 65% of the state's landmass.¹³

In addition to geographic barriers, the western part of the state has economic challenges. Farming is still an important industry in rural areas, which is based on small landholdings and dependency on local markets. Manufacturing has declined gradually for over a century, and many companies have moved out of the state for lower wages and better access to transportation. The economic decline in many areas translates into lower investment in and access to health services.

The entire state is divided into 351 cities and towns, which are the functioning units for most local services, including public health, below the state level. There are no county health systems. However, the Department of Public Health grouped the Commonwealth's cities and towns into 27 *Community Health Network Areas (CHNAs)*.

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In each CHNA, health and human service providers collaborate with residents to engage in systematic community planning, and build on existing coalitions and cooperative efforts.

Immigration and Race/Ethnicity Trends

The race and ethnic make-up of Massachusetts has changed dramatically since the mid-twentieth century. In 1950, one out of 50 people was non-White; today, one in five is non-White. According to 2008 Census estimates, racial and ethnic minorities constituted 21% of the Massachusetts population (non-Hispanic Blacks 5.9%, Hispanics 8.6%, non-Hispanic Asians 4.9%, and two or more races 1.2%). This is a change of 4% since 2000 with a nearly 2% overall increase in the portion of Hispanics. In 2000, minorities constituted 17% of the population (Non-Hispanic Blacks 5.5%, Hispanics 6.8%, Asians 3.8%, and two or more races 0.9%).

By 2010, Massachusetts' population is projected to increase moderately to 6,649,441 with minority populations continuing to account for a large portion of population growth. In several Massachusetts communities, including Boston, minority groups now constitute the majority of the population.

Massachusetts continues to rank 8th in the U.S. in its population of foreign-born persons. The percent of foreign-born residents increased from 12.2% to 14.2% from 2000 to 2007.¹⁴ According to a 2007 report from the Pew Hispanic Center, among foreign-born persons in Massachusetts:

- 35% were from Latin America
- 27% were from Asia
- 27% were from Europe
- 7% were from Africa
- 4% were from North America¹⁵

The large percentages of immigrants coming from Latin America, Asia, and Europe challenge providers of health services to accommodate diverse language and cultural backgrounds. The following chart presents the top five countries of origin based on world region of birth.

World Region of Birth	Top 5 Countries	As % of Region
Europe	1. Portugal 2. Italy 3. United Kingdom 4. Ireland 5. Russia	1. 26.8% 2. 11.4% 3. 10.2% 4. 7.2% 5. 7.0%

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World Region of Birth	Top 5 Countries	As % of Region
Asia	<ol style="list-style-type: none"> 1. China 2. Vietnam 3. India 4. Cambodia 5. Korea 	<ol style="list-style-type: none"> 1. 19.5% 2. 15.1% 3. 13.9% 4. 6.8% 5. 6.7%
Africa	<ol style="list-style-type: none"> 1. Western Africa (Other than Sierra Leone, Nigeria and Ghana) 2. Eastern Africa 3. Northern Africa 4. Sierra Leone 5. Ghana 	<ol style="list-style-type: none"> 1. 42.5% 2. 15.7% 3. 13.7% 4. 7.1% 5. 6.2%
Americas	<ol style="list-style-type: none"> 1. Dominican Republic 2. Canada 3. Brazil 4. Haiti 5. El Salvador 	<ol style="list-style-type: none"> 1. 17.2% 2. 14.8% 3. 13.5% 4. 6.8% 5. 6.8%

Figure 3A-2

Estimates of the number of immigrants and refugees, especially unauthorized immigrants, vary due to the inherent difficulty in counting changing populations whose language is not English. These individuals who experience cultural isolation are often reluctant to talk to outsiders, especially those who have questions about immigration status. A PEW study estimated the unauthorized immigrant population in the Commonwealth at 190,000, ranking the state as 14th in unauthorized immigrants, directly behind Maryland, Colorado, and Nevada.¹⁶

Twenty percent of Massachusetts residents spoke a language other than English at home based on the 2007 census survey. Among those aged 5 years and older, 34% spoke Spanish at home, which represents the largest second language group. Among all those that speak a language besides English at home, 43% report speaking English ‘less than very well’.

- 45% of Spanish native speakers are “less than well” fluent in English.
- 50% of Asian and Pacific Island native speakers are “less than well” fluent in English.¹⁷

Unfortunately in the Commonwealth, racial and ethnic differences often correlate with economic and health differences. Minority populations in Massachusetts in many cases have a lower socioeconomic status and have less access to services, including opportunities for exercise and access to healthy foods, in addition to preventative health services.

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- Thirty-nine percent of those living below 100% FPL in Massachusetts are minorities, nearly twice as many as in the population as a whole.
- Forty-one percent of Hispanics and 30% of blacks live under 100% FPL in Massachusetts.

The high cost of living in the state challenges low income and minority populations. Massachusetts has a lower portion of the population living under 200% of the FPL compared with the nation (31% versus 36%), but it has a higher median annual household income.¹⁸ As a result, housing and food costs are higher than in many other states. For example, a worker earning minimum wage (\$6.75) would have to work 134 hours a week to afford a two-bedroom apartment in Boston.¹⁹ The challenge for low income individuals to maintain living standards in the state translates into decreased ability to move out of their current socio-economic class.

While Massachusetts health care reform, especially in health insurance, has enabled low-income and minority populations to have dramatically improved access to health care services, their effect on well-documented disparities in health outcomes for minorities have yet to be fully measured. Health insurance is readily available, but the demand on primary care has underlined primary care provider shortages. Further, much of the current health care system is unable to deal with linguistic and cultural differences of many of the newly insured. These challenges continue to threaten the opportunity for many low income groups to achieve parity with the state's average health outcomes. As a result, disparities in health outcomes are a consideration in all priorities and activities of the Massachusetts Title V agency.

The following sections discuss the MCH populations in more detail by population with a focus on areas of disparity and how disparities impact the overall health outcomes of the state.

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3B. Pregnant Women, Mothers and Infants

Overview

Demographics

In 2008, there were 1,357,864 women (20.9% of the state's 6,497,967 estimated population) aged 15-44 years residing in Massachusetts, representing the population of women of childbearing age in the state.¹ The characteristics of this female population were the following:

Race/ethnicity

• White non-Hispanic	1,028,230	(75.7%)
• Black non-Hispanic	97,246	(7.2%)
• Asian non-Hispanic	89,430	(6.6%)
• American Indian non-Hispanic	3,562	(0.3%)
• Hispanic	139,406	(10.3%)

Age groups

• 15-19 years	228,275	(16.8%)
• 20-24 years	234,290	(17.3%)
• 25-29 years	212,131	(15.6%)
• 30-34 years	201,193	(14.8%)
• 35-39 years	228,610	(16.8%)
• 40-44 years	253,365	(18.7%)

Educational attainment²

Among women aged 18-24 years:

- 10.0% have less than a high school education
- 27.9% are high school graduates (including equivalency)
- 44.7% have some college education or an associate's degree
- 17.3% have a bachelor's degree or higher

Among women aged 25 years and over:

- 4.9% completed less than 9th grade
- 6.2% completed 9th-12th grade but do not have a diploma
- 27.2% are high school graduates (including equivalency)
- 16.0% have some college education, but no degree
- 8.7% have an Associate's degree
- 21.5% have a Bachelor's degree
- 15.4% have a Graduate or professional degree

A brief note on BRFSS derived data referenced below:

The Behavioral Risk Factor Surveillance System (BRFSS) is a continuous, random-digit-dial, landline-only telephone survey of adults ages 18 and older and is conducted in all states as a collaboration between the federal Centers for Disease

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Control and Prevention (CDC) and state departments of health. The survey has been conducted in Massachusetts since 1986. The BRFSS collects data on a variety of health risk factors, preventive behaviors, chronic conditions, and emerging public health issues. The information obtained in this survey assists in identifying the need for health interventions, monitoring the effectiveness of existing interventions and prevention programs, developing health policy and legislation, and measuring progress toward attaining state and national health objectives.

Each year, the BRFSS includes a core set of questions developed by the CDC on health status, health care access and utilization, overweight and obesity status, asthma, diabetes, immunizations, tobacco use, alcohol consumption, HIV/AIDS testing, and other selected public health topics. In addition to the core CDC questions, the Massachusetts Health Survey Program, in collaboration with Massachusetts Department of Public Health programs, added a number of topics to the surveillance instrument including environmental tobacco exposure, disability and quality of life cancer survivorship, sexual violence, and other selected topics. Interviews are administered in the respondents' preferred language, with a choice of English, Spanish, or Portuguese.

All percentages from the BRFSS data are weighted to the total Massachusetts population. The weighting adjusts for both the probability that an individual is selected to participate in the survey and differential participation by sex, age, and race-ethnicity. The BRFSS data are weighted to take into account differences in probabilities of selection due to the telephone number, the number of telephones in a household, and the number of adults in a household. Adjustments are also made to account for non-response and non-coverage of households without landline telephones. All the weighting factors are multiplied together to get the final weight for each respondent so that the weighted BRFSS data represents the adult population of Massachusetts.

Massachusetts sample design includes three questionnaires (versions or "splits"), to allow for an increase in the number of questions asked without an increase in the length of the survey. Beginning in 2008, additional weights have been calculated for use with questions that are asked on only one version ("split") of the questionnaire.

The intent of these "split weights" is to obtain a more accurate estimate of prevalence for health indicators that are asked of only a portion of the survey respondents. The 2008 BRFSS contained three splits: split 1 contained 6,802 respondents, split 2 contained 6,945 respondents, and split 3 contained 6,812 respondents.

Health Insurance and Access to Care

Insurance coverage and affordability affect access and use of health care. According to the 2006-2008 BRFSS data, 96.5% of women aged 18-64 years reported having health insurance, 80.9% reported that they had a checkup within the past year, and 7.3% reported that cost prevented them from seeing a doctor at some point within the past year. The percentage of women reporting that cost prevented them from seeing a doctor at some point within the past year by age was as follows:

- 14.2% among women aged 18-24 years
- 9.8% among women aged 25-29 years
- 7.3% among women aged 30-34 years

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- 8.3% among women aged 35-39 years
- 7.4% among women aged 40-44 years
- 8.9% among women aged 45-49 years
- 7.6% among women aged 50-54 years
- 5.8% among women aged 55-59 years
- 5.1% among women aged 60-64 years

The percentage of women reporting that cost prevented them from seeing a doctor at some point within the past year was more than two times greater among Black non-Hispanic and Hispanic compared to White non-Hispanic:

- 6.0% among White non-Hispanic
- 13.1% among Black non-Hispanic
- 16.8% among Hispanic
- 7.3% among Asian

The percentage of women reporting that cost prevented them from seeing doctor at some point within the past year was more than two times greater among women with less than high school and one and half times greater among women with a high school diploma or some college compared with women with a college degree or more. The percentages were the following:

- 13.5% among women with less than high school
- 8.9% among women who completed high school
- 8.4% among those who completed 1-3 years of college
- 4.8% among those who completed more 4 or more years of college

The percentage of women reporting that cost prevented them from seeing a doctor at some point within the past year also varied by income:

- 16.2% among women with an annual income below \$15,000
- 12.0% among women with an annual income between \$15,000-24,999
- 11.3% among women with an annual income between \$25,000-34,999
- 9.5% among women with an annual income between \$35,000-49,999
- 5.7% among women with an annual income between \$50,000-74,999
- 2.6% among women with an annual income of \$75,000 or more

The following statistics from the 2007-2008 Massachusetts PRAMS surveillance report, the 2008 Massachusetts birth certificates, and the 2006-2008 MA BRFSS highlight key points regarding current trends in the insurance status and health care access of women of childbearing age in Massachusetts:^{3,4,5}

- 13.9% of postpartum women reported having no health insurance prior to their pregnancy; 65.9% reported having private/HMO insurance coverage; 11.0% reported having Medicaid only; and 9.2% reported having Medicaid and private insurance coverage pre-pregnancy (PRAMS 2007-2008)
- Based on the 2008 Birth Report, the distribution of prenatal care payment was the following:

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- 63.6% private
- 35.2% public
- 0.5% self-paid
- 0.7% other
- Statewide in 2008 Medicaid/MassHealth funded 25.9% of prenatal care; Medicaid/MassHealth supported prenatal care for about half of Black and Hispanic, 19.7% of Asian, and 19.0% of White mothers (2008 Birth Report)
- Among all state resident women aged 18-44 years, 11.7% reported not having a personal care provider and the percentage of individuals with a personal care provider increased with age. Hispanic (22.0%), Black (13.4%), and Asian (12.1%) were less likely than White (10.1%) to have a personal care provider (2006-2008 BRFSS)
- Cost was identified as a primary barrier to accessing a care provider. Women aged 18-24 years were more likely to report cost as a barrier (14.2%) compared to women aged 25-29 years (9.8%), 30-34 years (7.3%), 35-39 years (8.3%), and 40-44 years (7.4%) (2006-2008 BRFSS)

Data from a 2010 joint study (Blue Cross Blue Shield and the Urban Institute) demonstrated that health care reform in Massachusetts has helped to increase access and utilization of health insurance and health care services for many women, particularly low-income women, minority populations, and women who were more likely to lack access prior to reform.⁶

- Lower-income women realized a 9.4% gain in insurance coverage, from 85.1% in fall 2006 to 94.5% in fall 2009
- Insurance coverage for racial/ethnic minority women increased from 89.6% in 2006 to 95.5% in 2009, gaining 5.9%
- The percentage of lower-income women who visited a doctor in the past 12 months increased by 8.4%, from 81.4% in 2006 to 89.8% in 2009
- For minority women, the percentage with a doctor visit was up by 10.6% under health reform, from 75.3% in 2006 to 85.8% in 2009

Despite significant gains, many challenges and barriers remain which prevent women from obtaining health care coverage or accessing health care services (such as finding a provider or meeting a health care need). This is particularly true for younger women, low-income women, and minority populations.⁷

- In the fall of 2009 an estimated 60,000 women remained uninsured:
 - 36.7% of uninsured women were ages 18-25 years
 - 78.1% of uninsured women lived between 100% and 300% of the federal poverty line
 - 30.7% of uninsured women were of minority status
 - 26.4% reported being in fair or poor health, nearly double that of insured women (13.9%)
- The following groups of women were more likely to experience barriers to accessing health care services: mothers with dependent children, single

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women (unmarried), women whose family income was between 100%-300% of the federal poverty level, and women in poor health. In 2009:

- 43.6% of single women had an unmet health care need and 43.4% of single women had difficulty finding a provider
- 37% of families between 100%-300% of the federal poverty level had an unmet health care need and 34.7% had difficulty finding a provider
- 25.3% of women in fair or poor health had an unmet health care need and 18.9% had difficulty finding a health care provider

Other challenges became apparent during a set of focus groups that were conducted with women in three communities: Cambridge, Needham, and Fall River, Massachusetts. Many questions focused on women's experiences of the perinatal health care they received. In regards to insurance and access to health care, women reported a desire for stronger continuity of care, especially before and after the six week postpartum visit. Focus group participants felt that many services were lacking or hard to access including support groups for new moms, support groups for mothers focused on social-emotional support, home-visits for mothers following delivery and discharge from the hospitals, support groups or other services for new fathers facilitated by male educators, and family-oriented resources. Focus group participants expressed the need for a centralized locale or access to available resources such as a website.

A fourth set of focus groups, conducted with participants of the Fall River and Cambridge/Somerville Early Intervention Partnership Programs (EIPP) specifically asked women about their experiences with their health care provider. In regards to provider-client engagement, participants voiced a desire for more active listening by providers when they ask additional questions, carefully probing for more information, and making eye contact.

3B.1 Massachusetts Births: Numbers, Rates, and Demographics

Number of Births/Birth Rate

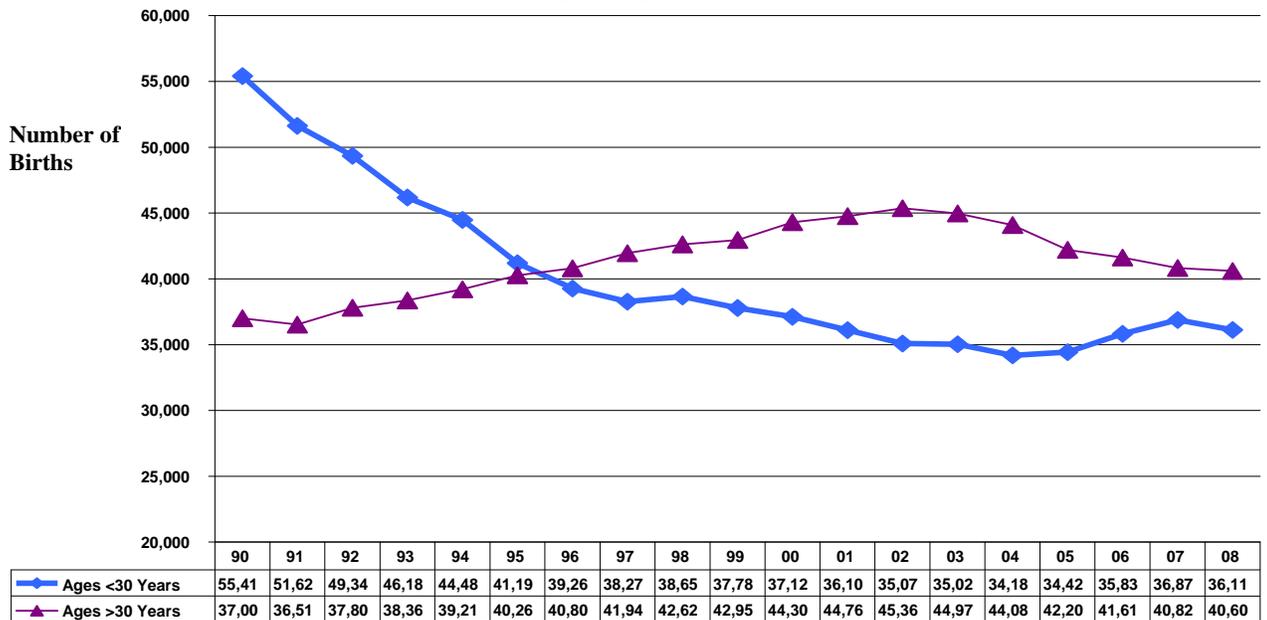
In 2008, the most recent year for which birth data are available, the number of births to Massachusetts residents was 76,969, down from 77,934 in 2007.⁸ The number of births to Massachusetts residents has declined by 16.8% since 1990 when births totaled 92,461. The birth rate (the total number of births per 1,000 women aged 15-44 years) declined by 9% between 1990 and 2008 from 62.1 to 56.5.⁹ The 2007 Massachusetts birth rate was 19% below the national fertility rate of 69.5 per 1,000 women aged 15-44 years.¹⁰ Several significant changes were observed in the characteristics of mothers giving birth in Massachusetts:

- American ancestry declined by 948 (3.0%) between 2007 and 2008
- Asian Indian ancestry increased by 193 (14.2%) between 2007 and 2008
- Middle Eastern ancestry increased by 113 (14.9%) between 2007 and 2008

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- Since 1980 the distribution of births to mothers aged less than 30 years versus mothers aged 30 years and older has changed notably. In 1980, approximately 25% of Massachusetts mothers were aged 30 and over; however, by 2008, this percentage more than doubled to 53%¹¹
- Births to women aged 30 years and less have been steadily declining [See Figure 3B-1 below]
- Massachusetts was the first state to have more births to women over the age of 30 than to those under 30
- The birth rate to women aged 40-44 years increased from 6.9 in 1990 to 13.0 in 2008
- The birth rate to women aged 45 years or older increased from 0.3 to 0.8 per 1,000 women aged 45-49 during this same period.¹² The health and social implications of this shift are yet not fully understood, and will be monitored closely

**Number of Births by Mother's Age:
Massachusetts 1990-2008**



Source: MDPH, Bureau of Health Information, Statistics, Research and Evaluation

Figure 3B-1

Births by Race/Ethnicity and Mother's Place of Birth

Between 1990 and 2005, the overall number of births in the state decreased by 16.9%, from 92,461 to 76,824. Between 2005 and 2007, there was a slight increase (1.4%) in the total number of births across the state. The breakdown of the 2008 births among Massachusetts residents by race/ethnicity was as follows:

- 67.2% White non-Hispanic
- 14.2% Hispanic

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- 8.6% Black non-Hispanic
- 7.7% Asian
- 2.2% American Indian or other¹³

The percentage of births to non-U.S.-born mothers in 2008 was 27.7% and did not change significantly from the 2007 figure of 27.2%.

Of the 51,760 births to White, non-Hispanic women in Massachusetts in 2008:

- 13.0% were to women born in countries other than the US
- 0.2 % were to women born in the U.S. Territories

Among the 10,895 births to Hispanic mothers:

- 47.4% were to foreign-born women
- 17.1% were to women born in the U.S. Territories

Among the 6,652 births to Black, non-Hispanic mothers:

- 51.3% were to foreign-born women
- 0.2% were to women born in the U.S. Territories

Among the 5,958 births to Asian women:

- 86.2% were to foreign-born women

Among the 1,562 births to mothers who designated themselves as American Indian or other race:

- 57.2% were to non-U.S.-born women¹⁴

Teen Births

In 2008, there were 4,583 births among women aged 15-19 years, a decrease of 361 births from 2007. The Massachusetts teen birth rate decreased from 22.0 births per 1,000 women aged 15-19 years in 2007 to 20.1 in 2008 [See Figure 3B-2 below].¹⁵ In 2008, the Massachusetts teen birth rate was 53% below the 2007 U.S. teen birth rate of 42.5 births per 1,000 women aged 15-19 year.¹⁶ The distribution of teen births in 2008 was as follows:

- 30% of teen births were to women aged less than 18 years (1,401 births)
- 70% were to women aged 18-19 years (4,623)
- Compared with 2007, births to women aged 18 years and under decreased and births to women aged 19-20 years increased significantly in 2008
- The number of births to young teens (aged 10-14 years) was 40 in 2008 compared with 49 in 2007, but this was not a significant decrease
- Teen birth rates decreased for White non-Hispanic, Hispanic, and Asian women but not for Black non-Hispanic women
- Compared with 1998, 2008 birth rates for all race and ethnicity groups declined significantly: from 16.7 to 11.7 among White, non-Hispanics; from 71.5 to 32.4 among Black, non-Hispanics; from 121.6 to 66.7 among Hispanics; and from 26.5 to 13.0 among Asians
- Of the 4,619 teen (< 20 years of age) births occurring across the state in 2008, 2,035 (44.1%) were births to White, non-Hispanic mothers, 592 (12.8%) to Black, non-Hispanic mothers, 1,696 (36.7%) to Hispanic mothers, and 296 (6.4%) to mothers of Asian, American Indian, other or unknown race and ethnic descent

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Some Massachusetts communities have teen birth rates that are consistently higher than the statewide rate of 20.1 per 1,000 teens aged 15-19 years (up to three to five times the statewide rate). Communities with the highest teen birth rates in 2008 included:

- Holyoke: 115.3 per 1,000 teens aged 15-19 years
- Chelsea: 97.0 per 1,000 teens aged 15-19 years
- Lawrence: 80.9 per 1,000 teens aged 15-19 years
- Springfield: 61.4 per 1,000 teens aged 15-19 years
- Southbridge: 60.9 per 1,000 teens aged 15-19 years
- Worcester: 36.5 per 1,000 teens aged 15-19 years

Public health science recognizes the relationship between health outcomes, social conditions, community culture and perceptions, and individual characteristics and beliefs. All of these factors influence pregnancy rates and reproductive choices of teens at the national, state, community and individual levels. We collect universal and accurate information about teen births. Therefore we can precisely discuss teen births as a marker for all teen sexual behavior. However, we know that there is a cascade of intermediate health outcomes on the way to a teen birth, each of which may pose risks to teen health (whether or not a birth occurs) and each of which, conversely, offers opportunities for prevention.

In each of the six communities in the Commonwealth with the highest teen birth rates, the MDPH Office of Adolescent Health and Youth Development (OAHYD) funds and monitors teen pregnancy prevention programs which provide, through youth serving community based organizations or health centers, the following services to youth at risk for teen pregnancy:

- Evidence based teen pregnancy prevention curricula which specifically address teen pregnancy prevention and STI/HIV risk and protective factors
- Access to reproductive health care and reproductive health information
- Youth leadership and service learning opportunities
- Targeted programs for DCF involved and youth in foster care
- Services supporting parental and community involvement in reducing teen pregnancy risk
- Comprehensive site specific and cross-site evaluation of delivered programming

Community-based agencies and community health centers in these 6 communities are replicating science-based programs to prevent primary teen pregnancy, sexually transmitted infections (STIs) including HIV/AIDS, and early sexual activity among youth ages 10-19. Programs being replicated include "Making Proud Choices" an after-school culturally competent program model, "Teen Outreach Program (TOP)" a comprehensive service-learning program, "California Siblings Program" an intensive case-management program targeting siblings of parenting teens, "Focus on Kids" a community-based pregnancy risk reduction program and an adaptation to the CAS-Carrera adolescent pregnancy prevention model. These programs are culturally competent,

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science-based, medically accurate, and are designed to prevent teen pregnancy through comprehensive programming delivered through a public health approach.

The goal of the MDPH OAHYD Teen Pregnancy Prevention Program is to promote healthy behavior, responsible decision making and increased opportunities for at-risk youth. The guiding principle is the investment of all community members in increasing the awareness and ownership of the risks, costs and problems associated with teen pregnancy, in order to create local solutions. The health outcome goals of the program are:

- Increased abstinence and delayed onset of sexual activity among pre-adolescent and adolescent males and females
- Reduced rates of youth engaging in health-related risk behaviors including, but not limited to, risky sexual behaviors
- Decreased incidence of teen pregnancies and births, STDs, and HIV infection

Given the complex factors shaping teen sexual behavior and health outcomes, many programs of the Boston Public Health Commission (BPHC) are relevant to teen pregnancy. A subset of BPHC programs has teen health, including teen sexual behavior and reproductive health, as their major focus. Those are programs within the Bureau of Child, Adolescent and Family Health. They prevent adverse health outcomes for teens and offspring of teens and increase protective factors for teens and their children through four types of activities:

- Health education of teens and health leadership development among teens
- Personal preventive health services
- Health and supportive services for teens who do become pregnant and for their babies
- Infrastructure and capacity building to promote teen health

The birth rate for teens also varied by rural versus non-rural residence of the mother. Of the 4,583 teen births among women aged 15-19 years across the state in 2008:

- 4,021 (87.7%) occurred among non-rural communities
- 509 (11.1%) within rural communities

The percentage of births to teens aged 15-19 years with at least one prior birth was 11.9% in 2008; this percentage was 6.2% among females aged 15-17 years and 14.2% among females aged 18-19 years:

- In 2008, there were 567 births to teen mothers aged less than 20 years with at least one prior birth, down from 584 in 2007. Of these:
 - 280 (49.4%) had a short interpregnancy interval (less than 12 months)
 - 264 (46.6%) had an interpregnancy interval between 12 and 35 months
 - 23 (4.1%) had an interpregnancy interval equal to or greater than 36 months¹⁷

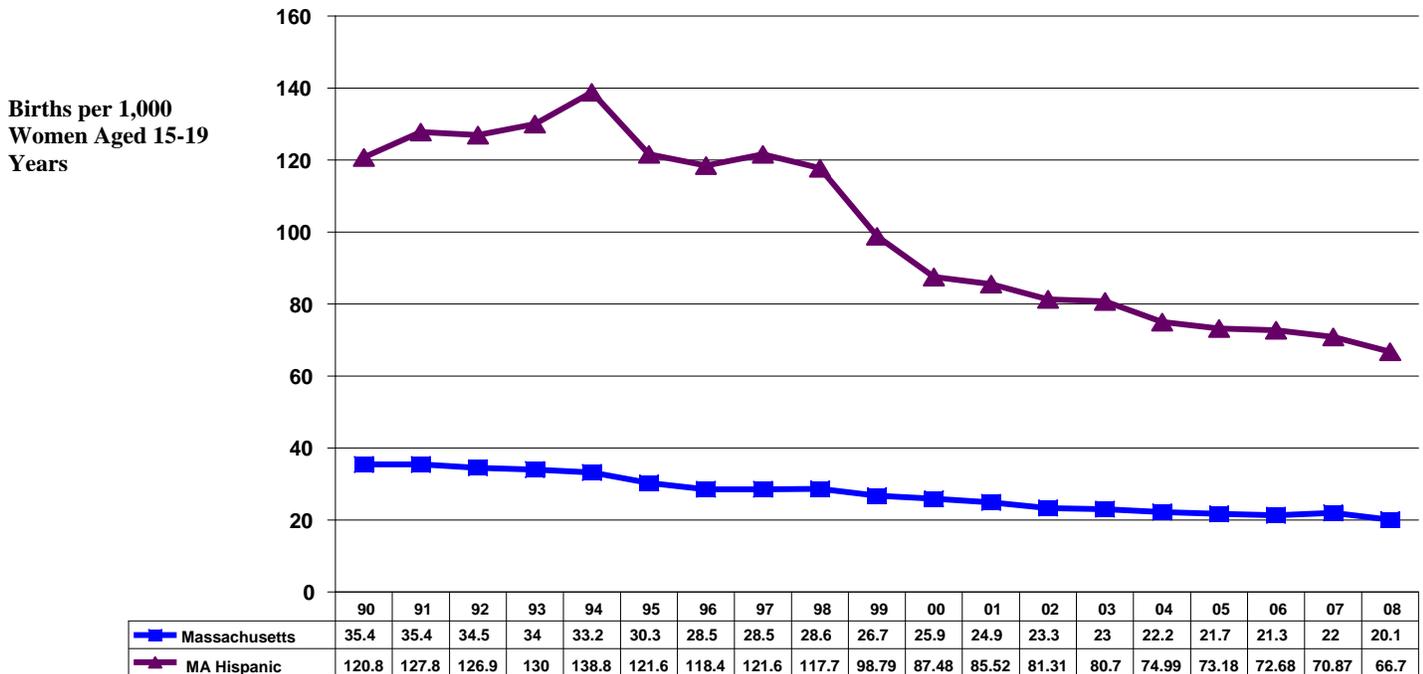
There are significant racial and ethnic disparities in teen birth rates in Massachusetts. In 2008, teen birth rates decreased for Whites, Hispanics, and Asians but not for Blacks. Even though the rates for Whites and Hispanic declined, the gap in the

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teen birth rate between Hispanics and White non-Hispanics increased with the Hispanic rate 5.7 times that of White non-Hispanic (66.7 vs. 11.7 per 1,000 women ages 15-19 years). Teen birth rates have been consistently higher among Hispanics compared to the statewide rates since 1990 [See Figure 3B-2].

For more than a decade, the Massachusetts Department of Public Health has been empowering communities with high teen birth rates through the annual release of community teen birth packets via the analysis of selected maternal and child health indicators. Previous responses to the packets, which target the most adversely affected communities, have been community mobilization to broaden public awareness as well as the establishment of strategic initiatives to address concerning issues or trends.

Teen Birth Rates among Hispanic vs. State Overall: 1990-2008



Source: MDPH, Bureau of Health Information, Statistics, Research and Evaluation

Figure 3B-2

Multiple Births

The overall percentage of Massachusetts births in 2008 that were multiples was 4.5%, compared with 4.3% in 2000. The percentage of multiples decreased by 6.3% between 2004 (4.8%) and 2008 (4.5%). However, since 2006, this percentage has remained largely stable.¹⁸ In 2008, the total number of multiple births was 3,494, approximately 4.5% of all births (3,365 twins and 129 triplets or higher-order multiples).

- The percentage of multiple births to mothers aged 35 years and older was 7.4%
- The percentage among women aged less than 35 years was 3.7%

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- The percentage of multiple births among women aged 35 years and older steadily increased between 1995 and 2002 from 5.0% to 7.9%. Since then, the rates have fluctuated between a high of 7.6% in 2005 and a low of 6.8% in 2007
- Among women aged less than 35 years, the percentage steadily increased between 1995 and 2004 from 2.9% to 4.0% and has remained stable at 3.7% from 2005 to 2008
- The percentage of multiple births continues to be highest among White non-Hispanic mothers (5.1%)
- The percentage of multiple births among Black, non-Hispanics increased from 3.1% in 2007 to 4.0% in 2008. There were no other significant changes in the percentage of multiple births by race and ethnicity during this time interval
- Of the 3,494 multiple births in Massachusetts in 2008, 53.8% percent of twins and 87.6% of higher-order multiples were low birth weight (LBW) compared to 5.5% of singletons during this same time period (LBW will be discussed in greater detail in a subsequent section)¹⁹

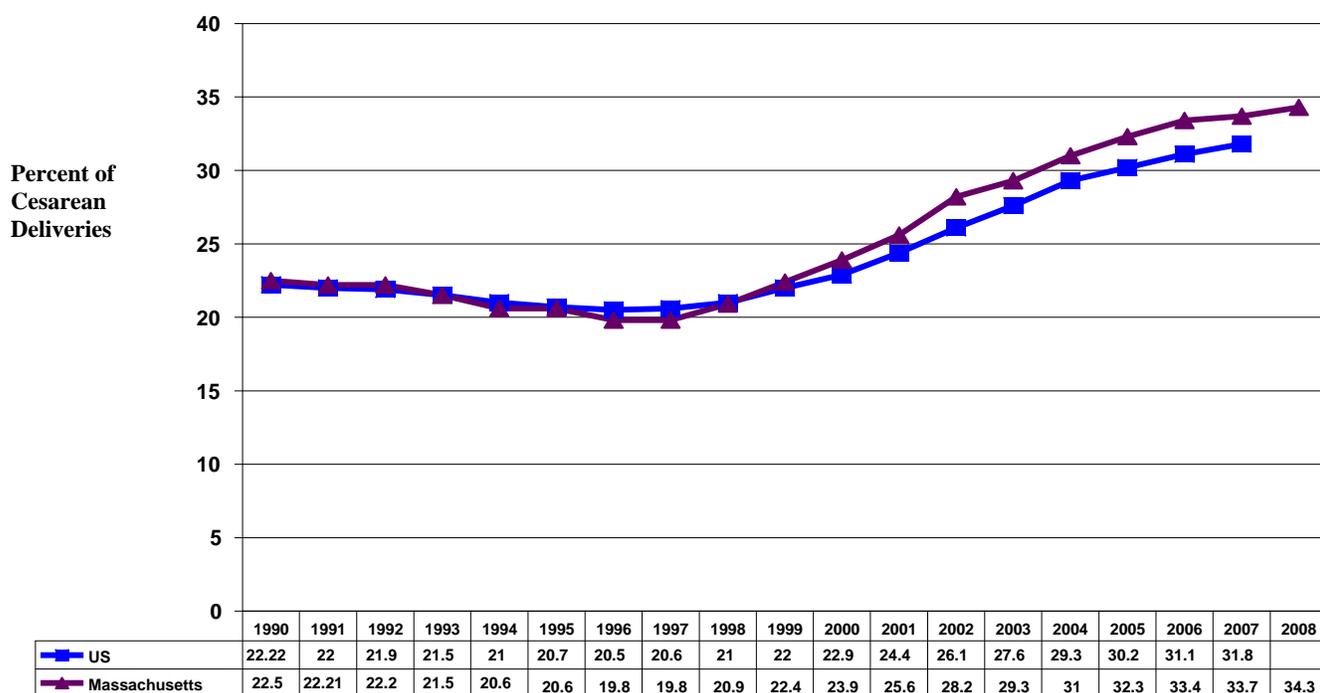
Method of Delivery

The percentage of births delivered by cesarean section has increased rapidly both nationally and in Massachusetts. The proportion of Massachusetts births that were cesarean deliveries in 2008 (34.3%) was 8% higher than the national rate of 31.8%.²⁰ Since 1990 the prevalence of cesarean delivery has demonstrated an overall annual percentage increase of 52.4%, an increase that is statistically significant at the $p \leq 0.05$ level [See Figure 3B-3 below]. However, for the second consecutive year, the cesarean delivery rate did not increase significantly from the previous year (2006: 33.4%; 2007: 33.7%; 2008: 34.3%). The cesarean delivery rate varied across Massachusetts hospitals, ranging from 19% to 47%.

- In 2008, the prevalence of cesarean delivery among low risk women with no prior cesarean was 29.6% compared to 15% for the HP2010
- Among low risk women with prior cesarean, the prevalence of cesarean delivery was 91.1% compared to 63% for the HP2010 goal

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Cesarean Deliveries in Massachusetts and the United States: 1980-2008



Source: MDPH, Bureau of Health Information, Statistics, Research and Evaluation

Figure 3B-3

The prevalence of cesarean delivery by racial and ethnic group did not change between 2007 and 2008:

- In 2008 Hispanic and Asian mothers continued to have the lowest cesarean delivery rates (29.3% and 31.6%, respectively)
- White non-Hispanic and Black non-Hispanic mothers continued to have the highest rates (35.5% and 35.4%, respectively)
- Brazilian mothers had the highest percentage of cesarean deliveries (43.4%), followed by Haitian and Portuguese mothers (39.8%)
- Guatemalan (21.7%), Cambodian (19.9%), and Honduran (19.8%) mothers had the lowest percentage of cesarean deliveries

Dr. Eugene Declercq and colleagues from the Boston University School of Public Health used data from the Massachusetts Pregnancy to Early Life Longitudinal (PELL) data system, which links Massachusetts delivery records (birth certificates and fetal death reports) with delivery-related hospital discharge records for both the mother and the child, to examine rehospitalizations associated with “no-indicated risk” (NIR) cesarean deliveries.²¹ The authors made the following conclusions:

- Clinicians should be aware of the increased risk for maternal rehospitalization after cesarean deliveries among low-risk mothers when counseling women about their choices

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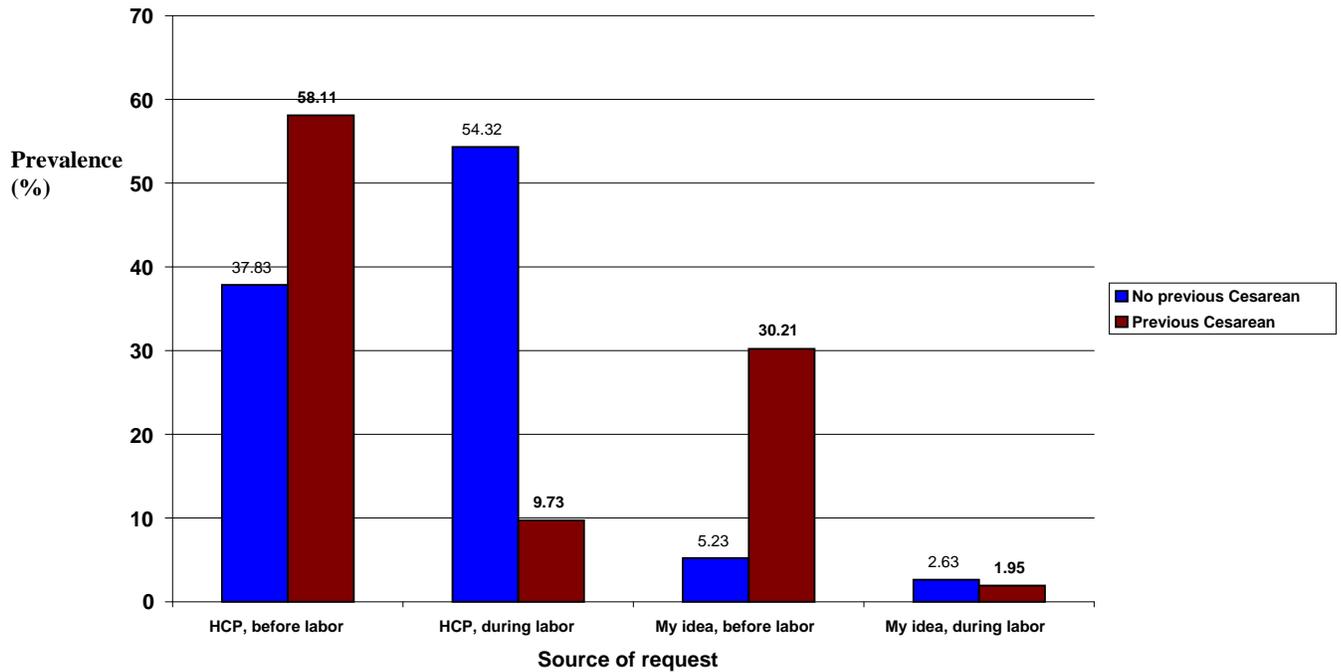
- Cesarean deliveries also have substantially greater costs both initially and as a result of these rehospitalizations

The Massachusetts Pregnancy Risk Assessment Monitoring System (PRAMS) is a collaborative surveillance project between the CDC and the Massachusetts Department of Public Health that collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. PRAMS was implemented in 2007 and offered a new valuable source of information on the prevalence of factors leading to cesarean deliveries across the state. PRAMS data show the following for 2008 deliveries among Massachusetts residents:

- 68.3% were vaginal deliveries
- 15.6% were cesarean deliveries with labor
- 16.1% were cesarean deliveries with no labor reported
- Among those who reported having a cesarean delivery:
 - 83.6% reported that the decision to have a cesarean delivery was made by their health care provider either before or during labor.
 - 14% of women reported that it was their decision to have a cesarean section and they made this decision before going into labor
 - 2.4% reported that it was their decision but that they made it during labor
 - Among women with no prior cesarean section history, only 5.2% reported that they made the decision to have the section before labor and 2.6% reported making this decision during labor²²

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Source of Cesarean Delivery by Request by Birth History: Massachusetts 2008



Source: Pregnancy Risk Assessment Surveillance System (PRAMS): MA 2008

Figure 3B-4

3B.2 Health of Women

Overall Health Status

Self-assessed health status is a predictor of mortality and morbidity. General health status may be influenced by all aspects of life, including behaviors, the physical environment, and social factors. General health status is useful in determining unmet health needs, identifying disparities among subpopulations, and characterizing the burden of chronic diseases within a population.²³ Based on BRFSS 2006-2008 data, 12.8% of Massachusetts resident adult women aged 18-64 years reported having fair or poor health. The overall health status varied by age and was as follows:

- 7.6% among women aged 18-24 years
- 7.7% among women aged 25-29 years
- 7.0% among women aged 30-34 years
- 6.5% among women aged 35-39 years
- 9.7% among women aged 40-44 years
- 11.2 % among women aged 45-49 years
- 13.0% among women aged 50-54 years
- 13.7% among women aged 55-59 years
- 16.9% among women aged 60-64 years

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Hispanic and Black non-Hispanic were more likely to report having fair or poor health compared to White non-Hispanic and Asian. The breakdown by race/ethnicity and was as follow:

- 10.9% among White non-Hispanic
- 20.8% among Black non-Hispanic
- 29.5% among Hispanic
- 5.8% among Asian

The percentage of women who reported having fair or poor health was higher among women with less than high school and high school compared to women with women with any college. The breakdown was as follows:

- 39.4% among women with less than high school
- 18.3% among women who completed high school
- 12.1% among those who completed 1-3 years of college
- 5.5% among those who completed more 4 or more years of college

Overall health status also significantly varied by household income and was as follows:

- 38.0% among women with an annual income below \$15,000
- 25.1% among women with an annual income between \$15,000-24,999
- 15.7% among women with an annual income between \$25,000-34,999
- 11.0% among women with an annual income between \$35,000-49,999
- 6.7% among women with an annual income between \$50,000-74,999
- 3.8% among women with an annual income of \$75,000 or more

Quality of Life

According to BRFSS 2006-2008 data, the prevalence of women reporting having had 15 days or more of limited physical or mental health was 6.1%. The breakdown by race ethnicity was as follows:

- 5.8% among White non-Hispanic
- 7.7% among Black non-Hispanic
- 9.1% among Hispanic
- 2.5 % among Asian

The prevalence of women reporting having had 15 days or more of limited physical or mental health by age was as follows:

- 3.6% among women aged 18-24 years
- 6.7% among women aged 25-29 years
- 3.3% among women aged 30-34 years
- 4.9% among women aged 35-39 years
- 5.1% among women aged 40-44 years
- 6.1% among women aged 45-49 years
- 8.5% among women aged 50-54 years
- 7.6% among women aged 55-59 years

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- 8.0% among women aged 60-64 years

The prevalence of women reporting having had 15 days or more of limited physical or mental health also varied by income:

- 29.9% among women with an annual income below \$15,000
- 11.2% among women with an annual income between \$15,000-24,999
- 7.2% among women with an annual income between \$25,000-34,999
- 5.2% among women with an annual income between \$35,000-49,999
- 3.1% among women with an annual income between \$50,000-74,999
- 2.4% among women with an annual income of \$75,000 or more

Oral Health

Oral health is an important component of one's general health. Preventive dental services such as teeth cleaning, early diagnosis and treatment of tooth decay and periodontal diseases occur during regular visits to a dental provider. In the United States, one-fourth of adults over age 60 years have lost all of their teeth. The primary cause of tooth loss is tooth decay, affecting more than 90 percent of adults over age 20 years, and advanced gum disease, which affects between 4 to 12 percent of adults.²⁴

According to the 2008 BRFSS data, 79.0% of adult female reported having visited a dentist or a dental clinic. The breakdown by race was the following:

- 79.8% among White non-Hispanic
- 72.5% among Black non-Hispanic
- 73.6% among Hispanic
- 81.8% among Asian

The percentage of women reporting having visited a dentist or a dental clinic varied by age and was as follows:

- 76.3% among women aged 18-24 years
- 78.7% among women aged 25-29 years
- 75.1% among women aged 30-34 years
- 81.8% among women aged 35-39 years
- 83.3% among women aged 40-44 years
- 82.8% among women aged 45-49 years
- 85.9% among women aged 50-54 years
- 81.7% among women aged 55-59 years
- 80.5% among women aged 60-64 years

The percentage of women reporting having visited a dentist or a dental clinic varied by education level and was as follows:

- 59.7% among women with less than high school
- 73.1% among women who completed high school
- 78.7% among those who completed 1-3 years of college
- 86.3% among those who completed more 4 or more years of college

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The percentage of women reporting having visited a dentist or a dental clinic varied by household income and was the following:

- 60.2% among women with an annual income of < \$15,000
- 65.1% among women with an annual income of \$15,000-24,999
- 73.0% among women with an annual income of \$25,000-34,999
- 74.3% among women with an annual income of \$35,000-49,999
- 82.9% among women with an annual income of \$50,000-74,999
- 89.5% among women with an annual income of \$75,000 or more

BRFSS 2008 data also indicate that 15.1% of adult females reported having lost five or more teeth due to decay or gum disease. The breakdown by race was the following:

- 15.1% among White non-Hispanic
- 20.8% among Black non-Hispanic
- 15.2% among Hispanic
- 1.9% among Asian

The percentage of females reporting having lost five or more teeth due to decay or gum disease by age was the following:

- 3.7% among women aged 25-29 years
- 2.5% among women aged 30-34 years
- 4.8% among women aged 35-39 years
- 5.7% among women aged 40-44 years
- 9.3% among women aged 45-49 years
- 11.9% among women aged 50-54 years
- 17.3% among women aged 55-59 years
- 27% among women aged 60-64 years

The percentage of adult females reporting having lost five or more teeth due to decay or gum disease varied significantly by education level and was more than 2-6 times greater among women with less than high school education compared to those with any college education:

- 35.5% among women with less than high school
- 25.0% among women who completed high school
- 15.3% among those who completed 1-3 years of college
- 5.5% among those who completed more 4 or more years of college

Similarly, the percentage of adult females reporting having lost five or more teeth due to decay or gum disease was varied significantly by household income and was as follows:

- 38.5% among women with an annual income of < \$15,000
- 29.8% among women with an annual income of \$15,000-24,999
- 23.9% among women with an annual income of \$25,000-34,999
- 18.7% among women with an annual income of \$35,000-49,999
- 9.3% among women with an annual income of \$50,000-74,999

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- 3.7% among women with an annual income of \$75,000 or more

Risk Factors and Preventive Behaviors

Smoking

Smoking is a major risk factor for cancer, heart, and lung diseases. In the United States, more than 8.6 million people have at least one serious illness caused by smoking.²⁵ In Massachusetts, more than 9,000 residents die each year from the effect of tobacco. The health and economic burden of tobacco use has resulted in more than 3.9 billion dollars per year in health care cost in Massachusetts. The Massachusetts Tobacco Control Program was established in 1993 to control tobacco use and since the implementation of the program, the number of adults who smoke in Massachusetts has declined.²⁶

The 2008 BRFSS data indicated that 11.2% of adult females reported being current smokers. A current smoker was defined as someone who has smoked at least 100 cigarettes in their lifetime and who currently smokes either some days or everyday. The percentage of current smokers among White non-Hispanic was higher than the percentage among Black non-Hispanic and four times the percentage among Asian. The prevalence of current smoking by race/ethnicity was as follows:

- 11.5% among White non-Hispanic
- 9.7% among Black non-Hispanic
- 11.2% among Hispanic
- 2.8% among Asian

The percentage of women reporting being current smokers was higher among women aged 45-49 years and 18-24 years compared to all other age groups. The breakdown by age was as follows:

- 14.7% among women aged 18-24 years
- 13.4% among women aged 25-29 years
- 10.0% among women aged 30-34 years
- 10.4% among women aged 35-39 years
- 12.6% among women aged 40-44 years
- 15.8% among women aged 45-49 years
- 12.3% among women aged 50-54 years
- 10.6% among women aged 55-59 years
- 10.8% among women aged 60-64 years

BRFSS 2008 data also indicated the following:

- 27.7% of adult females reported being former smokers. A former smoker was defined as someone who has smoked at least 100 cigarettes in their lifetime but no longer smokes
- 59.9% reported that they had stopped smoking for one day or longer in the past 12 months because they were trying to quit smoking. Hispanic

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(55.5%) were more likely to report that they had stopped smoking for one day or longer in the past 12 months compared to White non-Hispanic (41.6%). Statistics for all other race and ethnic groups were suppressed due to small numbers. The percentage of current smokers reporting that they had stopped smoking for one day or longer in the past 12 months did not vary by age group. Due to insufficient data, the breakdown by age was presented with only the following age groups:

- 61.0% among women aged 30-34 years
- 61.6% among women aged 35-39 years
- 58.6% among women aged 40-44 years
- 59.3% among women aged 45-49 years
- 62.8% among women aged 50-54 years
- 50.7% among women aged 55-59 years
- 65.1% among women aged 60-64 years
- 43.0% reported that they were planning to quit smoking within the next 30 days
- 81.3% reported that smoking was not allowed in their household
- 34.6% reported being exposed to environment tobacco at home, work or other places within the past seven days

Alcohol

Excessive drinking, including binge and heavy drinking, has numerous chronic effects including cirrhosis of the liver, pancreatitis, high blood pressure, stroke, and various cancers. Alcohol abuse can cause unintentional injuries, motor vehicle accidents, alcohol poisonings, and contributes to violence, and suicides.²⁷ In 2005, driving while under the influence of alcohol accounted for 146 alcohol-related fatalities in Massachusetts – 35% of the total traffic fatalities for the year.²⁸

The BRFSS 2008 data indicated that 58.9% of women reported any drinking within the past 30 days. White non-Hispanic women were more likely than Black non-Hispanic, Hispanic and Asian to report any drinking within the past 30. The percentage of drinking within the past 30 days by race/ethnicity was as follows:

- 63.2% among White non-Hispanic
- 39.0% among Black non-Hispanic
- 33.9% among Hispanic
- 31.8% among Asian

The percentage of drinking within the past 30 days among women varied by age and was as follows:

- 58.6% among women aged 18-24 years
- 69.3% among women aged 25-29 years
- 60.6% among women aged 30-34 years
- 62.7% among women aged 35-39 years
- 66.4% among women aged 40-44 years
- 65.4% among women aged 45-49 years
- 65.4% among women aged 50-54 years

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- 63.5% among women aged 55-59 years
- 60.1% among women aged 60-64 years

The percentage of drinking within the past 30 days among women significantly increased with increasing household income and was as follows:

- 35.2% < \$15,000
- 38.1% \$15,000-24,999
- 55.8% \$25,000-34,999
- 68.8% \$35,000-49,999
- 74.6% \$50,000-74,999

BRFSS 2008 data also indicated that 12.9% of all women reported binge drinking in the past 30 days. White non-Hispanic women were more likely than Black non-Hispanic, Hispanic and Asian to report binge drinking. The percentage of binge drinking by race/ethnicity was as follows:

- 14.0% among White non-Hispanic
- 8.4% among Black non-Hispanic
- 7.5% among Hispanic

The percentage of binge drinking among women significantly varied by age group and was as follows:

- 25.5% among women aged 18-24 years
- 24.1% among women aged 25-29 years
- 18.3% among women aged 30-34 years
- 14.1% among women aged 35-39 years
- 14.8% among women aged 40-44 years
- 13.7% among women aged 45-49 years
- 11.3% among women aged 50-54 years
- 8.4% among women aged 55-59 years
- 6.6% among women aged 60-64 years

The percentage of binge drinking was more than two times higher among women who completed 1-4 or more years of college compared to women with less than a high school education:

- 5.9 % among women with less than high school
- 10.9% among women who completed high school
- 14.3% among those who completed 1-3 years of college
- 14.5% among those who completed more 4 or more years of college

The percentage of binge drinking by household income was as follows:

- 9.7% among women with an annual income of < \$15,000
- 6.6% among women with an annual income of \$15,000-24,999
- 11.1% among women with an annual income of \$25,000-34,999
- 15.7% among women with an annual income of \$35,000-49,999
- 15.0% among women with an annual income of \$50,000-74,999

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- 16.8% among women with an annual income of \$75,000 or more

BRFSS 2008 data also indicated that 6.6% of adult females reported heavy drinking. The percentage of heavy drinking among adult females was significantly higher among White non-Hispanic compared to Black non-Hispanic, Hispanic, and Asian. The breakdown was as follows:

- 7.2% among White non-Hispanic
- 3.8% among Black non-Hispanic
- 3.8% among Hispanic
- 1.6% among Asian

The percentage of heavy drinking by age was as follows:

- 8.2% among women aged 18-24 years
- 8.1% among women aged 25-29 years
- 6.0% among women aged 30-34 years
- 5.2% among women aged 35-39 years
- 6.7% among women aged 40-44 years
- 7.8% among women aged 45-49 years
- 8.6% among women aged 50-54 years
- 8.4% among women aged 55-59 years
- 6.6% among women aged 60-64 years

The percentage of heavy drinking increased with increasing education and was as follows:

- 3.0 % among women with less than high school
- 5.1% among women who completed high school
- 6.8% among those who completed 1-3 years of college
- 8.1% among those who completed more 4 or more years of college

The percentage of heavy drinking by household income was as follows:

- 4.4% < \$15,000
- 3.8% \$15,000-24,999
- 5.0% \$25,000-34,999
- 8.2% \$35,000-49,999
- 8.6% \$50,000-74,999
- 8.5% among women with an annual income of \$75,000 or more

Obesity

According to the 2006-2008 BRFSS data, 19.5 % of women reported having a body mass index (BMI) greater than 30 (obesity). The breakdown by race ethnicity was as follows:

- 18.4% among White non-Hispanic
- 35.5% among Black non-Hispanic
- 27.1% among Hispanic

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- 3.5% among Asian

The percentage of women reporting having a BMI greater than 30 by age was the following:

- 13.0% among women aged 18-24 years
- 18.8% among women aged 25-29 years
- 16.2% among women aged 30-34 years
- 19.0% among women aged 35-39 years
- 19.4% among women aged 40-44 years
- 20.7% among women aged 45-49 years
- 21.7% among women aged 50-54 years
- 25.1% among women aged 55-59 years
- 24.3% among women aged 60-64 years
- 20.0% among women aged 65 and older

The percentage of women reporting having a BMI greater than 30 was higher among women with less than high school and decreased with increasing education as presented below:

- 32.9% among women with less than high school
- 23.6% among women who completed high school
- 21.3% among those who completed 1-3 years of college
- 13.9% among those who completed more 4 or more years of college

The percentage of women reporting having a BMI greater than 30 was higher among women with a household income less \$15,000 and decreased with increasing household income as follows:

- 29.7% among women an annual income below \$15,000
- 29.2% among women with an annual income between \$15,000-24,999
- 23.9% among women with an annual income between \$25,000-34,999
- 23.2% among women with an annual income between \$35,000-49,999
- 18.6% among women with an annual income between \$50,000-74,999
- 13.7% among women with an annual income of \$75,000 or more

Overweight

Based on BRFSS 2006-2008 data, overall 47.7 % of women reported having body mass index (BMI) greater than 25 (overweight). The breakdown by race ethnicity, age, education and household income was as follows:

- 46.4% among White non-Hispanic
- 68.3% among Black non-Hispanic
- 58.9% among Hispanic
- 21.4% among Asian

The percentage of adult women reporting having a BMI greater than 25 by age was as follows:

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- 32.3% among women aged 18-24 years
- 43.8% among women aged 25-29 years
- 42.6% among women aged 30-34 years
- 44.8% among women aged 35-39 years
- 45.9% among women aged 40-44 years
- 48.7% among women aged 45-49 years
- 51.0% among women aged 50-54 years
- 58.2% among women aged 55-59 years
- 59.3% among women aged 60-64 years

The percentage of adult women reporting having a BMI greater than 25 by education was as follows:

- 62.5% among women with less than high school
- 54.0% among women who completed high school
- 52.1% among those who completed 1-3 years of college
- 39.3% among those who completed more 4 or more years of college

The percentage of adult women reporting having a BMI greater than 25 by household income was as follows:

- 59.7% among women with an annual income of < \$15,000
- 59.2% among women with an annual income of \$15,000-24,999
- 52.7% among women with an annual income of \$25,000-34,999
- 53.7% among women with an annual income of \$35,000-49,999
- 49.1% among women with an annual income of \$50,000-74,999
- 39.4% among women with an annual income of \$75,000 or more

Flu Vaccine and Pneumonia Vaccine

Influenza, or the flu, is a contagious respiratory illness caused by influenza viruses. It can cause mild to severe illness and can even lead to death. Every year in the United States, on average, between 5 and 20 percent of the population acquires the flu; more than 200,000 people are hospitalized from flu complications, and about 36,000 people die from the flu.²⁹ Adults 65 years or older, children younger than 2 years old, and individuals with chronic medical conditions are at increased risk for pneumococcal infection. In Massachusetts, flu and pneumonia were the seventh leading causes of death in 2005 among adults 65 and older.³⁰ The 2008 BRFSS data indicated that 46.4% of women aged 50-64 and 69.4% of women ages 65 years and older received an influenza vaccine, and 69.4% of women aged 50-64 and 69.4% of women aged 65 year or more received a pneumonia vaccine.

Chronic Health Conditions

Diabetes

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Diabetes is a disease in which the body does not produce or properly use insulin. Insulin is a hormone which is used to convert sugar, starches, and other food into the energy needed for everyday life.³¹ There are two types of diabetes: type 1 and type 2. In type 1 diabetes, the body is unable to produce insulin. In type 2 diabetes, the body is able to produce insulin, but is unable to utilize it efficiently. Obesity, poor diet, and physical inactivity are risk factors associated with the increase in the prevalence of type 2 diabetes. In 2007, diabetes was the ninth leading cause of death in Massachusetts.³² Overall, the risk for death among people with diabetes is about twice that of people without diabetes of a similar age.³³ In Massachusetts, 9.9 percent of the Commonwealth's medical care costs are attributable to diabetes.³⁴

The 2008 BRFSS data indicated that 6.5% of women reported that a doctor told them that they had diabetes (defined as a blood glucose level that is higher than normal, but not yet diabetic). Women who reported that they had diabetes only during pregnancy were excluded. The percentage of women reporting diabetes by race was the following:

- 5.9% among White non-Hispanic
- 12.0% among Black non-Hispanic
- 9.3% among Hispanic
- 3.5% among Asian

The percentage of women reporting diabetes by age was the following:

- 0.5% among women aged 18-24 years
- 2.1% among women aged 25-29 years
- 2.7% among women aged 30-34 years
- 3.1% among women aged 35-39 years
- 3.5% among women aged 40-44 years
- 5.1% among women aged 45-49 years
- 4.5% among women aged 50-54 years
- 9.1% among women aged 55-59 years
- 11.3% among women aged 60-64 years

The percentage of women reporting diabetes by education level was the following:

- 13.5% among women with less than high school
- 9.8% among women who completed high school
- 6.0% among those who completed 1-3 years of college
- 3.5% among those who completed more 4 or more years of college

The percentage of women reporting diabetes by household income was the following:

- 13.7% among women with an annual income of < \$15,000
- 11.9% among women with an annual income of \$15,000-24,999
- 9.9% among women with an annual income of \$25,000-34,999
- 5.5% among women with an annual income of \$35,000-49,999
- 4.2% among women with an annual income of \$50,000-74,999

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- 3.1% among women with an annual income of \$75,000 or more

Asthma

Asthma is a chronic inflammatory disorder that affects the lungs, causing repeated episodes of wheezing, breathlessness, coughing, and chest tightness.³⁵ Asthma attacks can be triggered by a variety of causes, such as second hand smoke, outdoor air pollution, allergens, irritants, and respiratory viral infections. These environmental irritants are also potential risk factors associated with the development of asthma.³⁶ The prevalence of asthma in the state of Massachusetts is one of the highest reported for a state across the nation, and the costs are increasing each year: the total charges for hospitalization due to asthma in Massachusetts increased 77.7% from \$50 million in 2000 to \$89 million in 2006.³⁷ The 2008 BRFSS data indicate that 16.8% of women reported that a doctor, nurse, or other health care professional told them that they had asthma. The percentage of women indicating that a doctor, nurse, or other health care professional told them that they had asthma by race ethnicity was as follows:

- 16.4% among White non-Hispanic
- 17.3% among Black non-Hispanic
- 22.2% among Hispanic
- 7.5% among Asian

The percentage of women reporting that a doctor, nurse, or other health care professional told them that they had asthma by age group was the following:

- 18.4% among women aged 18-24 years
- 23.8% among women aged 25-29 years
- 15.7% among women aged 30-34 years
- 16.8% among women aged 35-39 years
- 16.9% among women aged 40-44 years
- 18.9% among women aged 45-49 years
- 16.8% among women aged 50-54 years
- 17.9% among women aged 55-59 years
- 17.0% among women aged 60-64 years

The percentage of women reporting that a doctor, nurse, or other health care professional told them that they had asthma by education level was the following:

- 22.2% among women with less than high school
- 17.1% among women who completed high school
- 18.3% among those who completed 1-3 years of college
- 14.9% among those who completed more 4 or more years of college

The percentage of women reporting that a doctor, nurse, or other health care professional told them that they had asthma by household income was as follows:

- 26.2% < \$15,000
- 17.8% \$15,000-24,999
- 19.8% \$25,000-34,999

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- 19.6% \$35,000-49,999
- 15.6% \$50,000-74,999
- 15.0% among women with an annual income of \$75,000 or more

Heart Diseases and Stroke

Heart disease includes a number of different heart conditions, the most common of which is coronary heart disease, a condition that can lead to a heart attack. A stroke occurs when blood to the brain is blocked or a blood vessel in the brain bursts, causing damage to the individual's brain. Heart disease and stroke are the principal causes of more than 910,000 cardiovascular disease deaths each year in the United States.³⁸ They are also major causes of disability. In 2007, heart disease and stroke were the second (after cancer-related deaths) and third leading causes of death, respectively, in Massachusetts.³⁹

The 2008 BRFSS data indicate that 3.6% of Massachusetts adult women ages 35 or older reported that a doctor, nurse, or other health care professional told them that they had myocardial infarction (heart attack), angina or stroke. Due to insufficient data, the breakdown by race was presented only for the following groups:

- 3.6% among White non-Hispanic
- 3.9% among Black non-Hispanic
- 3.9% among Hispanic

The breakdown by age was the following:

- 0.7% among women aged 35-39 years
- 0.5% among women aged 40-44 years
- 1.5% among women aged 45-49 years
- 1.9% among women aged 50-54 years
- 2.7% among women aged 55-59 years
- 3.6% among women aged 60-64 years

The breakdown by education level was the following:

- 9.1% among women with less than high school
- 4.2% among women who completed high school
- 5.0% among those who completed 1-3 years of college
- 1.5% among those who completed more 4 or more years of college

The breakdown by household income was the following:

- 6.9% among women with an annual income of < \$15,000
- 8.1% among women with an annual income of \$15,000-24,999
- 5.8% among women with an annual income of \$25,000-34,999
- 3.2% among women with an annual income of \$35,000-49,999
- 1.8% among women with an annual income of \$50,000-74,999
- 1.0% among women with an annual income of \$75,000 or more

Cancer Screening

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Breast Cancer Screening

Cancer of the breast is the most commonly diagnosed cancer among women in the United States. In 2007, breast cancer was the second leading cause of cancer death among Massachusetts women.⁴⁰ Early detection of breast cancer can occur through the use of screening tools such as mammography and clinical breast exams. A mammogram, an X-ray of the breast, is the one of the methods to detect breast cancer early and before it is big enough to feel or to cause symptoms.⁴¹ According to the Massachusetts Cancer Registry, the annual adjusted incidence rate per 100,000 for breast cancer was 133.5 in 2007 compared with 130.6 in 2003. The annual age-adjusted mortality rate per 100,000 was 20.1 in 2007 down from 24.4 in 2003. According to the BRFSS 2008 data, 84.9% of women age 40 and older in Massachusetts reported that they had had a mammogram in the past two years. The breakdown by race ethnicity, age, household income, education and disability status is summarized in the Table below:

Breast Cancer Screening Among Massachusetts Women Ages 40 and Older, 2008

Race/Ethnicity	Number	Percentage
White non-Hispanic	8,190	84.8%
Black non-Hispanic	440	86.6%
Hispanic	740	88.6%
Asian	74	85.7%
Age Group		
40-49	2,335	79.5%
50-59	2,575	90.0%
60-69	2,155	89.2%
70-79	2,155	89.2%
80-89	1,055	72.5%
Household Income		
<\$25,000	2,803	80.1%
\$25,000-\$34,999	925	84.5%
\$35,000-\$49,999	1080	82.3%
\$50,000-\$75,000	1245	87.9%
\$75,000+	2213	86.8%
Education		
<High School	1135	82.1%
High School	2791	82.0%
College 1-3 YRS	2341	85.0%
College 4+YRS	3334	87.2%
Disability		
Disability	2673	82.3%
No Disability	6319	85.8%

Source: Behavioral Risk Factor Surveillance System: MA 2008

Figure 3B-5

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Cervical Cancer Screening

Cervical cancer can be detected and treated early if women are screened regularly with a Pap smear, also referred to as a Pap test. Most often cervical cancer develops in women ages 40 and older; however, precursors to cervical cancer most often occur in young women. Pap smears reduce both the incidence of and mortality from cervical cancer.⁴² Women who have been sexually active should have regular Pap tests every three years because the chances of being cured are higher if cervical cancer is detected early.⁴³

According to the Massachusetts Cancer Registry, the annual adjusted incidence rate per 100,000 for cervical cancer was 5.3 in 2007 similar to the rate in 2003. The annual age-adjusted mortality rate per 100,000 was 1.1 in 2007 down from 1.3 in 2003. According to the BRFSS 2008 data, 83.5% of all women ages 18 and older in Massachusetts reported that they had had a Pap smear in the past three years. The breakdown by race ethnicity, age, household income, education and disability status is summarized in the table below:

Cervical Cancer Screening Among Massachusetts Women Ages 18 and Older, 2008

Race/Ethnicity	Number	Percentage
White non-Hispanic	9809	83.5%
Black non-Hispanic	653	79.3%
Hispanic	1244	86.1%
Asian	157	82.4%
Age Group		
18-24	402	73.3%
25-34	1178	93.5%
35-44	2036	93.8%
45-54	2597	90.7%
55-64	2378	86.4%
65-74	1721	74.3%
75+	1687	50.6%
Household Income		
<\$25,000	3426	73.1%
\$25,000-\$34,999	1139	80.3%
\$35,000-\$49,999	1355	83.6%
\$50,000-\$75,000	1612	89.9%
\$75,000+	3039	92.5%
Education		
<High School	1335	71.8%
High School	3318	75.1%
College 1-3 YRS	3001	82.4%
College 4+YRS	4449	91.1%

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Race/Ethnicity	Number	Percentage
Disability		
Disability	3030	77.6%
No Disability	8347	85.5%

Source: Behavioral Risk Factor Surveillance System: MA 2008

Figure 3B-6

Sexual Assault

Sexual violence results in harmful and lasting consequences for victims, families, and communities. In addition to the potential risk for injury and the psychological consequences of being a victim of sexual violence, many victims experience physiological problems. Physiological problems include chronic headaches, back pain, fatigue, sleep disturbances, recurrent nausea, decreased appetite, menstrual pain, and sexual dysfunction.⁴⁴ Psychological problems include post traumatic stress disorder, suicidal behavior, anxiety, eating disorders, and substance abuse.^{45, 46} The 2008 BRFSS data indicated that 14.1% of women experienced sexual violence in their life. The breakdown by race/ethnicity was provided for the following groups:

- White non-Hispanic 14.4%
- Black non-Hispanic 12.7%
- Hispanic 14.4%

The breakdown by age was the following:

- 19.8% among women aged 25-29 years
- 11.2% among women aged 30-34 years
- 20.3% among women aged 35-39 years
- 16.0% among women aged 40-44 years
- 17.2% among women aged 45-49 years
- 15.5% among women aged 50-54 years
- 15.0% among women aged 55-59 years
- 17.0% among women aged 60-64 years

Women with less than high school were more than one and half time to two times less likely to report sexual assault in their lifetime than women with 1-3 years or 4 or more years of college. The breakdown by education level was the following:

- 7.7% among women with less than high school
- 9.9% among women who completed high school
- 17.9% among those who completed 1-3 years of college
- 15.3% among those who completed more 4 or more years of college

The percentage of women reporting sexual assault by household income was as follows:

- 16.1% among women with an annual income of < \$15,000
- 14.2% among women with an annual income of \$15,000-24,999
- 18.3% among women with an annual income of \$25,000-34,999

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- 13.2% among women with an annual income of \$35,000-49,999
- 13.7% among women with an annual income of \$50,000-74,999
- 15.6% among women with an annual income of \$75,000 or more

Reproductive Health

Improving the health and well-being of women of reproductive age before, during and after pregnancy continues to be one of Massachusetts state priorities with a particular emphasis on racial and ethnic disparities, and on pre- and inter-conception health.

Findings from the Perinatal Periods of Risk (PPOR) analysis using 2008 data suggest that maternal health/prematurity factors greatly contribute to feto-infant mortality in Massachusetts, with 42 % of feto-infant deaths due to such factors (see Perinatal Mortality section for details). To improve maternal health/prematurity factors, prevention efforts must include a focus on preconception, interconception health, and prevention of unintended pregnancy.

The goal of preconception (and interconception) health is to provide women and their partners with information to make informed decisions about their reproductive futures, including prevention of unintended pregnancies and identification of risk factors that could affect reproductive outcomes. Premature births, the largest contributor to low birthweight and infant mortality in the US,⁴⁷ are related to conditions best addressed before pregnancy begins. According to 2008 PRAMS data, 43% of mothers had not been trying to become pregnant when they conceived their child.⁴⁸ Given that many pregnancies are unplanned, women may not even be aware they are pregnant in the crucial first eight weeks of pregnancy, when the baby's organ systems are forming.

Pregnancy outcomes may be impacted by many factors including pregnancy intention, interpregnancy interval, fertility treatment, folic acid and multivitamin use before and during pregnancy, insurance status and access to care, chronic diseases, and lifestyle and behavioral risks such as alcohol, drug, and tobacco use, and oral health. Each of these is discussed below.

Unplanned Pregnancy

Unintended pregnancy has been associated with severe health, social and economic burdens including poor educational attainment, lack of or low-income employment opportunities, chronic poverty, and an increased need for public assistance.⁴⁹ Having an unplanned pregnancy can result in later awareness of the pregnancy and thereby, later cessation of unhealthy behaviors, including substance abuse and smoking, as well as delayed entry into prenatal care, all of which increase risk of harm to mother and child.⁵⁰ Unintended pregnancies increase the risk of maternal and infant mortality.⁵¹ Children born as the result of an unintended pregnancy are at an increased risk for abuse and neglect.⁵² Therefore, increasing the percentage of pregnancies that are intended is a HP2010 objective.

The following statistics are from the BRFSS 2006-2008 data:

- The prevalence of having had an unplanned pregnancy in the past 5 years among women aged 18-44 years was 22.5% and varied by age:

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- 48.7% among those aged 18–24 years
 - 28.3% among those aged 25–29 years
 - 15.6% among those aged 30–34 years
 - 11.9% among those aged 35–39 years
 - 18.1% among women aged 40–44 years
- The prevalence of current use of birth control by self or partner in women aged 18–44 years was 78.3% and varied by race and age:
 - 71.2% among Black, non-Hispanic and Hispanic women versus 81.0% among White, non-Hispanic women
 - 74.0% among women aged 18–24 years
 - 81.4% among those aged 25–29 and 30–34 years
 - 83.0% among those aged 35–39 years
 - 76.1% among those aged 40–44 years

The Massachusetts PRAMS includes questions about whether the mother was actively trying to become pregnant at the time of conception and how she felt about becoming pregnant right before the pregnancy occurred.⁵³ The following statistics highlight the 2007–2008 Massachusetts PRAMS findings on unplanned pregnancy:

- 42.7% of mothers reported they were not trying to become pregnant when they conceived:
 - 96% of women aged 15 years and younger, 98.1% of those aged 16–17 years, and 78.5% of those aged 18–19 years reported not trying to become pregnant at time they conceived
 - Higher rates among Black, non-Hispanic (66.1%), Hispanic (56.7%), and other non-Hispanic (53.6%) compared with Asian, non-Hispanic (36.5%), and White, non-Hispanic (37.3%) mothers
 - Higher rates among mothers with less than a high school education (71.8%), mothers with a high school diploma (56.9%), and those with some college (49.6%) compared to college graduates (24.8%)
 - Higher rates among those ≤ 100% FPL (71.2%) compared to those >100% FPL (33.6%)
 - Higher rates among those with a history of physical abuse (42.0%) versus no such history (60.9%)
- 77.8% of mothers reported wanting the pregnancy at the time of conception or sooner; whereas 32.2% wanted the pregnancy later or never
- The prevalence of pre-pregnancy contraception use among women who were not trying to become pregnant was 41.9%
- Among the 58.1% women not using contraception, the most frequently reported reasons for not using contraception included mother not minding getting pregnant (48.8%), mother thinking that it was not possible to get pregnant at that time (26.8%) and husbands/partners not wanting to use birth control (13.4%)

Interpregnancy Interval (IPI)

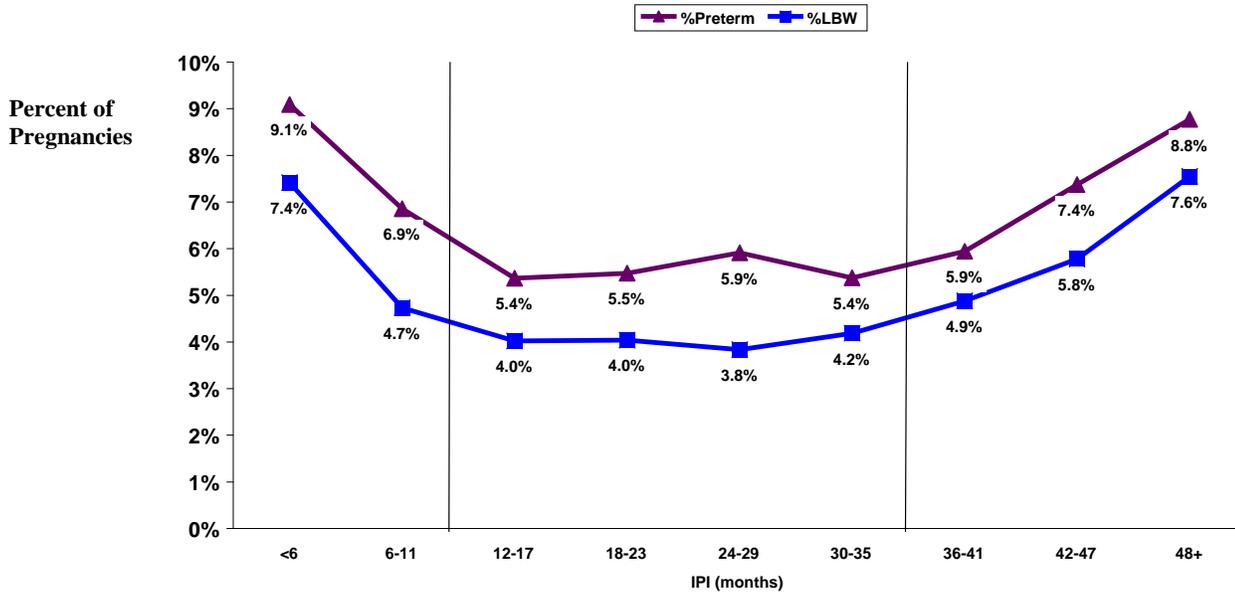
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IPI is defined as the interval in months between a birth or fetal death and the beginning of a next pregnancy. A short IPI is any interval equal to or less than 12 months. Short IPIs, particularly those less than 6 months, are linked to poor perinatal outcomes, including a significantly greater risk of preterm delivery and LBW^{54,55} and increased risk of maternal death, third trimester bleeding, premature rupture of membranes, puerperal endometriosis and anemia,⁵⁶ and uterine scar failure.⁵⁷ Short IPI can be associated with unplanned pregnancy or inadequate use of family planning services after the end of pregnancy.

IPI data are available from both the annual birth data (retrospectively) and longitudinally linked birth data in PELL (prospectively and retrospectively). Figure 3B-7 below, indicates the prevalence of low birth weight (LBW) and pre-term delivery by IPI. As the figure illustrates, very short (< 6 month) and longer (> 42 months) IPIs were associated with increased prevalence of poor birth outcomes in 2008. The prevalence of short (< 12 months) IPI was as follows:

- 49.4% among women aged < 20 years
- 17.4% among women aged 20-34 years
- 11.3% among women aged 35 years or older

Interpregnancy Interval by Selected Birth Outcomes: Low Birthweight and Preterm Deliveries among Multiparous: Massachusetts 2008



Source: MDPH, Bureau of Health Information, Statistics, Research and Evaluation

Figure 3B-7

MDPH will continue to use IPI as an ongoing measure in the annual births release and aim to develop program initiatives to decrease the percent of women giving birth who have short IPIs (<12 months). Short IPI and short IPI by risk group (for example,

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teen, MassHealth) data for 30 cities and towns were used for a family planning needs assessment in 2005.

Fertility Treatment

The use of fertility-enhancing therapies, including assisted reproductive technologies (ART), has risen steadily in the United States due to several factors, including childbearing at older maternal ages and increasing insurance coverage.⁵⁸ The use of ART carries up to a 50% risk of having a multifetal pregnancy, depending on the medications and techniques used.⁵⁹ Older maternal age requires more aggressive therapies to achieve a pregnancy, including transferring more embryos.⁶⁰ Higher rates of older maternal age, multifetal pregnancy, and pregnancy complications may magnify the short- and long-term health risks associated with infertility, as summarized below.

Findings from clinical studies suggest that women treated for infertility have a higher cancer risk than women in the general population (standardized incidence ratio of 1.2).^{61,62} Women with primary infertility (those who had never been able to conceive) in particular are at an increased risk of uterine and ovarian cancers.⁶³ These studies suggest that this risk is attributable to the underlying reasons for infertility. The ongoing trend of increasing number of infants conceived through fertility therapies is an emerging MCH issue since these infants may require additional medical assistance and services for their developmental health needs. According to the 2007-2008 PRAMS data:

- 7.4% of mothers reported that they received some form of assistance from a health care provider in becoming pregnant:
 - 3.6% used fertility drugs
 - 2.8% used assisted reproductive technology such as in vitro fertilization
 - 1.5% used artificial insemination
 - 1.2% used other forms of treatment
 - The highest prevalence was among mothers aged 40 or older (26.1%)
 - A higher prevalence was observed among White non-Hispanic (8.5%), Asian non-Hispanic (8.7%), college educated (11.2%), and higher income (living above the poverty level) (9.1%) women

Folic Acid and Multivitamin Use

According to the American College of Obstetricians and Gynecologists, all women of childbearing age should take 0.4 milligrams of folic acid daily.⁶⁴ The use of folic acid and multivitamins containing folic acid during the weeks, before pregnancy and during the first three months of pregnancy is crucial in preventing birth defects of the spine and brain, such as spina bifida and anencephaly. Having a varied and balanced diet including foods that contain folic acid, such as green leafy vegetables, beans, asparagus, citrus fruit and whole grains provides essential vitamins and minerals that can also prevent birth defects. According to data from the 2008 MA PRAMS:

- 35.3% reported taking a multi-vitamin everyday during the month before their pregnancy
- 14.5% reported taking a multi-vitamin less than every day

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- 50.2% reported never taking a multivitamin in the month prior to pregnancy⁶⁵
- Hispanic mothers (23.8%), mother with less than high school education (24.1%), mothers who were unmarried (18.6%), mothers aged less than 20 years (15.2%), and those living in poverty (20.3%) were less likely to report daily multivitamin use in the month prior to pregnancy

Lifestyle and Behavioral Risk

High quality preconception care includes attention to lifestyle and behaviors related to nutrition, physical activity, injury prevention, and prevention or cessation of tobacco, alcohol, and drug use. Smoking increases the risk for miscarriage, stillbirth, and low birth-weight and babies exposed to second hand smoke are at much higher risk for sudden infant death syndrome (SIDS), asthma, and other respiratory problems.⁶⁶ Alcohol use during pregnancy at any time can cause fetal alcohol spectrum disorders or related birth defects.⁶⁷ Currently, increasing evidence points to the detrimental effects of maternal overweight and obesity, as well as underweight, on infant and maternal outcomes, including increased risk of hypertension, gestational diabetes mellitus (GDM), cesarean delivery and stillbirth.

Healthy Weight- Overweight and Obesity

Promoting healthy weight across the three MCH populations is one of the 10 priorities for the Massachusetts Title V agency for the next five years. Being overweight prior to pregnancy increases the risk for gestational diabetes mellitus (GDM) and poor outcomes while being underweight prior to pregnancy increases the risk of infertility, anemia, infants small for gestational age infants, and complications during childbirth. According to 2006-2008 BRFSS data, the prevalence of overweight and obesity were 41.8% and 17.2%, respectively, among Massachusetts women aged 18 to 44 years. MA PRAMS data indicate that in 2008, 20.6% of mothers were overweight and 19.2% were obese prior to their most recent pregnancy. Looking more closely at available data highlights existing disparities in the prevalence of overweight and obesity among women of childbearing age (18 to 44 years) across racial and ethnic groups.⁶⁸

- The prevalence of overweight was highest among Black, non-Hispanics (62.0%), followed by Hispanics (54.1%), White, non-Hispanics (40.0%) and Asian/Pacific Islanders (20.0%)
- The prevalence of obesity was highest among Black, non-Hispanics (31.3%), followed by Hispanics (23.2%), and White, non-Hispanics (16.2%). Due to small numbers, data Asian/Pacific Islanders can not be reported

In addition to weight status, the following data highlight current trends in factors associated with maternal healthy weight, specifically physical activity and fruit and vegetable consumption, among Massachusetts women of childbearing age:

- According to 2006-2008 BRFSS data, among MA women aged 18 to 44 years, the overall prevalence of any leisure time physical activity was

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80.9%. The prevalence of any leisure time physical activity was highest among White, non-Hispanics (85.5%), followed by Asian non-Hispanic (72.2), Black, non-Hispanics (71.9%) and Hispanics (58.1%)

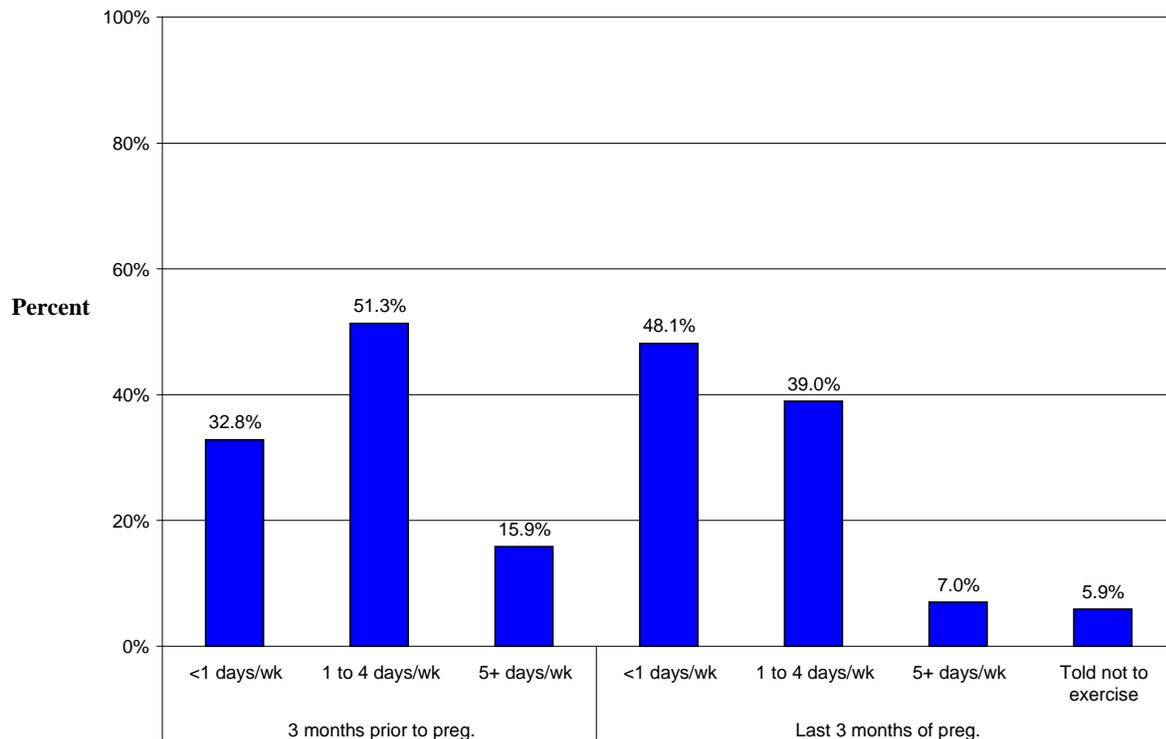
- The overall prevalence of moderate physical activity was 55.8%. The prevalence of any leisure time physical activity was highest among White, non-Hispanics (59.2%), followed by Black, non-Hispanics (46.7%), Hispanics (43.9%), Asian non-Hispanic (36.5)
- Among 2008 MA PRAMS respondents, 15.9% reported getting physical activity 5 or more days/week in the 3 months prior to pregnancy while 7% reported this activity level during their last 3 months of pregnancy [See Figure 3B-8 below]
- According to 2006-2008 MA BRFSS data, 30.8% of female Massachusetts residents aged 18-44 years reported eating five or more servings of fruits/vegetables a day. The prevalence of sufficient fruit/vegetable intake was lowest among Black non-Hispanic women (22.2%) and Hispanic women (24.9%) compared with White non-Hispanic (31.6%) and Asian non-Hispanic (36.3%)

The prevalence of overweight and obesity among women of childbearing age is of particular concern in Massachusetts, given the growing body of evidence linking overweight and obesity prior to pregnancy with developing GDM during pregnancy.

- According to 2008 MA PRAMS data, GDM prevalence was highest (12%) among overweight women ($25 \leq \text{BMI} < 30$) (12%), followed by obese women ($\text{BMI} \geq 30$) (9.5%) and lowest among women classified as healthy weight ($\text{BMI} < 25$) (4.2%); the difference between the overweight and obese groups was not significant in 2008, likely due to small numbers⁶⁹

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Frequency of physical activity prior to and during pregnancy, Massachusetts: 2008



Source: Pregnancy Risk Factor Surveillance System (PRAMS): MA 2008

Figure 3B-8

Smoking

Smoking presents multiple hazards to the health of mothers and infants. Smoking has been associated with preterm birth, low birth weight, stillbirth and infant mortality. Smoking may also be associated with pregnancy complications including placenta previa, and placental abruption.⁷⁰ Massachusetts has data regarding current smoking among women of childbearing age from the BRFSS and about smoking during pregnancy from PRAMS and birth certificate data.

- The percentage of women who did not report smoking during pregnancy on their child's birth certificate has risen in Massachusetts from 92.5% in 2007 to 93.1% in 2008. This places Massachusetts within 25% of the HP2010 goal of 99%
- Among women aged 18-44 years during 2006-2008 the prevalence of current smoking was highest (22.6%) among women aged 18-24 years with the prevalence in all other age groups ranging from 16.4 to 21.3%⁷¹
- By race and ethnicity, the highest rates of smoking during pregnancy were among White, non-Hispanics (8.1%) compared to 5.1% among Black, non-Hispanic, 4.8% among Hispanic mothers and 1.5% among Asian/Pacific Islander mothers
- The percentage of Massachusetts mothers reporting smoking during pregnancy decreased over 64.4% from 19.3% in 1990 to 6.9% in 2008⁷²

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- According to Massachusetts 2008 PRAMS data, 9.8% of mothers used tobacco during their last 3 months of pregnancy: 21% used tobacco in past 2 years, 19.5% used tobacco within 3 months prior to pregnancy, and 13.5% used tobacco within the 2 to 6 months following birth of the child⁷³
- Birth certificate data indicate the following regarding smoking habits during pregnancy among Massachusetts mothers in 2008:
 - Among the 8.4% of Massachusetts women who reported being light smokers prior to pregnancy, 62.4% quit smoking, 37.2% remained light smokers and 0.03% increased their smoking frequency during pregnancy
 - Among the 4.7 % of Massachusetts women who reported being moderate smokers prior to pregnancy, 31.5% quit smoking, 53.6% reported light smoking and 14.7 % remained moderate smokers during pregnancy
 - Among the 0.5% of Massachusetts women who reported being heavy smokers prior to pregnancy, 15.2% quit smoking, 48.9% reported light smoking, 29.8 % reported moderate smoking and 6.1% remained heavy smokers during pregnancy
 - 99.9% of Massachusetts women who reported not smoking prior to pregnancy continued not to smoke, while 0.1% started smoking while pregnant⁷⁴
- MA BRFSS data provide the following figures regarding exposure to environmental tobacco smoke (ETS) among Massachusetts residents during 2006-2008 among women aged 18-44 years:
 - The prevalence of exposure to ETS in the past 7 days was 44.5%
 - In 2008, 34.6% of females were less likely than males (39.0%) to report exposure to ETS in the past 7 days
 - 52.1% of Black, non-Hispanic women aged 18-44 years were more likely than White, non-Hispanic adults (43.8%), Asian non-Hispanic (45.7%), and Hispanic (45.1%) to report ETS exposure within past 7 days
 - 64.5% of individuals aged 18-24 years were more than one and a half times (64.5%) more likely than those who were 40-44 years (34.7%) to report exposure to ETS in the past 7 days, while 45.7% of those aged 25-29 years were more likely than those who were 30-34 years (40.1%) and those aged 35-39 years (37.5%) to report ETS exposure within the past 7 days
 - In 2008, the prevalence (for both male and female) of living in a house where smoking is not allowed was 80.7%, which is an increase of 39.1% from the 1998 rate of 58%

Substance Abuse

Substance abuse during pregnancy is a major concern. While the negative health and developmental complications associated with the consumption of alcohol during pregnancy can lead to Fetal Alcohol Spectrum Disorders (FASD), the use of illicit drugs

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such as marijuana, cocaine, and heroin or the misuse of prescription medication also increase the likelihood of miscarriage, stillbirth, and poor fetal growth. Children born to mothers who used these drugs during pregnancy often have behavioral problems and learning difficulties. Some researchers believe that the father's drug use before conception might also increase the chances of birth defects in their children. Therefore, being drug-free is important before, during and after pregnancy for both parents.

During 2008, there were 753 pregnant women admitted to substance abuse treatment programs in Massachusetts, a total of 1% of total admissions. While the number of primary admissions for pregnant women decreased notably from approximately 800 to 500 cases per year between 1997 and 2001, since 2001 the number of primary admissions for pregnant women has increased to 753 cases in 2008.

- Of the 753 female admissions to substance abuse treatment programs in 2008:
 - 77.8% (585) were White, 6.4%(48) were Black, 11.2% (84) were Latino,6.8% (51) were other single race, and 9.0% (68) were multi-racial
 - In 2008, the prevalence (for both male and female) of living in a house where smoking is not allowed was 80.7%, an increase of 39.1% from the 1998 rate of 58%
 - 58.3% (439) were aged 21-29 years
 - 88.6% (667) were unemployed, 24.3% (183) were homeless
 - 51.7% (389) had received prior mental health treatment, 24.9% (309) had children under age 6 years (36.0% of which reported living with their children) and 34.0% (250) were the parents of children aged 6-18 years (21.3% of which reported living with their children)
 - Heroin was the most common primary substance of addiction reported by 53.3 % (401) of women, followed by alcohol in 13.8% (104) of cases, cocaine or crack in 13.4% (101) cases, marijuana in 4.7% (35) of cases and other drugs in 14.9% of cases

Alcohol

Excessive alcohol consumption during pregnancy can cause a variety of profound physical and mental disorders in the fetus, known as FASD. While the hazards of heavy drinking during pregnancy are well known, no amount of alcohol during pregnancy has been established as safe for the fetus.⁷⁵ In 2008, of the 753 pregnant women aged 18 years and older who were admitted to substance abuse treatment services, 104 (13.8%) reported alcohol as primary substance of use.⁷⁶

BRFSS 2006-2008 data provided the following related statistics about the prevalence of binge drinking (defined as the consumption of 5 or more drinks on any one occasion in the past month) and heavy drinking (defined for women as the consumption of more than 30 drinks in the past month) among women of childbearing age:⁷⁷

- Among women aged 18-44 years, 5.8% reported heavy drinking and 18.5% reported binge drinking

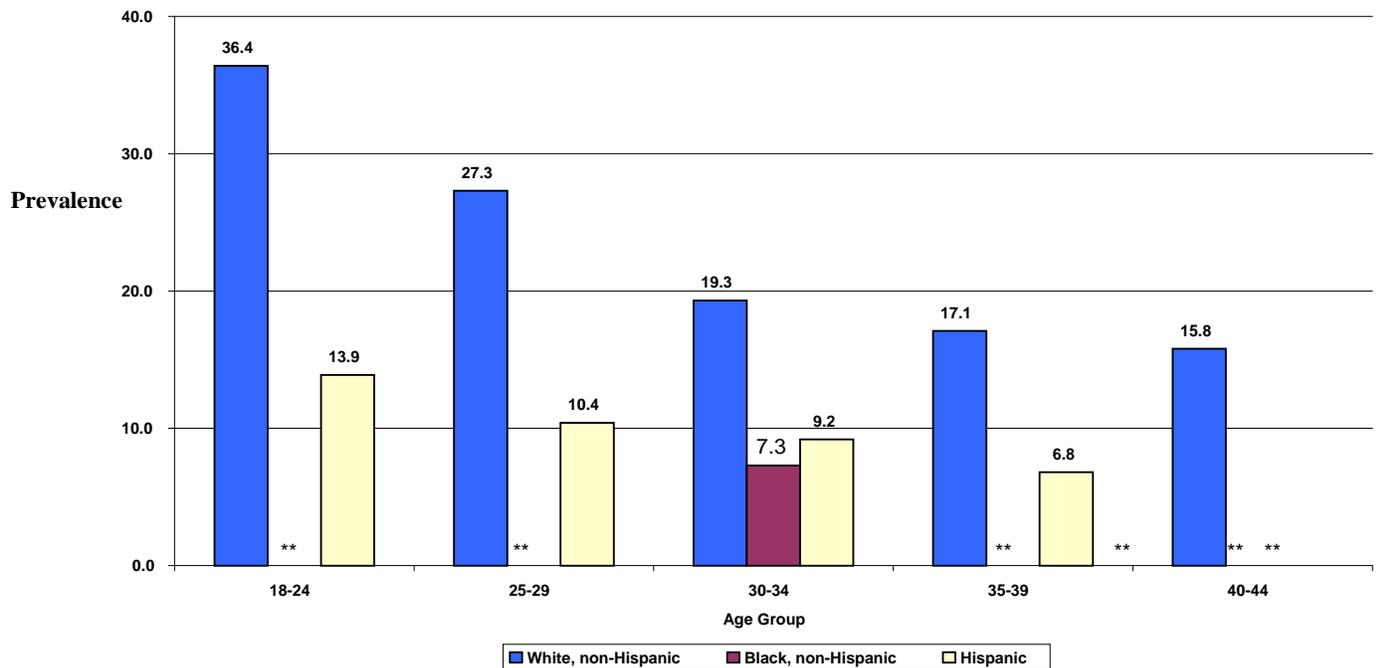
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- White, non-Hispanic women demonstrated consistently higher prevalence of binge drinking compared to Black, non-Hispanic, and Hispanic women [See Figure 3B-9 below]

According to 2007 PRAMS data:

- 70.6% of mothers reported ever using alcohol in the past 2 years
- 61.0% reported using alcohol in the three months prior to becoming pregnant
- 11.5% reported using any alcohol in the last three months of pregnancy
- 0.6% reported any alcohol bingeing during the last 3 months of pregnancy

Prevalence of Binge Drinking in past 30 days Among MA Females Ages 18-44 by Age Group and Race/Ethnicity, 2007- 2009 (aggregate)



** Number suppressed due to insufficient data

Source: Behavioral Risk Factor Surveillance System: MA 2007-2009

Figure 3B-9

Oral Health

Oral health is an important part of a woman's overall health. Oral diseases are associated with serious health problems including cardiovascular disease, stroke, diabetes mellitus, respiratory infections, osteoporosis, and adverse pregnancy outcomes.⁷⁸ Recent studies suggest that gum disease may represent a threat to the pregnant mother and her unborn baby. Hormonal changes during pregnancy can cause swollen gums that bleed during pregnancy.⁷⁹ Pregnant women are also particularly susceptible to periodontal disease. Maternal periodontal infections are associated with premature birth, low birthweight, pre-eclampsia, ulcerations of the gingival tissue, pregnancy granuloma, and

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tooth erosion. These risks increase in women who smoke or experience nutritional deficiencies.⁸⁰ According to 2008 MA PRAMS data:

- 89.9% of women reported ever having had their teeth cleaned by a licensed dental professional
- Among the women who had their teeth cleaned during a pregnancy, 41.9% had their teeth cleaned during the most recent pregnancy
- About 13.7% of mothers reported that their last teeth cleaning was before the year prior to pregnancy – over 2 years ago in most cases
- The prevalence of ever having their teeth cleaned among mothers in Massachusetts was 96.3% among those living at > 100% FPL versus 84.2% among those living at ≤ 100% FPL

BRFSS 2006-2008 data on oral health indicate the following:

- Among women aged 18-44 years, 71.9% reported having had a dental visit in the past year
- Hispanics (71.5%), Black, non-Hispanics (72.2%) and Asians (75.8%) were less likely than White, non-Hispanics (80.6%) to not have had a dental appointment in the past year
- The prevalence of having 5 or more teeth missing due to decay or disease was 4.3% in 2008 compared with 6.6% in 1996.⁸¹
- Between 1996 and 2008 the prevalence of 5 or more teeth missing due to decay or disease decreased 35%.⁸²

Furthermore, according to data released by the MDPH Office of Oral Health:⁸³

- Massachusetts ranks 36th in the nation for water fluoridation status
- 90% of residents aged 25-44 years living in dental health professional shortage areas have lost at least one tooth
- The occurrence of tooth loss in 2009 was directly associated with income level: prevalence of no tooth loss is highest (83%) among those earning > \$75,000 annually and lowest (49%) among those earning < \$25,000 annually
- Dental-visit frequency is 32% higher for Massachusetts residents who have dental insurance; however, the majority of health insurance plans, including Medicare, do not include routine dental services. In 2007, about 25% (1.58 million) of Massachusetts residents had no dental insurance coverage at all
- Currently, more than 1.2 million residents (17% of the Massachusetts population) are served by MassHealth (including more than 500,000 children aged 21 years and under); however, 66% of licensed dentists with a Massachusetts address are not MassHealth (Medicaid) providers and <12% of Massachusetts dental hygienists⁸⁴ report that their primary work settings accept MassHealth/Medicaid Insurance

Injury- Intimate Partner/Domestic Violence

Intimate partner violence (IPV) and domestic violence (DV), refer to behavior that physically hurts, arouses fear, or prevents a victim from doing what he/she wishes.⁸⁵ IPV is estimated to affect 1 in 4 women in their lifetime. Since 2003, in MA, domestic

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violence resulting in homicide of women has fluctuated with the highest spike in 2007 when there were 28 deaths. In 2008 and 2009 the number of deaths has declined to 18 and 14 deaths respectively.⁸⁶ IPV is estimated to affect 1 in 4 women in their lifetime. In the most extreme circumstances IPV can lead to death. Between 2003 and 2007, there were 125 IPV-related homicides in Massachusetts.⁸⁷ Although IPV homicide is mostly directed at the victim, IPV homicide can also result in the death or harm of people close to the victim including one or more children.⁸⁸ Pregnant women may be at higher risk of IPV.⁸⁹ Young mothers and mothers with unplanned pregnancies face an increased risk of IPV. More than 25% of adolescent mothers face abuse before, during, or just after pregnancy.⁹⁰ IPV during pregnancy can have lasting effects on the women and their infants, and has been associated with preterm birth, low birthweight, smoking during pregnancy, hospitalization prior to birth, high blood pressure, kidney or urinary tract infections, transmission of STDs, complications including vaginal bleeding and infection, poor physical/mental health post-partum.^{91,92} According to 2008 MA PRAMS data:

- 3.6% reported IPV in 12 months pre-pregnancy
- 2.7% reported IPV during pregnancy
- 4.8% reported IPV in 12 months prior or during pregnancy
 - Living in poverty > 3 times more likely (16.2% vs. 1.9%) than if not living in poverty

In 2009 the Massachusetts Coalition Against Domestic Violence reported that:

- In one day 2,018 victims were served by 49 domestic violence shelters
- In one day the domestic violence hotline answered, on average, about 32 calls an hour, equaling 763 hotline calls for the 24 our period
- There was a total 12,198 domestic violence calls to domestic violence shelters or hotlines with about 49% of calls coming directly from the victims/survivors

Immigrants living in Massachusetts account for a disproportionately high percentage of domestic violence homicides. Although immigrants only make up 14% the total population, immigrants accounted for 26% (47) of the 180 domestic violence deaths from 1997-2006. The majority of these victims were women and children.⁹³

Injury- Seat Belt Use

Automobile accidents or traffic crashes were the leading cause of unintentional death in the Unites States and the second leading cause of unintentional injury death in Massachusetts in 2007.⁹⁴ Wearing a seatbelt is the simplest and least expensive way to reduce deaths and serious injuries resulting from car accidents.⁹⁵ According to 2008 BRFSS data:

- Overall, 92.3% of women aged 25-49 years reported nearly always or always wearing their seatbelts: women aged 45-49 years were most likely to report such behavior; 2.8% reported seldom or never wearing their seatbelts and 4.1% reported sometimes wearing their seatbelts
- Women with moderate/high income were more likely to report using seat belts than women with low income (88.2% and 82.7%, respectively)

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- Black women were less likely to report the use of seat belts than Hispanics or Whites (90.5%, 92.4% and 95.4% respectively)

Prenatal Care

Entry to prenatal care (PNC) in the first trimester of pregnancy improves the health of mothers and infants. The Adequacy of Prenatal Care Utilization (APNCU) Index describes several aspects of PNC, including the timing of entry to care and the amount of care received. The Healthy People 2010 target is that at least 90% of women receive PNC before the end of the first trimester of pregnancy

According to Massachusetts birth certificate data:

- In 2008 81% of women received care beginning in the first trimester and 82.1% of women received early and adequate prenatal care. Both percentages are within 25% of the HP2010 target of 90% for both variables

MA PRAMS also provides information on prenatal care among Massachusetts mothers. The PRAMS survey assesses when women knew that they were pregnant and when they began their prenatal visits, both of which affect early access to vital preventive health services as well as screening, monitoring and, when necessary, treatment for health issues related to pregnancy.⁹⁶ The following statistics highlight 2008 MA PRAMS findings on adequacy of prenatal care:

- Prevalence of adequate or adequate plus prenatal care was 80.7%
- Prevalence of intermediate prenatal care was 7%
- Prevalence of inadequate care was 9.7%
- 0.1% reported no PNC
- Data were missing for 2.5% of the population
- Prevalence of inadequate or no prenatal care was higher among Hispanic (16%) compared to White, non-Hispanic (7.9%) mothers; there were no other significant differences across racial/ethnic groups
- Mothers aged < 20 years (25.1%) were more likely to report inadequate or no prenatal care compared to mothers aged 30-39 years (6%)
- Mothers with less than high school education (22.6%) were significantly more likely to report inadequate or no prenatal care compared to mothers with high school diplomas (9.2%) and college graduates (6.5%)
- Mothers living at or below 100% FPL (17.5%) were more likely to have received inadequate or no prenatal care than mothers living above 100% of FPL (7.7%)
- Mothers with Medicaid (15.5%) were more likely to have received inadequate or no prenatal care than mothers not on Medicaid (6.8%)
- About 11% of Massachusetts mothers reported not receiving prenatal care as soon as they had wanted
- Leading causes for not receiving prenatal care as early as desired, among Massachusetts mothers reporting not receiving prenatal care as soon as they wanted, included:
 - Doctor/health plan would not start earlier (58.1%)

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- Inability to get an appointment (51.4%)
- Unaffordable (43.3%)
- Too many other things going on (29.9%)
- Transportation (29.2%)
- No Medicaid card (24.5%)

The following statistics highlight 2008 PRAMS findings on unplanned pregnancy:

- 48.8% of mothers were aware of their pregnancies within the first 4 weeks of pregnancy, 38.9% between weeks 5 and 8, 8.8% between weeks 9 and 12 and less than 4% after the first trimester
- 86.2% of women entered prenatal care within the first trimester while 12.8% entered after the 1st trimester and 0.1% reported not having any prenatal care.
 - White, non-Hispanics (90.6%) were statistically significantly more likely to enter into prenatal care in the first trimester than Black, non-Hispanics (73.6%), Hispanics (76.3%), or Asian, non-Hispanics (81.5%)
 - Mothers aged < 20 years (60.8%) were less likely to enter into prenatal care in the first trimester compared to mothers in all other age groups: 20-29 years (85%), 30-39 years (90.3%), 40+ years (87%)
 - Mothers with less than high school education (66.3%) were less likely to enter into prenatal care in the first trimester compared to mothers with all other education levels: high school diploma (82.3%), some college (82.4%), and college graduate (94.8%)
 - Mothers on Medicaid were less likely (76.2%) than non-Medicaid mothers (92.7%) to access prenatal care in the first trimester

Gestational Diabetes Mellitus (GDM)

GDM is defined as glucose intolerance which did not exist immediately prior to the pregnancy, but was diagnosed during the pregnancy.⁹⁷ GDM manifests in health complications for the mother including delivery complications associated with having a larger baby, higher risk of needing a cesarean delivery, and development of type-2 diabetes later in life. GDM also poses a threat to infants, including macrosomia injury to the child during birth due to large size, and increased risk of childhood obesity and adult diabetes.⁹⁸ Because of these well-recognized adverse sequelae and recent increases in GDM both in Massachusetts and nationwide, GDM has been a priority area for MDPH over the past few years.

- In 2006 GDM complicated approximately 4.2% of all pregnancies in the United States, up from 3.8% in 2005, an increase of over 10 percent in one year
- According to Massachusetts birth certificate (BC) data, in 2008 the proportion of births to mothers diagnosed with GDM remained stable at 4.0% (4.2% in 2007), up 5.3% from the 2006 prevalence of 3.8% and 43% since 2000 when the rate was 2.8%

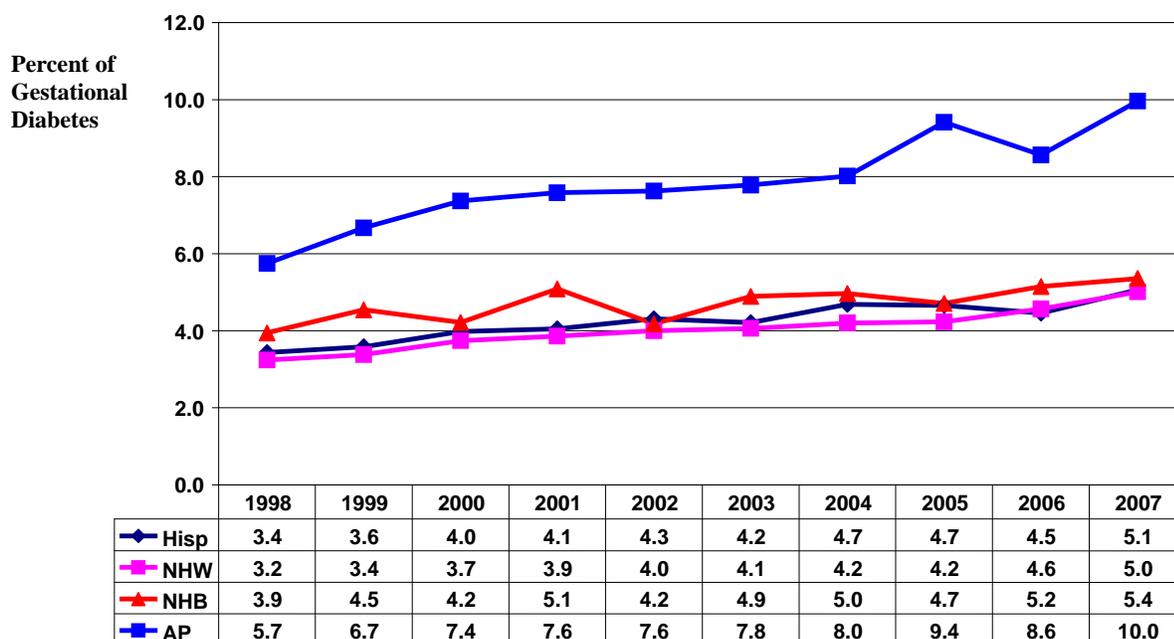
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Although the birth certificate is still the most widely used surveillance system in the state, because of known underreporting of many maternal medical conditions, it does not allow us to accurately estimate the prevalence of GDM. Additional data and data linkages can improve the description of and understanding of GDM. BC data linked with hospital discharge data in the PELL data system were used to improve the identification of GDM cases among Massachusetts mothers. The linkage also improves the ability to distinguish between GDM and pre-existing diabetes.

- The prevalence of GDM observed in PELL was 5.4% compared with 4.2% in BC data in 2007. While the percentiles differ, the PELL results are consistent with observations made using BC data alone in regards to the increase seen in overall prevalence and the variations across race/ethnicities and age groups
- The prevalence of GDM in Massachusetts has increased 59% from 1998 (3.4%) through 2007 (5.4%). The overall prevalence from 1998-2007 was 4.4%
- From 1998 to 2007, the prevalence of GDM was highest among Asian/PI (8.0%) and lowest among White, Non-Hispanics (4.0%). Among Black non-Hispanics and Hispanics the prevalence was 4.7% and 4.3% respectively
- From 1998-2007, the prevalence of GDM was consistently higher among Asian/PI [See Figure 3B-10]
- The prevalence of GDM increased with increasing maternal age: 8.3% among women aged 40 years or older; 5.2% among women aged 30-39 years; 3.4% among women aged 20-29; and 1.3% among women aged less than 20 years
- The prevalence of GDM by maternal ancestry demonstrated even wider variations than those seen across race/ethnicities. For example, while the prevalence among Asian mothers was 8.0% the prevalence among Asian, Indian mothers was 11.0% versus 3.1% among Cape Verdeans
- Stratification of GDM rates by pregnancy outcomes, parity and plurality showed associations with higher birth weight, preterm birth, parity two or greater and plurality of two or greater
- The adjusted population attributable fraction (aPAF) analysis of GDM showed that 12.4% of the overall GDM prevalence could be attributed to race/ethnicity, 23.1% to age, 4.4% to parity, and 1.1% to plurality.
- Overall, the average age of mothers is going up, the birth rate of White, non-Hispanic mothers is going down and the birth rates of non-White race/ethnicities are going up. However, these demographic shifts in our state do not completely explain the 59% increase in GDM rates seen since 1998. Through standardization of rates by age and race, no more than 10% of the GDM increase over the past several years can be explained by demographic cohort effects

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Gestational Diabetes Trends by Race/Ethnicity for All Deliveries among Massachusetts Residents: Massachusetts 1998-2007



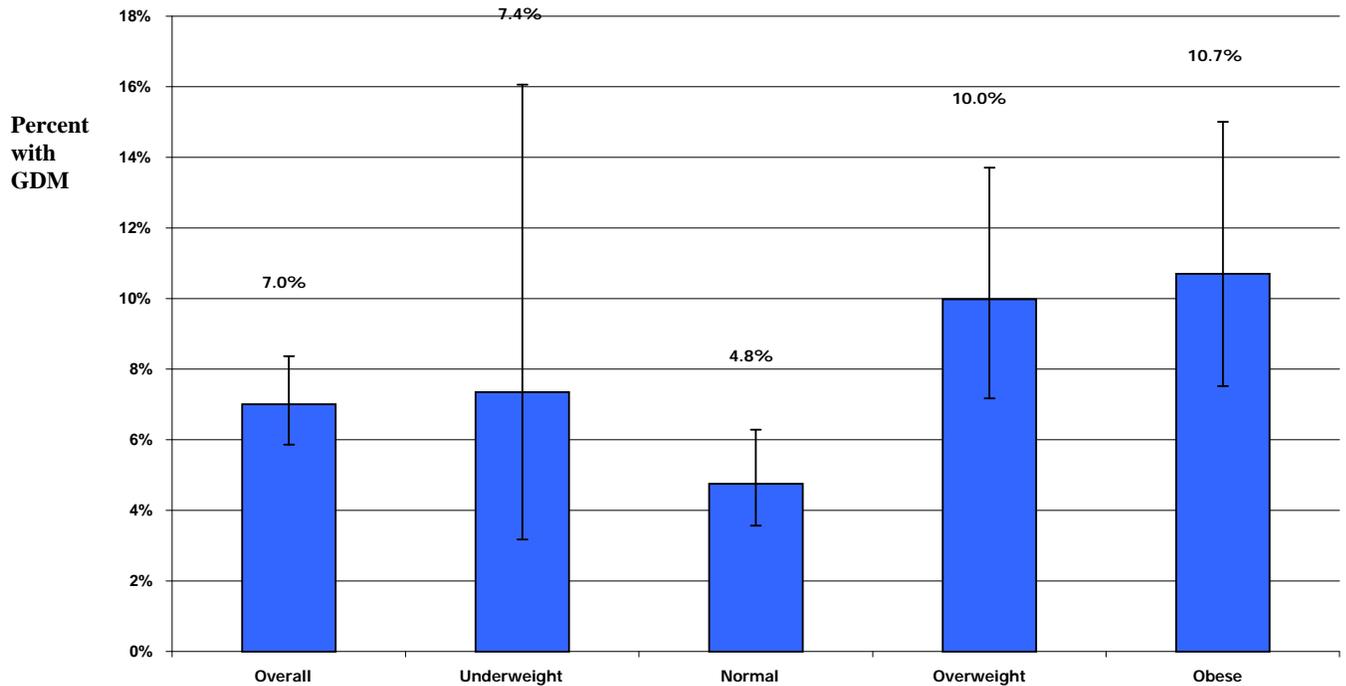
Source: Pregnancy to Early Life Longitudinal (PELL) Data System: MA 1998-2007

Figure 3B-10

PRAMS data also provide information on the prevalence of GDM in Massachusetts and allows us to examine risk factors associated with GDM. According to PRAMS 2007-2008 data, the prevalence of women reporting GDM during their most recent pregnancy was 7% (NOTE: PRAMS data may overestimate the true prevalence of GDM due to: 1) misclassifying undiagnosed pre-existing Type 1 or 2 diabetes that is first recognized during pregnancy as GDM, or 2) misclassifying mothers who had a positive initial blood glucose screen but subsequent normal 3 hour GTT who report on the survey that they had “high blood sugar during this pregnancy” as GDM).

- The highest prevalence of GDM (10.7%) was among mothers who were obese (BMI ≥ 30) prior to pregnancy followed by mothers who were overweight (10%) and mothers with normal BMI (4.8%). These differences were statistically significant [See Figure 3B-11]
- GDM prevalence was highest among Asian non-Hispanic women (11.2%) and followed by other non-Hispanic women (9.9%)
- GDM prevalence was higher among non-US-born women (10.7%) than US-born women (5.2%)

Gestational Diabetes by Pre-pregnancy Body Mass Index: Massachusetts 2007-2008



Source: Pregnancy Risk Assessment Monitoring System (PRAMS): MA 2007-2008

Figure 3B-11

As the prevalence of childhood and adolescent overweight and obesity continues to increase, GDM will be an increasing issue among women of childbearing age. Improved prevention efforts and further awareness of factors associated with increased risks are needed, particularly since women with GDM have an increased risk of developing Type 2 diabetes later in life, and there is growing evidence of negative outcomes among offspring of women with GDM. While the obstetrician provides care during pregnancy, after the delivery, the information about GDM must be provided to the primary care provider so that these women can receive additional monitoring care and management to prevent, identify and treat as early as possible Type 2 diabetes.

Chronic Diseases

Women with specific pre-existing chronic conditions such as diabetes mellitus, anemia, hypertension, thyroid disorders, gynecological disorders, epilepsy, systemic lupus erythematosus, hyperphenylalaninemia, asthma, heart disease, deep venous thrombosis, kidney disease, hemoglobinopathies, cancer, seizure disorders, tuberculosis, rheumatoid arthritis, and mental health/psychiatric disorders are at increased risk for adverse pregnancy outcomes. It is important that these conditions be well-controlled before and during pregnancy. Women on medication may need to modify, stop or be advised not to stop taking their medications depending on potential harm to the growing fetus.

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BRFSS 2006-2008 data provided the following statistics about prevalence and disparities related to certain chronic conditions among women of childbearing age:⁹⁹

- The overall prevalence of ever being diagnosed with diabetes among women aged 18-44 years was 2.3%
- The prevalence of ever being diagnosed with diabetes increased with increasing age: 15% among women aged 25-49 years, 2.0% among women aged 30-34 years, 2.8% among women aged 35-39 years and 3.5% among women aged 40-44 years
- The prevalence of diabetes among Black, non-Hispanic (3.4%) and Hispanic (4.6%) women was more than twice that among White, non-Hispanic women (1.8%). The prevalence among women of Asian/Pacific Islander descent was not reported due to small sample size.
- The overall prevalence of pre-diabetes among women aged 18-44 years was 3.7%
- The cumulative lifetime prevalence of asthma among women aged 18-44 years was 18.1%. The breakdown by race ethnicity was the following:
 - 21.3% among Hispanics
 - 18.1% among White non-Hispanics
 - 16.7% among Black non-Hispanics
 - 7.8% among Asian/Pacific Islanders
- The overall lifetime prevalence of hypertension among women aged 18-44 years was 8.5%. The breakdown by race ethnicity and age was the following:
 - 8.1% among White, non-Hispanics
 - 15.0% among Black non-Hispanics
 - 12.0% among Hispanics
 - The prevalence of hypertension among female Asian/Pacific Islanders was not reported due to small numbers
 - 5.9% among females aged 18-24 years
 - 5.8% among females aged 25-29 years
 - 7.4% among females aged 30-34 years
 - 8.2% among females aged 35-39 years
 - 11.9% among females aged 40-44 years
- The lifetime prevalence of angina/CHD among females aged 18-44 years was 1.0%. The breakdown by race ethnicity was the following:
 - 1.5% among Black non-Hispanics
 - 1.2% among Hispanics
 - 0.9% among White non-Hispanics
 - 0.6 among Asians
- The overall prevalence of stroke was 0.4% among women aged 18-44 years. The prevalence was 0.5% among Black non-Hispanics and 0.3% among White non-Hispanics
- The reported prevalence of having a disability for more than one year was 15.4% among females aged 18-44 years. The breakdown by age and race ethnicity was the following:
 - 17.5% among women aged 18-24 years

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- 17.3% among women aged 22-29 years
- 12.1% among women aged 30-34 years
- 12.4% among women aged 35-39 years
- 17.3% among women aged 40-44 years
- 16.2% for Hispanics
- 15.6% for White non-Hispanics
- 1.2% Black non-Hispanics
- During 2002-2006, invasive breast cancer was the most common type of newly diagnosed cancer among Massachusetts women, accounting for approximately 28% of new cancers among women in the state
 - The average annual age-adjusted incidence rate of breast cancer was 132.9 per 100,000 women
 - The mortality rate from invasive breast cancer decreased by 3.1% annually from 2002-2006
 - The age-specific incidence rate (cases per 100,000 women in that age group) of breast cancer increases with each age category: 5.8 cases among women aged 25-29 years; 25.6 cases among those aged 30-34 years; 66.3 among women 35-39 years; 128.1 among women 40-44 years; and 215.8 cases per 100,000 women aged 45-49 years

Infectious Diseases

Women with sexually transmitted infections (STIs) including gonorrhea, chlamydia, syphilis, HIV, and hepatitis B and C before or during pregnancy should be appropriately treated to improve the outcome of both the mother and the baby. Compared to men, women are more likely to become infected if exposed to STIs and, if contracted, STIs are more likely to remain undetected and untreated for prolonged periods of time in women. As such, complications associated with STIs are greater and more common among women.¹⁰⁰ For these and other reasons, the immune status of women before pregnancy should be established to reduce adverse health outcomes for the newborn. Mothers who contract rubella (German measles) or chicken pox (varicella) during pregnancy have a high risk of giving birth to a baby with mental retardation, heart defect, and deafness. Therefore, it is important for women to have appropriate screenings, immunizations, and treatments when they are planning to become pregnant.

Hepatitis

In 2008 among Massachusetts women aged 18-44 years there were:

- 98 confirmed cases of chronic hepatitis B
- 12 cases of confirmed hepatitis A
- 923 confirmed cases of hepatitis C¹⁰¹
- The highest incidence (count) of acute hepatitis B among women was among women aged 30-37 years (27), followed by those aged 28-32 years (22), 23-27 years (22) and 38-42 years (13)

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- Since 2004 the number of incident diagnosed, reported, and confirmed cases of hepatitis C among women in Massachusetts has declined steadily from more than 1,800 to less than 1,000¹⁰²
- MDPH follows up all cases of hepatitis A and C
- The Massachusetts Immunization Program follows up all women aged 14-44 years who have a positive hepatitis B surface antigen screen for pregnancy status to prevent vertical transmission of hepatitis B. Infants of women who screened positive will receive hepatitis B-immunoglobulin at birth and appropriate doses of hepatitis B-vaccine

Tuberculosis

Pregnant women with untreated active tuberculosis (TB) can endanger the newborn at delivery. Infants born to women with untreated TB may be of lower birth weight than those born to women without TB and rarely the infant may be born with TB. The overall goal of TB treatment is to cure women and minimize transmission to others. The risk of TB transmission is higher among infants and children under four.¹⁰³ TB is especially prevalent in minority women who are more likely to live in condensed groups. Pregnant women have been targeted for TB testing because pregnancy is sometimes the first encounter with the health care system for minority women.¹⁰⁴ According to the MDPH Bureau of Infectious Diseases Prevention, Response and Services, Division of Tuberculosis Prevention and Control, in 2008, there 261 cases (case rate 4.11 per 100,000 population) of active tuberculosis (TB) were reported to and verified by the Division of TB Prevention and Control. TB cases declined in 2007 by 14%. However, that decrease was not sustained in 2008. TB cases increased by 17% in 2008.

- Persons in minority population groups composed 80% of the TB cases in 2008. For blacks, the case rate was 20.7 per 100,000, and for Hispanics, the case rate was 9.6 per 100,000. Asians continue to have a higher case rate than any other group (39.1 per 100,000 in 2008). Blacks are 21 times more likely than whites to be diagnosed with TB, Hispanics 10 times more likely, and Asians 40 times more likely than whites
- Of the 261 cases of TB in MA in 2008, 111 (42%) were women
- Among men and women diagnosed with TB in 2008, the majority of cases were individuals aged 25-44 years (37%) followed by those aged 45-64 years (29%)¹⁰⁵
- Among Massachusetts women aged 15-44 years, there were 37 cases of confirmed TB in 2009. Of these 17 were Asian, 13 were Black non-Hispanic, 4 were Hispanic, and 3 were White non-Hispanic

Chlamydia, Gonorrhea and Syphilis

Chlamydia trachomatis is a common cause of urethritis and cervicitis, and sequelae of untreated infections include pelvic inflammatory disease, ectopic pregnancy, and tubal factor infertility. Chlamydia infections in women are more likely than those in men to remain undetected, leading to delayed diagnosis and treatment and ultimately more untreated infections.¹⁰⁶ In 2007 the female to male ratio among chlamydia cases

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was 2.6 to 1.0. However, such an over-representation of women among chlamydia cases is likely due in part to increased screening among women versus men.¹⁰⁷ Pap smears are important for screening for cervical cancer, vaginal infections such as bacterial vaginosis and STIs. According to 2006 BRFSS data, 84% of MA women reported having had a Pap smear test within the past 3 years.

MDPH monitors trends in diagnoses of chlamydia infections among youth and examines racial/ethnic disparities in diagnoses. Compared to older adults, sexually active youth (aged 15-19 years) and young adults (aged 20-24 years) are at higher risk for acquiring STIs. This higher risk is due to a combination of behavioral, biological and cultural factors, accessibility to quality health care, and concerns about confidentiality.¹⁰⁸ The majority of reported chlamydia infections in Massachusetts are in youth and young adults.

The MDPH Bureau of Communicable Disease Control Surveillance provides the following highlights for 2009 data:

- A total of 18,814 cases of chlamydia were reported to MDPH, the highest recorded number in over 15 years
- 4,386 cases of chlamydia were reported among women aged 15-19 years. The rate of chlamydia diagnoses among women aged 15-19 years was 19.2 per 1,000 compared with 18.6 per 1,000 in 2008
- A total of 8,680 cases of chlamydia were reported among women aged 20-44 years. The rate of chlamydia diagnoses among women aged 20-44 years was 7.6 per 1,000 in 2009 compared with 7.0 per 1,000 in 2008¹⁰⁹
- The chlamydia rates among Black, non-Hispanics and Hispanics were 19 and 14 times the White rate, respectively
- Among women aged 15-29 years the incidence rate of chlamydia was consistently 6 to 10 times that of gonorrhea and syphilis

Since chlamydia infection is often asymptomatic and diagnosis is dependent on laboratory testing, increased screening for chlamydia infection is one cause of increased reports of cases. Periodic screening is now recommended for all sexually active young women, and successful implementation of these screening recommendations leads to increases in reported cases. Increases in chlamydia case reports may also stem from improvements in electronic laboratory reporting. Furthermore, since 1997, 30 Massachusetts clinics have participated in the CDC-funded Infertility Prevention Project, whose goal is to reduce infertility and other health consequences of chlamydia infection through increased screening and treatment of high-risk women. Potential explanations for the observed racial/ethnic differences in chlamydia rates include improved insurance coverage for Black non-Hispanic and Hispanic youth with resulting increases in screening, and increases in the number of youth and young adults of color living in Massachusetts who might not be accounted for in the denominators used for rate calculations.

State trends in the age-specific incidence of gonorrhea mirror that of chlamydia in recent years. After increasing between 1998 and 2002 there was a notable decline in reported cases of gonorrhea in Massachusetts between 2003 and 2006. However, between 2006 and 2007 there was a 10% increase in total number of gonorrhea cases. In 2007, 48% (1,315) of all cases were among women. While the statewide rate of gonorrhea is

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43.0 cases per 100,000, gonorrhea rates are four times the state rate among young adults and 3.2 times the state rate among youth aged 15-19 years. Compared to White, non-Hispanics, gonorrhea rates among Black, non-Hispanics are 26.4 times higher and among Hispanics are 9.4 times higher. This disparity in gonorrhea rates significantly exceeds the disparity seen nationwide. The rate in Blacks is 18 times higher than the rate in Whites while the rate in Hispanics is two times greater than the rate among Whites.¹¹⁰

In 2008, there were 892 cases of reported and confirmed gonorrhea of which:

- 171 (19.2%) were women aged 18-19 years
- 394 (44.2%) were women aged 20-24 years
- 170 (19.1%) were women aged 25-29 years
- 86 (9.6%) were women aged 30-34
- 38 (4.3%) were women aged 35-39 years
- 33 (3.7%) were women aged 40-44 years

The incidence of reported primary, secondary, and early latent syphilis increased by 22% between 2006 and 2007: 48% of the 266 cases in 2007 occurred in Suffolk County. In 2007 the ratio of male to female cases of syphilis was 9.6 to 1. Unlike with chlamydia and gonorrhea, the incidence of reported syphilis was higher among people over the age of 25 years.¹¹¹

HIV/AIDS

All women who are pregnant or planning to become pregnant are recommended to be counseled and offered HIV testing. Testing in pregnancy is important because treatment is available that can improve the mother's health and prevent vertical transmission of the disease to her baby.¹¹² Prior testing does not rule out HIV. The American College of Obstetrics and Gynecology (ACOG) and the Centers for Disease Control and Prevention (CDC) recommend routine HIV counseling during pregnancy, regardless of risk profile and prior pregnancies. HIV testing is voluntary and must be done with informed consent and women may want to include their partners in the counseling session. The 2008 BRFSS data indicate that 10% of women aged 25-49 years reported being screened for HIV within a year of taking the survey. Younger women were more likely to be screened. Among women aged 25-29 years, 18.2% reported being screened, whereas 14.9%, 8.8%, 6.2%, and 4.4% reported being screened among women aged 30-34, 35-39, 40-44, 45-49 years, respectively.

Substantial racial/ethnic disparities in HIV infections exist in Massachusetts. The age-adjusted annual rate of HIV infection among Black, non-Hispanics is 30 times greater than that among White, non-Hispanics, while that of Hispanics is 15 times greater than the rate among White, non-Hispanics. As of December 31, 2008, there were:

- 5,165 women, of all ages, living with HIV across the state. Of these:
 - 2,168 (42%) were Black non-Hispanic
 - 1,468 (28.4%) were Hispanic
 - 1,433 (27.7%) were White non-Hispanic
 - 96 (1.8%) were all other race/ethnic categories¹¹³
 - The majority of the 5,165 cases (2,561) of these were women aged 18-44 years¹¹⁴

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- In 2004 there were 4 incident cases of second generation HIV/AIDS transmission.¹¹⁵ In 2009 there were 3 cases of HIV transmission (2009 data is still preliminary)¹¹⁶

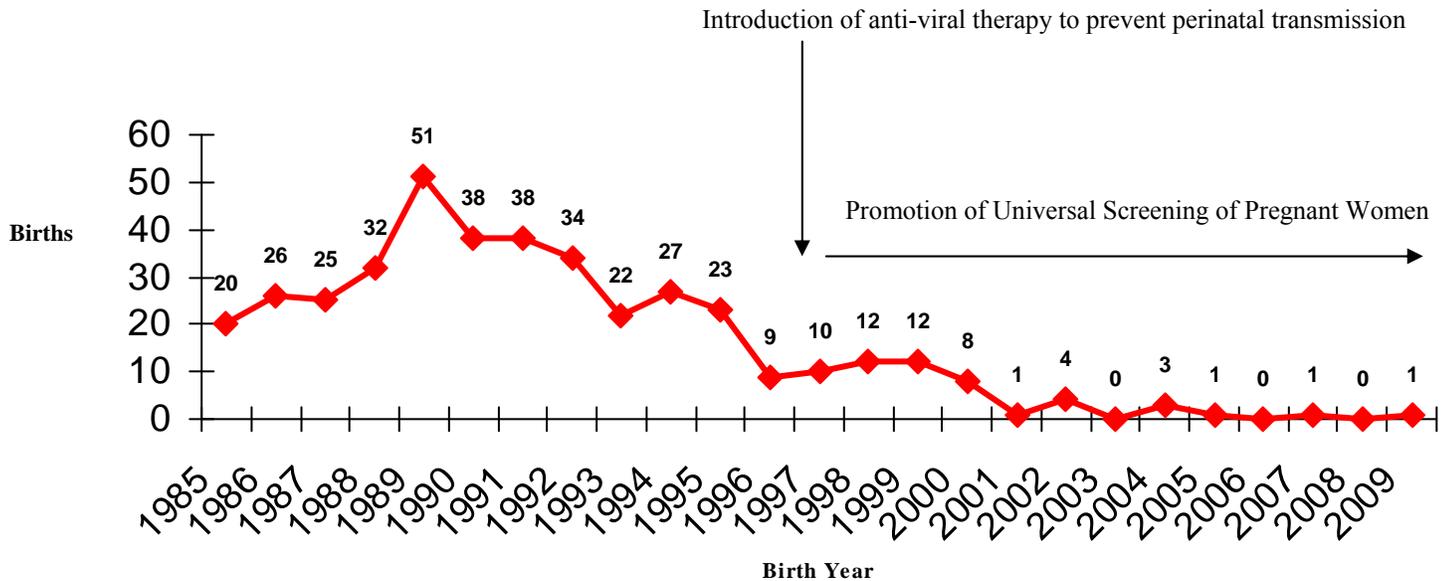
According to 2008 Massachusetts PRAMS data:

- Approximately 74% of mothers reported being offered an HIV test during pregnancy, 20.7% reported not being offered an HIV test, and 5.4% reported not knowing whether a test was offered
- The prevalence of being offered an HIV test was higher among Black, non-Hispanic (85.6%) and Hispanic (87.9%) mothers compared to White, non-Hispanic (69.5%) and Asian, non-Hispanic (71.4%) mothers; as well as among mothers under the age of 20 years (90.8%) compared to mothers aged 30-39 years (64.9%), and $\leq 100\%$ FPL (87.8%) compared to $> 100\%$ FPL (70.1%). Note: this data may be somewhat misleading as Black, younger, and high school educated women are more likely to be profiled as “at-risk” for HIV/AIDS and therefore are offered screens at a higher rate though this conflicts with MDPH/ACOG/CDC guidelines to screen everyone regardless of risk profile
- Overall, 59.9% of mothers reported having an HIV test during their pregnancy, 30.7% reported not being tested for HIV, and 9.4% reported not knowing whether they had been tested
- The prevalence of being tested for HIV during pregnancy was higher among Black, non-Hispanic (75.9%) and Hispanic (79%) mothers compared to White, non-Hispanic mothers (53.4%) and Asian, non-Hispanic (61%); HIV testing during pregnancy was also higher among mothers aged <20 years (82.3%) and 20-29 years (71.1%) compared to those aged 30-39 years (47.4%); mothers living at $\leq 100\%$ FPL (81%); and those non-US born (70.4%)
- Mothers who were college graduates (63.8%) were less likely than those with a high school diploma or less to report being offered (85.2%, 87.8% respectively) an HIV test
- College graduates (45.6%) were less likely than those with some college, high school diploma, or less to report having an HIV test during pregnancy (64.7%, 73.3%, and 79.8% respectively)
- Of the 14.9% of mothers who were offered an HIV test during their pregnancy and refused, the most common reasons for refusing the test were not thinking that she was at risk for HIV (40.6%), having been previously tested (39.9%), and not wanting people to think she was at risk for HIV (33.6%)¹¹⁷

Since the 1990's, Massachusetts has experienced a significant reduction in identified cases of mother-to-child transmission of HIV infections. While success is attributed to improvements in HIV screening during pregnancy and the treatment of HIV infected women with anti-retroviral therapy [See Figure 3B-12 below],¹¹⁸ almost 1 in 5 women in Massachusetts are still not offered an HIV test.¹¹⁹

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**Identified Mother-to-Child Transmission of HIV Infection
by Year of Birth, Massachusetts, 1985-2009**



Source: HIV/AIDS Surveillance System, MA March 2010

Figure 3B-12

H1N1

H1N1 (the swine flu), a highly contagious viral flu transmitted by air, arose as a particular health risk among pregnant women and children in 2009. With a first outbreak associated with numerous hospitalizations and deaths in the spring of 2009, the winter flu season began earlier than usual with a surge in reported cases of H1N1 beginning as early as September. Between April 26, 2009 and April 15, 2010 a total of 1,998 cases of H1N1 were diagnosed among individuals in Massachusetts: 1,007 (50.4%) of these cases of H1N1 were to females, 402 (20.1%) were hospitalized, and 33 (1.7%) died. Of the 1,007 women, 63 (6.2%) were pregnant.¹²⁰

Pregnancy and Postpartum Outcomes

Breastfeeding

Exclusive breastfeeding for the first 6 months of life is recognized as the best and most complete source of nourishment for most infants. Such exclusivity for the first 6 months is further associated with lowered risk of infections and certain chronic diseases and is shown to have substantial health benefits for mothers as well.¹²¹ The promotion of breastfeeding has been a major focus for the Massachusetts WIC program as well as home visiting and prenatal programs. MDPH has proposed Hospital Licensure Regulations that include strong requirements related to the promotion of breastfeeding. According to 2009 Massachusetts data from the Pediatric Nutrition Surveillance System

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(PedNSS) representing approximately 8.2 million low income children aged birth to five 5 years across the country:

- In 2008, 72.1% of Massachusetts mothers (versus 59.8% of mothers nationwide, Massachusetts ranked 11th in the Nation) reported ever breastfeeding their child; this measure has consistently increased since 1999 when it was 58.6%^{122, 123}
- The prevalence of infants ever breastfed in the past ten years was consistently high among Hispanic infants whose breastfeeding prevalence rose from 71.1% in 1999 to 80.5% in 2008
- The prevalence of ever breastfeeding among MA PedNSS infants has also increased among Black non-Hispanic infants, whose prevalence increased from 68.1% in 1999 to 82.6 % in 2008, the largest improvement for breastfeeding initiation
- The greatest proportion of infants to be ever breastfed in 2008 MA PedNSS data was observed among Black non Hispanic infants (82.6%), surpassing Hispanic infants and other race groups
- The overall proportion of infants in 2008 MA PedNSS that were breastfed for at least six months was 27.3% (compared with 25.4% nationally)
- In the 2008 MA PedNSS, the greatest prevalence in breastfeeding for at least six months occurred among Black non-Hispanic infants (38.2%), followed by Hispanic (30.9%), Asian (26.3%), and White non-Hispanic (21.0%)
- In the national PedNSS, the greatest prevalence of breastfeeding for at least six months occurred among Hispanic infants (36.4%), followed by Asian (28.7%), American Indian (26.3%), multiple race (19.5%), White non-Hispanic (19.3%) and Black non-Hispanic (18.2%) infants.¹²⁴
- In 2008, neither MA PedNSS nor their national counterparts met the HP-2010 goal of breastfeeding for at least six months set at 50%

According to 2008 MA PRAMS data:

- 81.6% of respondents reported initiating breastfeeding; this estimate exceeds the Healthy People 2010 goal of 75% initiation set by the US-DHHS in 2000
- About 70.9% reported any breastfeeding for at least 4 weeks and 62.1% for at least 8 weeks
- Approximately 54.1% reported exclusive breastfeeding for at least 4 weeks, and nearly 46.3% for at least 8 weeks

The following PRAMS statistics highlight disparities in breastfeeding initiation, duration and exclusivity among Massachusetts mothers:

- Prevalence of breastfeeding initiation and duration to 4 and 8 weeks was highest among other non-Hispanic mothers (91.1%) and lowest among White non-Hispanic mothers (78.4%)
- Ever breastfeeding was higher among those mothers who were college graduates compared to those with a high school diploma; initiation and

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duration to 4 (80.9%) or 8 weeks (76.6%) was higher among mothers who were college graduates compared to mothers at all other levels of educational attainment; however, there was no difference in exclusivity at 4 or 8 weeks observed across levels of educational attainment

- Mothers living at or below 100% FPL were less likely to breastfeed either exclusively or with supplementation at 4 or 8 weeks; however, the prevalence of ever breastfeeding was not statistically significant
- Non-US born mothers had a higher prevalence of ever breastfeeding (93.3% compared to 77.2% among US born and higher prevalence of breastfeeding either exclusively or with supplementation at 4 (86.5%) or 8 weeks (77.8%)
- Mothers participating in WIC during pregnancy were less likely to report breastfeeding (either exclusively or with supplementation) at 4 (63.8%) or 8 weeks (51%) as well as exclusive breastfeeding at 8 weeks (37.7%),
- Mothers reporting that they wanted their pregnancy then or sooner were more likely to report breastfeeding (either exclusively or with supplementation) at 8 weeks (67.4%)

The three statewide maternal focus groups, facilitated by the Massachusetts Title V Needs Assessment Team, asked women about their experiences with breastfeeding. While breastfeeding was a major goal for most mothers, many participants often found breastfeeding difficult or felt an overwhelming pressure to breastfeed. Pressure reportedly came from nurses who, participants noted, also often gave conflicting advice. Other areas of concern focused around feelings of discomfort with breastfeeding in public places while others were uncertain if their baby was getting enough milk. Cumulatively, focus group participants stated that their family and close friends were the biggest influences in their decision to breastfeed. If family members were supportive of breastfeeding, women were more likely to breastfeed.

Maternal Mental Health

Recent research demonstrates a notable association between perinatal maternal mental health and infant birth outcomes.¹²⁵ In a recent study, the offspring of mothers with any mental health diagnosis during pregnancy or at the time of delivery illustrated increased risk of low birth weight, preterm birth, placental abruption, tocolysis, respiratory distress syndrome, and in the case where diagnosis was made at delivery, fetal death.¹²⁶ Postpartum depression has been documented to negatively affect maternal and infant health including interfering with infant development and the development of the mother-child bond.¹²⁷ Given the short and long-term sequelae for mothers and their infants associated with maternal perinatal and postpartum depressive symptoms, the importance of addressing maternal mental health issues is apparent.

According to the 2008 MA PRAMS survey:

- About 8% of respondents reported always or often experiencing depressive symptoms during the post-partum period; 25.1% of respondents reported sometimes having these emotions, and 67% reported

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rarely or never experiencing depressive symptoms following the birth of their child¹²⁸

- The prevalence of reporting often or always experiencing post-partum depressive symptoms was highest among Hispanic (12.2%), Black, non-Hispanic (10%), and Asian, non-Hispanic (10%) mothers compared to mothers of other race/ethnicities (7.5%) and White, non-Hispanic (6.6%) mothers
- About 15% of mothers aged < 20 years reported often or always experiencing depressive symptoms post-partum compared to 9.2% of mothers aged 20-29 years, 6.3% aged 30-39 years and 2% aged 40 years of and older
- The prevalence of post-partum depressive symptoms was two times higher among mothers living at or below 100% FPL (14.6%) compared to those living above 100% FPL (6.2%), and was also elevated among mothers with less than high school (11.9%), high school education (11.1%), and some college (11.3%) compared to those women who were college graduates (3.8%)¹²⁹

Recent research using linked hospital visit data indicates that between 2001 and 2005, the most prevalent maternal mental health diagnoses during pregnancy and 12 months post partum were mood disorders (3.4%), including depressive and bipolar disorder. In particular, depressive disorder made up 2.8% of all mental health diagnoses during this period. Approximately 25% of mental health diagnoses were made during the pregnancy while over 40% were made at time of delivery and 33% were made during the post-partum period.¹³⁰

MA PRAMS 2007-2008 shows the following:

- Of the women who indicated that they always experienced depressive symptoms during the postpartum period, 69.6% sought help for these depressive emotions
- Only 43.1% of those reporting often experiencing such depressive symptoms during the postpartum period reported seeking help for their symptoms¹³¹
- Data from the 2008 BRFSS indicate the following regarding self-rated maternal mental health among Massachusetts women aged 25-49 years of age:¹³²
 - The prevalence of reporting always or usually receiving the emotional support one needs ranged from 84% to 86% and was highest among those 45 to 49 years of age
 - The prevalence of reporting 15 or more tense days in the past month was highest (19.2%) among women aged 30-34 and 45-49 years, and lowest (15%) among women aged 25-29 years

In three focus groups with new mothers, maternal mental health emerged as a prevalent concern. Women stated that the transition from pregnancy to motherhood was a difficult period and they often felt unprepared, isolated, alone, and/or depressed. During

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the postpartum period women acknowledged that they often felt guilty taking time for themselves and it was difficult to accomplish everyday activities. Some women also noted that their male partners were unaware or not familiar with the “baby blues” or postpartum depression and were unsure of how to help their partners.

In another focus group, conducted with mothers from the EIPP Program, participants expressed a desire to know that other mothers had gone through similar emotional experiences and to find ways in which to connect with these other mothers. Connecting with other mothers was important particularly for women who lacked social or familial support networks. Participants also expressed a desire to feel more in control of their own physical and emotional well-being, welcoming advice about self-care, reasons why babies cry, and safe ways to calm crying babies.

Maternal Injury

Since injury-related deaths are a major contributor to pregnancy-associated mortality, DPH staff who contributed to a study of pregnancy-associated injury morbidity with researchers from Northeastern University and Boston University School of Public Health, published an article in the *Journal of the Midwifery Women’s Health* in 2008.¹³³ Using the PELL data system, researchers examined hospital visits (inpatient, observation, and emergency department) for injury occurring during pregnancy and one year postpartum (the pregnancy-associated period) to determine groups at risk for injuries. The dataset included maternally-linked vital records and hospital visit data for a population-based cohort of women residing in Massachusetts who delivered during 2002-2003 (n =100,051). The findings and recommendations:

- Overall, one in seven women sought hospital care for pregnancy-associated injuries, and rates were as high as one in four for some subgroups
- Most pregnancy-associated injury visits (91%) occurred in emergency departments. More than 4% of women had a motor vehicle collision, the leading cause of injury
- The risk for injury was significantly higher among women who were adolescents (relative risk [RR] =1.88; 95% confidence interval [CI], 1.78 – 1.98), Black non-Hispanic (RR =1.88; 95% CI, 1.80 –1.97), those who had public insurance (RR =2.50; 95% CI, 2.41–2.56), or those who had less than a high school education (RR=2.48; 95% CI, 2.39 –2.58) when compared with referent groups
- Clinical guidelines for preconception and pregnancy-associated periods should include recommendations for injury history assessment and preventive counseling for women

Maternal Mortality

The Massachusetts Maternal Mortality and Morbidity Review Committee (MMMRC) reviews maternal deaths, examines the incidence of pregnancy complications, and makes recommendations to improve maternal outcomes and prevent mortality. Maternal death, while rare, is a critical health indicator for women giving birth.

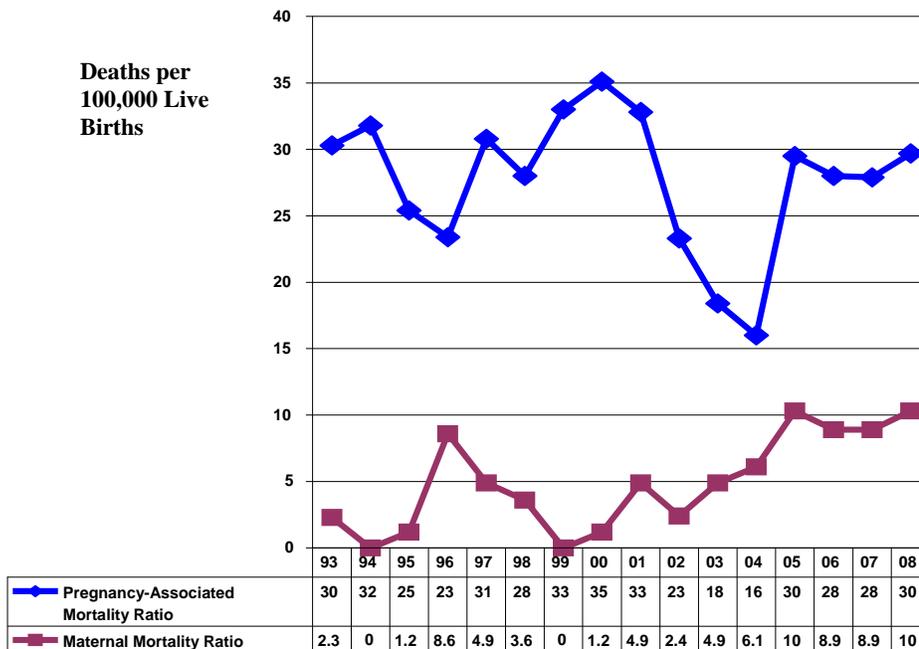
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The leading causes of maternal death have also shifted from infections, pregnancy-induced hypertension, cardiac disease and hemorrhage to injury (suicide, homicide, and motor vehicle crashes) and pulmonary embolus.

Pregnancy-associated death is defined as any death of a woman while pregnant or within one year of termination of pregnancy, irrespective of cause. Maternal deaths are defined as a death of a woman while pregnant or within 42 days of termination of pregnancy, regardless of site or duration of pregnancy, from any cause related to or aggravated by pregnancy and its management (not from accidental or incidental cause). There has been a dramatic decrease in maternal mortality in Massachusetts during the last half of the 20th century.

- In 2008 the Massachusetts maternal mortality ratio (MMR) per 100,000 occurrence live births was 10.3; largely unchanged since 2006 when it was 8.9, but significantly higher than the 2000 rate of 1.2 per 100,000 live occurrence births. [See Figure 3B-13 below]. It is more than 25% higher than the HP 2010 target of 3.3 per 100,000 live births¹³⁴
- In 2008 there were 23 pregnancy-associated deaths, including 8 maternal deaths¹³⁵
 - The pregnancy-associated mortality ratio (PAMR) for MA was 29.7 per 100,000 live occurrence births, largely unchanged from 2006 when it was 28 per 100,000 live occurrence births, but up significantly from its low of 16 per 100,000 live occurrence births in 2004

Trends in Pregnancy-Associated Mortality and Maternal Mortality: Massachusetts 1993-2008



Source: MDPH, Bureau of Health Information, Statistics, Research and Evaluation

Figure 3B-13

3B.3 Health of Infants

Low Birthweight (LBW)

Low birthweight infants (LBW, weighing less than 2,500 grams or 5.5 pounds) are at increased risk of medical problems and death compared with infants of normal weight, and are at higher risk of delayed development and poor school achievement later in life. LBW is the greatest contributing factor to infant mortality and, particularly, neonatal mortality.¹³⁶ As such, LBW is an infant outcome of significant concern, as well as very low birth weight (VLBW) defined as infants born weighing less than 1,500 grams or 3.3 pounds. LBW as a percentage of births in Massachusetts has remained stable at 7.9% since 2005. The underlying contributors to the incidence of LBW and very low birthweight (VLBW, defined as infants born weighing less than 1,500 grams or 3.3 pounds) are well known, such as maternal race, maternal age, maternal education, maternal health status prior to pregnancy, maternal smoking, drinking, or use of drugs, and birth order.

- LBW births have increased substantially since 1990, but have remained relatively stable over the past three years. In 2008 7.8% of births in Massachusetts were LBW; Massachusetts ranked 24th in the nation on this indicator and was more than 25% above the HP 2010 goal of 5%.¹³⁷
- In 2008 the prevalence of LBW was lowest among infants born to mothers aged 25-29 and 30-34 years (7.1%) and highest among mothers aged < 19 years (9.1%) or 40 years and older (11.1%)
- In 2008 the prevalence of LBW was highest among live births to Black, non-Hispanic (11.0%) and Hispanic mothers (8.2%)
- In 2008, the prevalence of LBW among teen mothers aged 15-17 years was 9.2% while that among teen mothers aged 18-19 years was 9.1%.¹³⁸
- In 2008, 5.5% of singleton births were LBW while 53.8% of twins and 87.6% of higher-order multiples were LBW.¹³⁹

Very Low Birthweight (VLBW)

- Prevalence of VLBW remained largely unchanged between 2006 and 2007 with a prevalence of 1.4%. The prevalence was 1.3% in 2008; more than 25% above the HP 2010 goal of 0.9%.¹⁴⁰
- Black, non-Hispanic infants (2.7%) continue to have the highest prevalence of VLBW; the percentage of infants of VLBW born to Hispanic mothers increased by 36% (from 1.2% to 1.5%) between 2006 and 2008.¹⁴¹
- In 2008, the prevalence of VLBW among teen mothers aged 15-17 years was 2.2% while that among teen moms aged 18-19 years was 1.3%.¹⁴²

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Prematurity

The prevalence of preterm delivery, a pregnancy complication defined as the delivery of an infant before 37 weeks of gestation, increased by 22.2% in Massachusetts between 1996 and 2008, from 7.2% to 8.8%, within 20% of the HP 2010 goal.¹⁴³

- In 2008 Black, non-Hispanic mothers continued to have the highest percentage of preterm infants; however, this was a significant decrease from 2006 (18%)¹⁴⁴
- The percentage of late pre-term births (34-36 weeks gestation) has increased approximately 3% annually since 1997, rising to 6.2% in 2008¹⁴⁵
- The percentage of infants delivered very early (before 28 weeks of gestation) has remained stable since 1997 at 0.6%
- In 2008, Black, non-Hispanic mothers had the highest proportion of infants delivered very early (1.5%), a percentage more than double that of White non-Hispanics and Asians¹⁴⁶
- According to 2008 PRAMS data, approximately 23.0% of Massachusetts mothers reported that preterm labor was not discussed at all with their health care providers during their pregnancy

Perinatal Mortality

Feto-Infant Mortality

Fetal and infant deaths reflect maternal health and other factors. It is important to understand factors that are associated with fetal deaths (stillbirths) to provide a more complete assessment of pregnancy outcomes. A stillbirth is defined as a fetal death occurring at 20 weeks or greater gestational age, resulting in the delivery of an infant that does not breathe or show any other evidence of life, such as a heart beat, and does not respond to resuscitation.¹⁴⁷ Massachusetts state law mandates the reporting of all stillbirths that occur in hospitals at 20 weeks gestation or more or weigh 350 grams or more.¹⁴⁸

MDPH uses the Perinatal Periods of Risk Approach (PPOR) approach to assess feto-infant mortality using four major categories that are important for indicating which preventive actions would be most effective:

- Maternal Health/Prematurity including fetal deaths occurring at 24 weeks or more, and weighing between 500-1499g and infant deaths among very low birthweight infants (less than 1500 grams), are attributed to maternal health factors. Maternal health factors are also related to preconception care
- Maternal Care including fetal deaths occurring at 24 weeks and greater and weighing 1500g or more are attributed to maternal care factors and are largely related to prenatal care
- Newborn Care including death in the neonatal period (0-27 days) of infants born with a birthweight of 1500g or more are attributed to newborn care factors

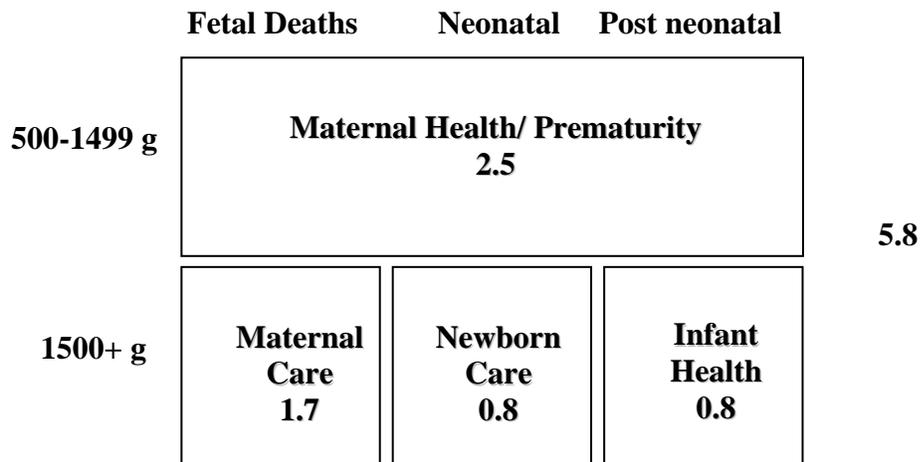
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- Infant Health including death in the post neonatal period (28-364 days) of infants born with a birthweight of 1500g or more are attributed to infant health factors

Feto-infant mortality figures for 2008 are highlighted below:

- Feto-mortality rate was 5.0 per 1,000 live births plus fetal deaths within 25% of the HP 2010 goal
- Fetal deaths continue to account for more than half of the state’s feto-infant mortality rate; however, despite greater survival among those born before 24 weeks of gestational age, infant deaths remain high and have not shown much improvement over the past decade
- Figure 3B-14 shows the overall feto-infant mortality rate (FIMR) for the state and for each PPOR category for 2008

Feto-Infant Mortality MA: 2008



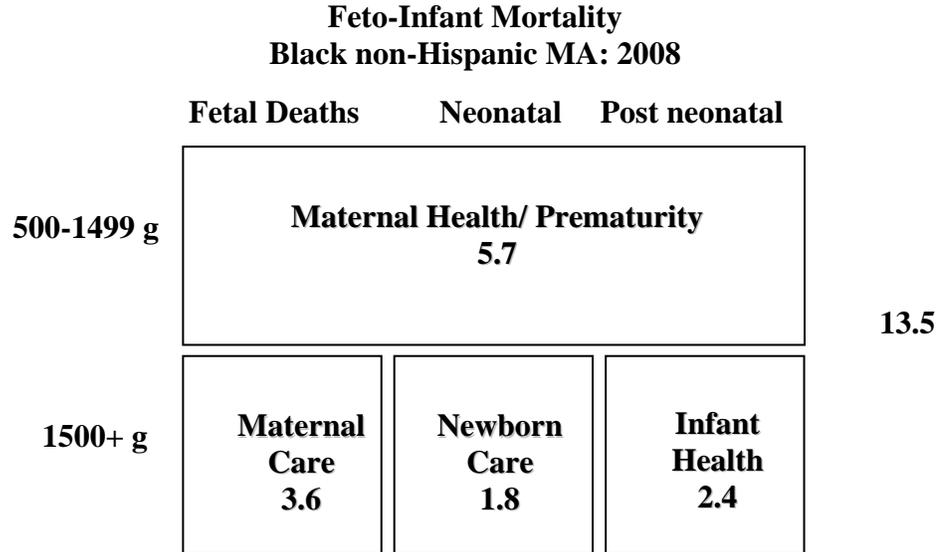
Source: Office of Data Translation, Bureau of Family and Nutrition, MDPH: 2008

Figure 3B-14

- Significant disparities exist in FIMR across racial/ethnic categories:¹⁴⁹
 - Overall FIMRs for the state was 4.6 per 1,000 live births plus fetal deaths among white, non-Hispanics, compared to 13.5 among Black, non-Hispanics (See Figure 3B-15 below). FIMR among Black, non-Hispanics and Hispanics have consistently been above the state rate since 1998
 - Black, non-Hispanic FIMR was twice as high as that among White, non-Hispanics in 1990. By 2008 this disparity increased to a nearly three-fold higher rate among black versus White, non-Hispanics

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- Figure 3B-15 shows the overall FIMR among Black versus White, non-Hispanics by PPOR category in 2008



Source: Office of Data Translation, Bureau of Family and Nutrition, MDPH: 2008

Figure 3B-15

The FIMR for White, non-Hispanic women aged 20 years or greater with 13 or more years of education was used as the “reference group” to calculate the “excess” fetoinfant mortality in other groups. In 2008, the FIMR in this population was 4.7 per 1,000 live births and fetal deaths.

- Using the reference group, the “excess” fetoinfant mortality for the state was 1.1 per 1,000 live births plus fetal deaths, 64% of which was attributable to maternal health/prematurity factors
- The “excess” fetoinfant mortality for all Black non-Hispanic was 8.8 per 1,000 live births plus fetal deaths, which was eight time higher than the statewide figure of 1.1
- Among White non-Hispanic the overall excess fetoinfant mortality was -0.1

Further analyses will help us to understand differences by community and by race, and strengthen community partnerships to reduce FIMRs. In addition to PPOR analysis, Massachusetts has begun to calculate fetoinfant mortality as part of the annual release of birth data.

Infant Mortality

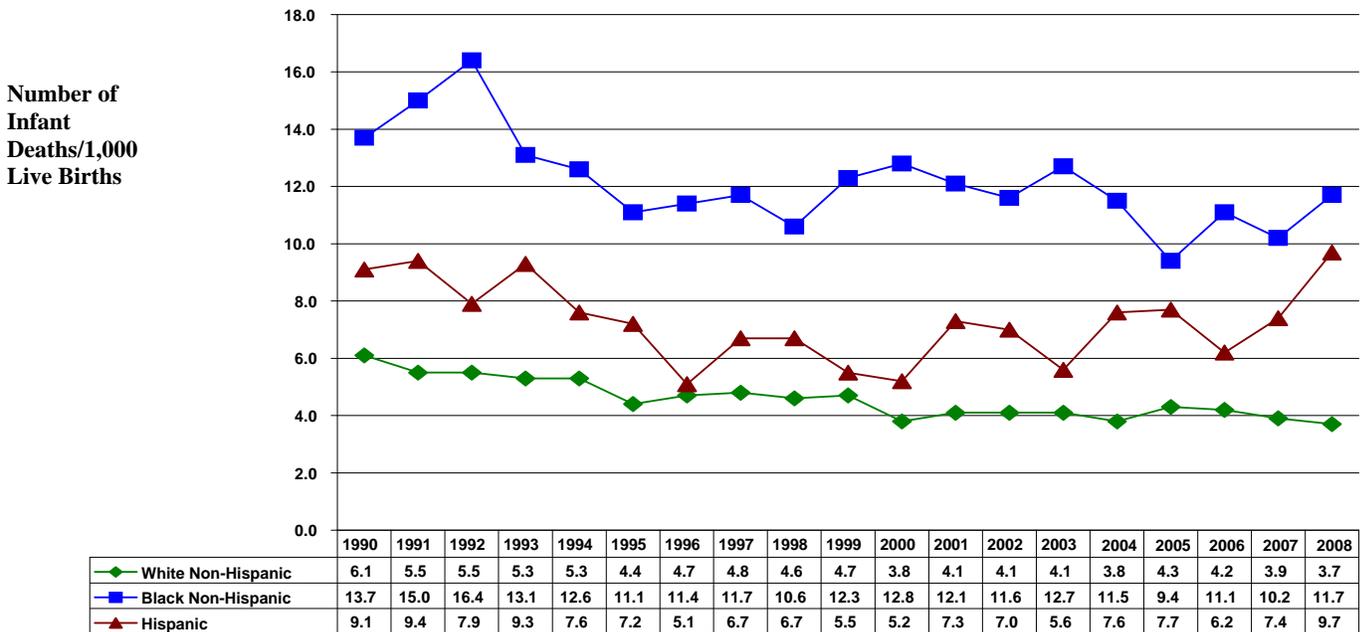
Infant mortality is the focal outcome of a number of national outcome measures and the focus of several Healthy People 2010 (HP2010) objectives. The HP2010

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objective for overall infant mortality was 4.5 per 1,000 live births; for neonatal mortality, it was 2.9 per 1,000 live births; and for postneonatal mortality, it was 1.2 per 1,000 live births. Infant mortality is a very sensitive indicator of health and social well-being in any given population. Infant mortality is used as the best indicator to measure infant health, the health of a community and the health of a nation.

- In 2008, there were 382 infant deaths (deaths of infants less than one year of age) compared with 380 in 2007. The infant mortality rate was 5.0 deaths per 1,000 live births in 2008, compared with 4.9 per 1,000 live births in 2007. This change was not significant. The infant mortality rate has decreased by 29% since 1990, from 7.0 deaths per 1,000 live births to 5.0 deaths per 1,000 live births, with a marked decline between 1990 and 2006, but less notable improvement since then¹⁵⁰
- The 2008 IMR was 25% within the HP 2010 target of 4.5/1,000 live births

Trends in Infant Mortality by Race and Ethnicity: Massachusetts 1990-2008



Source: MDPH, Bureau of Health Information, Statistics, Research and Evaluation

Figure 3B-16

Significant geographic disparities in infant-mortality exist across the state:

- Blacks non-Hispanic had a significantly higher IMR (11.7) than Whites non-Hispanic (3.7) and Asians (2.7), but not significantly higher than that of Hispanics (7.9) in 2008

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Based on a three-year IMR from 2006-2008, which was a more stable rate than a one-year rate, the following communities had higher IMRs when compared with the state IMR of 4.9 infant deaths per 1,000 live births:

- Worcester 10/1,000
- Springfield 9.8/1,000
- Fall River 9.2/1,000
- Brockton 9.0/1,000
- New Bedford 8.5/1,000
- Boston 6.9/1,000

Neonatal and Post Neonatal Infant Mortality

Neonatal (0 to 27 days) and post-neonatal (28 to 364 days) mortality rates among Black, non-Hispanics and Hispanics were consistently higher than the overall state rates while that among White, non-Hispanic and Asian populations were consistently lower than that of the state.¹⁵¹

- In 2008 the state neonatal mortality rate (per 1,000 live births) was 3.8; greater than 25% from the HP 2010 goal of 2.9
- Compared to the overall state rate of 3.8, the neonatal mortality rate was 8.6 among Black, non-Hispanics, 6.0 among Hispanics, 3.4 among White, non-Hispanics and 1.7 among Asians
- In 2008 the state post-neonatal mortality rate (per 1,000 live births) was 1.2; meeting the HP2010 goal of 1.2
- Compared to the overall state rate of 1.2, this rate was 3.2 among black, non-Hispanics, 1.9 among Hispanics, 1.0 for Asians, and 0.8 among white, non-Hispanics

Causes of Death

In 2008 there were 382 identified deaths to infants less than one year of age. Of the 382 infant deaths to Massachusetts residents, 370 were linked to a Massachusetts birth certificate. The following data are data from the linked birth-death file:

- 285 neonatal deaths
 - 201 (70.5%) from conditions originating in the perinatal period¹⁵²
 - 38 (13.3%) from congenital malformations¹⁵³
 - 4 (1.4%) from infectious and parasitic diseases
 - 4 (1.4%) from SIDS
 - 3 (1.1%) from diseases of the nervous system and ear
 - 35 (12.3%) from other causes
- 85 post-neonatal deaths
 - 18 (21.2%) from SIDS
 - 17 (20.0%) from congenital malformations¹⁵⁴
 - 11 (12.9%) from conditions originating in the perinatal period
 - 4 (4.7%) from unintentional injuries
 - 3 (3.5%) from diseases of the nervous system and ear

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- 3 (3.5%) from disease of the digestive system
- 2 (2.4%) from diseases of the blood and blood forming organs
- 2 (2.4%) from cancer
- 25 (29.4%) from other causes

The incidence of Sudden Infant Death Syndrome (SIDS) dropped from 83 in 1990 to 22 in 2008. The substantial decline after 1990 was consistent with trends reported nationally, following the aggressive public education efforts regarding infant sleeping position.

Although Massachusetts has performed well in several perinatal health indicators, there are concerns about the provision of obstetrical care including the percentage of VLBW infants born in level III hospitals. Massachusetts has gone from 85.8% of VLBW infants born in level III hospitals in 2005 to 88.6% of VLBW infants born in level III hospitals in 2007.¹⁵⁵ Although these trends show some improvement, they are falling below the HP2010 objective of 90% VLBW infants to be born in level III hospitals.

Policy Perspective

The Massachusetts Title V agency wrote a chapter on “Natality and Early Childhood” for the recently released 2009 *Health of Massachusetts* Report published by the MDPH.¹⁵⁶ Included in the chapter was a policy perspective on findings written by Dr. Milton Kotelchuck from the Boston University School of Public Health. He concluded that the reproductive and infant health status in Massachusetts overall is very positive, especially compared to U.S. national rates. However, there is still much room to improve maternal and child health in the Commonwealth. Dr. Kotelchuck highlighted seven noteworthy trends:

- Massachusetts births, like the rest of the United States, are growing more diverse, both in terms of racial/cultural ancestry and maternal age distribution
- Disparities in reproductive outcomes remain glaring and reflect the larger world of racial and economic inequities. As such, the life course perspective remains a critical model for ameliorative efforts, shifting the paradigm of care away from pregnancy as an isolated event onto the complex interplay of biological, behavioral, psychological, and social factors across the lifespan that impact health and birth outcomes
- The rapidly rising rates of gestational diabetes likely reflect, and in part are the pre-cursors of, the current obesity and diabetes epidemics in the U.S
- High levels of clinical technology are associated with births in Massachusetts with rates of cesarean section (33%) and Assisted Reproductive Technologies among the highest in the nation
- Too many births (42.7%) in Massachusetts are unplanned, and 32.2% are not desired at the time of conception or at all (PRAMS, 2007-2008). Hispanic populations have extremely high teen pregnancy rates, and almost all teen pregnancies are unplanned

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- The Massachusetts stillbirth rates are now higher than the State's neonatal and infant mortality rates, suggesting greater attention must focus on the causes of early fetal losses and miscarriages
- Massachusetts provides extensive comprehensive reproductive and early childhood services with Early Intervention utilized by nearly 15% of Massachusetts children aged 0-3 years. Negative birth trends will increase pressure to further expand EI services in upcoming years

3B.4 Stakeholder Involvement to Enhance Qualitative Analysis

Stakeholders were engaged throughout the needs assessment process to provide 1) qualitative data on the needs of women, mothers and their infants, and 2) feedback on the data trends and analysis to help direct further areas for exploration. For the women, mothers, and infant population the qualitative data was gathered via statewide focus groups with pregnant women and/or mothers. Feedback on the data trends, analysis, as well as qualitative data was compiled from key informant interviews with external experts in the field of maternal and infant health as well as internal staff at the Department of Public Health. Overall the data aggregated from the focus groups and feedback gathered from external experts and Department staff and reinforced the need to focus on:

- Mental health
- Preconception care/Life course perspective
- Racial and ethnic disparities
- Prenatal and postpartum screenings for physical and behavioral risks as well as external stressors
- Service expansion; increase access to and continuity of care for women of childbearing age

Focus Groups

In the process of conducting a series of statewide focus groups, participants were presented with a set of questions focused on the following topic areas:

- Lifestyle/behaviors during pregnancy
- Mental health
- Breastfeeding
- Relationship with provider/healthcare system
- Use of/need for services and programs to support new (and expecting moms)

Directly correlating with the state priorities for women, mothers, and their families, the qualitative data collected from the focus groups revealed the following themes as areas of high need and/or concern for Massachusetts mothers:

- Provider Contact – women wanted providers to be more engaged, provide clear explanations, and participate in active listening

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- Continuity of Care and Access to Services- Women desired better services, including home visiting or medical appointments prior to 6 week postpartum check –up
- Mental Health – Participants revealed that mental health (such as postpartum depression or stress related to institutionalized racism) was a highly prevalent theme and many participants expressed feelings of isolation, depression, or fear compounded by the stigma associated with these feelings
- Breastfeeding – participants felt pressure to breastfeed and while many wanted to engage in breastfeeding, intense pressure from hospital staff, feelings of self consciousness and uncertainty, and lack of family support stifled attempts to start or maintain breastfeeding. Women with family support were more likely to engage in and continue breastfeeding

Key Informant Interviews

During 2009-2010, MDPH conducted a number of internal key informant interviews within MDPH, as well as external interviews with experts and stakeholders in the community, to inform the Needs Assessment and support decision making. These key informant interviews contributed valuable information to the needs assessment. Both the data and input from stakeholders provided the necessary information to determine Massachusetts' strengths and capacity to address identified needs. Although the following summaries of both internal and external interviews are by no means exhaustive, they highlight the common themes and areas of concern around the state.

Overall, major priorities and issues raised in internal and external interviews in regards to setting priorities for women and infants for the next five years were:

- Medical home model
- Prenatal and postpartum screening, particularly for mental health, substance abuse (including tobacco), domestic violence, and HIV
- Life course/ Preconception care
- Racial and ethnic disparities in birth outcomes including infant mortality
- Maternal mental health; depression
- Obesity
- Gestational Diabetes
- Oral health (maternal and infant)
- Breastfeeding
- SIDS/Shaken Baby
- Increased access to home visiting services for women of childbearing age and their families
- Increased access to health care services including dissemination of existing resources and educational information
- Increased training for health care professionals particularly around topic areas such as (but not limited to) infant and early childhood mental health, maternal mental health, domestic violence, and oral health

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- Integrated and comprehensive approach to data collection and data sharing in order to avoid duplication of services, and to provide clear and consistent information

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¹⁵³ Information about congenital malformations is based on death certificates and may differ from cases reported from the Massachusetts Birth Defects Monitoring Program.

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3C. Children and Adolescents

3C.1 Child and Family Demographics

Overview

Among the 6,469,770 residents of Massachusetts in 2008, roughly 32.4%, or 2,096,205, were children and youth aged less than 24 years. The population breakdowns by age were as follows¹:

- < 5 years: 383,568 (5.9%)
- 5-9 years: 384,444 (5.9%)
- 10-14 years: 399,518 (6.2%)
- 15-19 years: 460,398 (7.1%)
- 20-24 years: 464,984 (7.2%)

Massachusetts is a comparatively wealthy state, and the majority of children have the opportunity to attend a well-funded school, grow up in a healthy built environment, and live free from stress about food and housing security. The 2008 inflation-adjusted estimate for the median family income in Massachusetts was \$64,684, comfortably above the national figure of \$52,175. Only three states (New Jersey, Connecticut, and Maryland) ranked higher than Massachusetts on this scale.²

Family socioeconomic status (SES), including income, education level, and number of parents in the home, is positively correlated with indicators of child well-being. Massachusetts has one of the highest SES levels in the nation. In 2009, Massachusetts was the 5th best state in a composite ranking of child well-being based on ten key indicators of child health, education, poverty, and family demographics.³

Some other key demographic indicators for Massachusetts include:

- In 2008, 88.7% of Massachusetts residents had completed high school compared with the national average of only 85.0%⁴
- In 2008, 38.1% of Massachusetts residents had earned their bachelor's degree or higher compared with the national average of only 27.7%⁵
- In 2008, 12% of Massachusetts children aged 0-18 years lived in poverty, which was lower than the national average of 18.2%⁶
- A child born in 2006 in Massachusetts has a life expectancy of 80.2 years, as compared to 78.1 for the nation as a whole⁷
- In 2007, 73.3% of Massachusetts children lived in two-parent (biological or adoptive) households; 5.3% in two-parent (at least one step-parent) households; 16.9% in mother only (no father present) households; and 4.5% in households with other family structures⁸
- The proportion of Massachusetts children living in two-parent (biological or adoptive) households varied by race/ethnicity: 82.8% among white, non-Hispanics, significantly higher than among Hispanics (44.9%), black, non-Hispanics (28.7%), and multi-racial children (58.2%)⁹

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Race, Ethnicity and Language

Population growth in Massachusetts over the last decade has been largely due to the immigration of minority racial and ethnic populations, and this influx means that immigrants and minorities represent an increasing proportion of the child and youth population. These new populations reside primarily in urban areas. Massachusetts, and Boston specifically, is one of the most ethnically diverse areas in the nation with more than 100 ethnicities represented in its neighborhoods and 140 languages spoken in its homes.¹⁰ In 2008, the racial and ethnic distribution of the Massachusetts population aged 0-24 years was:

- 73.8% White, non-Hispanic
- 12.3% Hispanic
- 8.0% Black, non-Hispanic
- 5.6% Asian/Pacific Islander
- 0.3% American Indian

Racial and ethnic distributions of the 2008 Massachusetts child and youth population by age group are shown in Figure 3C-1. During 2005-2007, 5% of Massachusetts children aged 0-18 years were foreign born, and 24% of children lived with at least one foreign-born parent.¹¹

Race/Ethnicity of Youth and Young Adults, by Age Group — Massachusetts, 2008

	Age				Total	Percent
	0-9 yrs	10-14 yrs	15-19 yrs	20-24 yrs		
White, non-Hispanic	543,928	300,666	348,677	350,722	1,543,993	73.8%
Black, non-Hispanic	64,206	30,706	36,541	36,298	167,751	8.0%
Hispanic	110,186	46,896	51,129	49,271	257,482	12.3%
Asian/Pacific-Islander, non-Hispanic	47,575	20,284	22,726	27,295	117,880	5.6%
American Indian, non-Hispanic	2,117	966	1,325	1,398	5,806	0.3%
Total	768,012	399,518	460,398	464,984	2,092,912	100.0%

Data source: National Center for Health Statistics. Bridged Estimates for the United States resident population for 2008 by age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau.

Available on the Internet from the Missouri Census Data Center at the following website:

http://mcdc.missouri.edu/websas/estimates_by_age.shtml. Accessed March 16, 2010.

Figure 3C-1

The range of languages spoken in Massachusetts reflects the diversity of the population.

- In 2008, 21.0% of Massachusetts residents spoke a language other than English in their home, compared with the national average of 19.7%¹²
- In 2008, 15.6% of all Massachusetts public school students in grades kindergarten through 12th grade had a primary language other than English. This statistic is expected to continue to rise following the changing demographic trends observed in the state¹³
- Students for whom English was not their primary language most frequently spoke Spanish, 55.1%, Portuguese, 8.0%, Khmer, 4.3%, Haitian Creole, 3.9%, Vietnamese, 3.8%, Chinese, 3.6%, and Cape Verdean, 3.5%¹⁴

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Educational Attainment

During the 2009-2010 academic year, 957,053 students were enrolled in Massachusetts public schools (Figure 3C-2). Among them, almost a third (32.9%) were from low income families, 17% were receiving special education services, 15.6% had a first language other than English, and 6.2% had limited English proficiency.

Total Public School Enrollment —Massachusetts, 2009-2010

Enrollment - 2009-10	
Total Count	957,053
Race/Ethnicity (%)	
African American or Black	8.2%
Asian	5.3%
Hispanic or Latino	14.8%
Multi-race, Non-Hispanic	2.2%
Native American	0.3%
Native Hawaiian or Pacific Islander	0.1%
White	69.1%
Gender (%)	
Male	51.3%
Female	48.7%
Selected Populations (%)	
Limited English Proficiency	6.2%
Low-Income	32.9%
Special Education	17.0%
First Language Not English	15.6%

Data source: Massachusetts State Report Card, Enrollment and Educator Data. Available at: <http://profiles.doe.mass.edu/staterc/enrollment.aspx?fyCode=2009>

Figure 3C-2

Public school enrollment in Massachusetts has decreased by 24,000 students, or 2.5 percent, between 2003 and 2008.¹⁵ Even though the enrollment rate in public schools is on the decline, charter school enrollment is rising. There were 28,010 students pre-enrolled in Massachusetts charter schools during 2009-2010 and an additional 24,066 waitlisted. While this new uptick is significant, it is not enough to fully explain the decline of public school enrollment. Demographic shifts are primarily to blame for the overall decline in enrollment.

Total non-public school enrollment for the 2009-2010 school year was 117,893. A higher proportion of non-public school students were White, non-Hispanic (76.7%), compared with public school enrollees (69.1%). Non-public school students are less likely than their public school counterparts to have a first language other than English (4.9%) or limited English proficiency (0.7%).

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Total Non-Public School Enrollment —Massachusetts, 2009-2010

Enrollment - 2009-10	
Total Count	117,893
Race/Ethnicity (%)*	
African American or Black	7.8%
Asian	6.1%
Hispanic or Latino	5.3%
Multi-race	3.6%
Native American	0.1%
Native Hawaiian or Pacific Islander	0.1%
White	76.7%
Gender (%)	
Male	51.5%
Female	48.5%
Selected Populations (%)	
Limited English Proficiency	0.7%
Low-Income	N/A
Special Education	N/A
First Language Not English	4.9%

Data source: Massachusetts Department of Elementary and Secondary Education

* Based on race/ethnicity data for 97,875 students.

N/A = data not available

Figure 3C-3

Massachusetts has a highly educated population, and children growing up in the state are likely to graduate high school and attend college and beyond. The percentage of Massachusetts residents who complete high school, complete bachelor's degrees, and pursue graduate degrees are all well above the national average. In 2008, 88.3% of Massachusetts young adults aged 18-24 years had graduated from college compared with only 83.0% nationally (Figure 3C-4). However, both of these statistics are below the Healthy People 2010 goal that 90% of young adults complete high school.

Percentage of Young Adults Aged 18–24 Years Who Have Completed High School — Massachusetts and United States, 2008

Massachusetts	U.S.	HP2010 target
88.3%	83.0%	90%

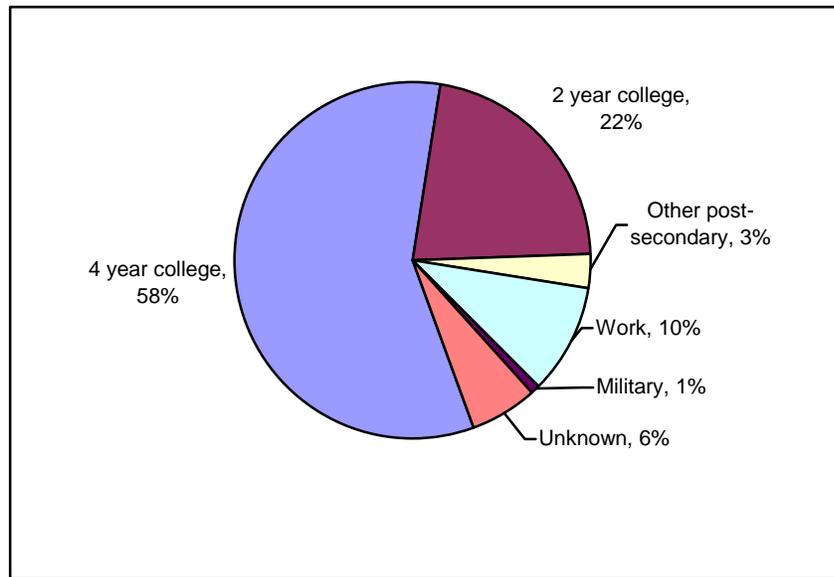
Data source: US Census Bureau, American Community Survey 2008

Figure 3C-4

Among Massachusetts seniors graduating in 2009, 58% went to a 4-year college, 22% went to a 2-year college, 10% joined the workforce, 3% attended other post-secondary educational institutions, 1% and joined the military (Figure 3C-5).

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Plans of Massachusetts High School Students Graduating in 2007



Data source: DESE, *Plans of High School Graduates: Class of 2007*.

Figure 3C-5

The state's focus on education is also apparent in the number of colleges and universities available, which exceeds 100 in the state, and includes the expansive University of Massachusetts (UMass) system. UMass is known for its high degree of academic excellence and the myriad opportunities it provides youth in the state. UMass, and other institutions of higher learning in the state, serve a racially and ethnically diverse student population. A study completed by the Massachusetts Department of Higher Education cited that the University of Massachusetts system as a whole has 22% of students who self-identify as something other than "White/Non-Hispanic," while 12.1% of state colleges and 28% of community colleges in the state hold this statistic.¹⁶

Massachusetts' high personal incomes and high educational attainment contribute to increased disparities compared to those without such advantages.

- In 2006, the median income for a Massachusetts resident with less than a high school education was \$21,795; increased to \$30,908 with high school completion; and increased further to \$50,286 with a Bachelor's Degree. One in four Massachusetts residents aged 25 years or older with less than a high school degree lived in poverty (21.2%) compared to one in ten (10.1%) with a high school diploma¹⁷
- Educational attainment is strongly related to disability status. More than one in four young adults with disabilities aged 18–24 years did not graduate from high school compared to 13% of their non-disabled peers¹⁸
- Thirty-seven percent of adults without a high school education had disabilities, compared to 15.8% of college graduates¹⁹

Poverty and Food Insecurity

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Similar to other states, disparities in income and education exist in Massachusetts. An important consideration is that although incomes are above average in Massachusetts, the cost of living and other expenses are correspondingly high.

- In 2007, the average per-capita income for the state of Massachusetts was \$48,995. Rural communities boasted a higher per-capita income of \$53,749 while urban communities averaged \$48,975²⁰
- Approximately 6.2% of children in rural areas lived in poverty in 2007, while roughly 10% of children in urban communities experienced poverty²¹
- In 2008, 12% of children aged 18 years and under lived in families with incomes below the federal poverty level, as defined by the U.S. Office of Management and Budget. In calendar year 2008, a family of two adults and two children fell in the “poverty” category if their annual income fell below \$21,834²²
- Massachusetts has the seventh highest renter-occupied housing costs, as well as the fifth highest owner-occupied (mortgage) costs, both well above the national average²³

Rising unemployment rates and the losses of homes and savings have increased the population of Massachusetts residents facing food insecurity in recent years. Food insecurity in Massachusetts is viewed as a public health problem that adversely affects health, growth, and learning. According to Project Bread’s 2009 Status Report on Hunger:

- Food insecurity continues to rise in Massachusetts with 554,000 people struggling to put food on the table
- During 2006-2008, 8.3% of Massachusetts households were food insecure, and nearly half of these households experienced hunger²⁴. This represents an increase from 2003-2005 when 7.8% of households were food insecure
- In 2007, 12.3% of all children aged 18 years and under lived in food insecure households²⁵

Homeless Families

Homelessness is a major risk factor that can impede the healthy development of children and youth in multiple domains. Homeless children and youth move frequently, have inconsistent school attendance, and have disrupted ties to communities and extended families.²⁶ There are many factors that contribute to increases in homelessness including large changes in the real estate market leading to the conversion of rental units into condominiums, declining federal support for subsidized housing, inadequate increases in wages for working families, and the increasing prevalence of domestic violence and its negative effect on all aspects of physical and mental health.²⁷

- During 2007, the Massachusetts Department of Transitional Assistance (DTA) served over 4,400 families in the state shelter system. As early as April 2009, the case load for “Emergency Assistance” to families was 2,704²⁸
- The recent economic crisis has resulted in increasing numbers of displaced Massachusetts families that require housing in motel units as family shelters in the state have reached capacity

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Massachusetts also suffers from families trapped between the gap in assistance and the high cost of living in the state. The U.S. Department of Housing and Urban Development estimates the average income for a family of three in Massachusetts is \$78,200²⁹ and to live unsubsidized in Boston, a person with two children needs an annual income of over \$58,000 to attain a basic standard of living.³⁰ Families living with household incomes below \$58,000 struggle against the high costs of food and transportation in addition to a chronic shortage of low rent apartments. Many of these families have professional incomes well above the threshold to receive emergency assistance³¹

- Workers must earn an hourly wage of \$22.65 to afford a two-bedroom apartment in Massachusetts³²
- A worker earning minimum wage (\$6.75) would have to work 134 hours a week to afford a two-bedroom apartment in Boston³³

As of July 2009, the Emergency Assistance program moved from DTA to the control of the Department of Housing and Community Development (DHCD) Division of Housing Stabilization. Given the dramatic increases in the number of homeless families, FY10 saw the highest caseload of families accessing emergency assistance services to date, with an estimated 3,507 homeless families. Program eligibility requirements were decreased from 130% to 115% of the federal poverty guideline, equating to a maximum annual income of \$25,368 for a family of four. Placement of families in emergency shelters and motels was afforded \$91.6 million of the state budget for FY10. This number increased to \$113.5 million in FY11 due to the rising caseload.

The Massachusetts Commission to End Homelessness is a state commission comprised of state, city and county officials. The 30 member Commission is devoted to resolving homelessness by creating “a coordinated system to deliver support services that will lead to permanent housing for homeless individuals and families.” The Commission is engaged in the community and has four major priorities:

- Level fund the First Stop Homelessness Prevention Collaborative
- Preserve and protect Emergency Assistance for Homeless Families
- Fund the Rental Voucher Program
- Emergency Aid to the Elderly, Disabled and Children Program

Lieutenant Governor Timothy Murray chairs the Interagency Council on Housing and Homelessness (ICHH). The goal of the ICHH is to end homelessness in the Commonwealth by 2013 through implementation of a five year strategic plan developed by the Massachusetts Commission to End Homelessness. The National Network to End Domestic Violence reports that more than 60% of homeless women have experienced domestic violence and this aligns with information from the Massachusetts Department of Transitional Assistance, which has included a domestic violence unit since 1999. However, through the work of the Interagency Council on Housing and Homelessness, there is increasing awareness by policy makers in Massachusetts both that many homeless women are victims of domestic violence and that domestic violence victims seeking shelter are also homeless. Our current systems often require these women to “choose” the label of homeless or domestic violence victim. Through the leadership of the ICHH, agencies have been directed to develop systems and protocols that are responsive to both these issues in tandem.

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Another organization, the Massachusetts Coalition for the Homeless, founded in 1981, is the country's oldest homeless advocacy group. Their main contention is that ending the socioeconomic problem of homelessness is possible and is "a moral imperative." In fiscal year 2011, the Coalition has five major goals:³⁴

- Adequately fund and protect key support programs for low-income families and individuals
- Adequately fund emergency service programs for homeless families and individuals and support key line item provisions
- Protect access to and funding for housing programs serving extremely low income households
- Pass "An Act to Prevent Homelessness by Removing Barriers to Subsidized Housing" (House Bill 1242)
- Pass No Place Like Home: "An Act to Prevent Homelessness Among Recipients of Transitional Assistance" (Senate Bill 43/House Bill 169)

3C.2 Pediatric Primary Care

Routine pediatric primary care visits allow developmental and other health problems to be identified and treated early in a child's life. Whether a problem is medical or behavioral, or both, finding it early and treating it can greatly improve the child's chances of reaching his or her full potential for physical, mental, and social health and well-being. Primary care providers are able to provide family-centered, comprehensive, coordinated care, and make appropriate referrals to specialists when necessary.

Medical Home

A medical home is defined by the American Academy of Pediatrics (AAP) as a system of care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective. It is an approach to providing health care services where families and physicians work together to identify and access all of the medical and non-medical services needed to help children and their families reach their maximum health potential. The medical home is also where families are recognized as the principal caregivers and the center of strength and support for their children. The Massachusetts Medical Society, the Massachusetts Chapter of the AAP, and the Massachusetts Academy of Family Physicians have formally endorsed the principles of the Medical Home Policy Statements of the AAP.

- According to data from the Massachusetts Head Start Program, 99.3% of enrolled children had continuous accessible health care at the end of the enrollment year³⁵
- According to data from the 2007 National Survey of Children's Health, 66.2% of Massachusetts children aged <18 years received care within a medical home (compared with 57.5% nationally). Please see section 3D for information on medical home for children with special health care needs.

In June 2009, Secretary Judyann Bigby, of the Massachusetts Executive Office of Health and Human Services (EOHHS) invited a large group of consumer, physician, nurse practitioner, hospital, insurer, state agency and other interested stakeholder representatives to

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form the Council of the Massachusetts Patient-Centered Medical Home Initiative (PCMHI). The purpose of the PCMHI was defined as “to sustain health reform in Massachusetts and assure a high-performing health system” through a cooperative effort “to assure access to high quality, enhanced primary care.”

The Massachusetts Title V agency joins EOHHS in its recognition the critical importance of the medical home in ensuring access to coordinated, high quality medical care for Massachusetts children and families, and as such has identified increasing medical home for all children in Massachusetts as a priority for the next 5 years.

EPSDT

Early Periodic Screening, Diagnosis, and Treatment (EPSDT) Program is the child health component of Medicaid. It is required in every state, including Massachusetts, and is designed to improve the health of low-income children, by financing appropriate and necessary pediatric services. During October 1, 2008-September 30, 2009, there were 593,187 total individuals eligible for EPSDT in Massachusetts, or 36% of the state’s population under 20 years of age. Data on screenings and services received are presented below.

Massachusetts EPSDT Participant data, October 1, 2008 to September 30, 2009

	<i>Age group (yrs)</i>							
	Total	<1 yr	1-2 yrs	3-5	6-9	10-14	15-18	19-20
Individuals eligible for EPSDT	593,187	41,444	75,389	90,982	106,132	121,881	105,353	52,006
Expected # of screenings	610,876	106,599	123,026	74,675	87,248	99,336	83,862	36,131
Total screens received	629,134	144,977	178,291	77,557	71,397	79,000	60,339	17,573
Eligibles who should receive at least 1 initial or periodic screen	489,084	41,444	75,389	74,675	87,248	99,336	83,862	36,131
Eligibles receiving at least 1 initial or periodic screen	332,689	32,045	59,439	59,126	58,064	64,541	46,899	12,575
Eligibles referred for corrective treatment	300,752	22,269	49,831	52,150	54,152	56,009	44,114	22,227
Eligibles receiving any dental services	279,741	1,087	14,810	49,821	67,460	73,690	55,335	17,538
Eligibles receiving preventive dental services	252,937	310	11,436	47,099	64,307	67,954	47,756	14,075
Eligibles receiving treatment dental services	150,438	33	1,976	18,004	37,274	45,681	36,521	10,949
Eligibles enrolled	337,798	17,854	34,544	56,498	69,795	77,942	61,267	19,898

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in managed care				
Total # screening blood lead tests	139,186	3,124	61,050	75,012

Data source: Massachusetts Division of Medical Assistance (state Medicaid agency), Medicaid Management Information System. Form CMS-416: Annual EPSDT Participation Report for period October 1, 2008 to September 30, 2009

Figure 3C-6

Massachusetts has included Bright Futures as a reference for the delivery of comprehensive care in Medicaid, public health programs, and school-based health centers. Massachusetts has also developed a Child Health Diary to send to families with newborns.

Community Health Centers

During 2008, over 173,000 perinatal and pediatric patients were served by Massachusetts' 52 Community Health Centers (CHC). Data for the CHC perinatal/pediatric patient population are presented below, by payor source and race:

	Pediatric/Adolescent patients (age group)			
	Perinatal patients N (%)	0-12 months N (%)	1-11 years N (%)	12-18 years N (%)
Total	15,393	11,840	86,006	60,004
Payor				
Medicaid/MassHealth	8,634 (56.1)	9,560 (80.7)	61,086 (71.0)	36,342 (60.6)
Medicare	136 (0.9)	15 (0.1)	41 (<0.1)	90 (0.1)
Private insurance	1,961 (12.7)	1,367 (11.5)	16,560 (19.3)	14,995 (25.0)
Health Safety Net	2,255 (14.6)	178 (1.5)	1,792 (2.1)	1,695 (2.8)
Self Pay	169 (1.1)	520 (4.4)	3,060 (3.6)	2,744 (4.6)
Children's Medical Security Plan	1 (<0.1)	163 (1.4)	2,376 (2.8)	3,193 (5.3)
Healthy Start	1983 (12.9)	1 (<0.1)	0 (0%)	26 (<0.1)
Other	254 (1.7)	36 (0.3)	1,091 (1.3)	919 (1.5)
Race/ethnicity				
White, non-Hispanic	3,340 (21.7)	2,703 (22.8)	18,228 (21.2)	13,722 (22.9)
Black, non-Hispanic	2,286 (14.9)	2,126 (18.0)	18,512 (21.5)	13,590 (22.6)
Hispanic	5,408 (35.1)	4,043 (34.1)	30,637 (35.6)	21,223 (35.4)
Asian	1,148 (7.5)	1,183 (10.0)	6,689 (7.8)	4,347 (7.2)
Native American	17 (0.1)	31 (0.3)	211 (0.2)	118 (0.2)
Multi-race	773 (5.0)	632 (5.3)	4,426 (5.1)	2,280 (3.8)
Unknown	2,421 (15.7)	1,122 (9.5)	7,483 (8.7)	4,724 (7.9)

Data Source: Annual Community Health Center Report, Division of Primary Care and Health Access, MDPH

Figure 3C-7

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Children's Medical Security Plan (CMSP)

CMSP is a basic health insurance plan run by MassHealth, the state Medicaid program, that provides an array of basic health services for Massachusetts children and teens aged <19 years who are uninsured for basic medical and dental services, and are not eligible for Medicaid. Eligibility does not depend on income or immigration status. CMSP covers preventive and non-preventive outpatient care, dental services, family planning, and prescription drugs and medical equipment. It does not cover hospitalization. There are currently 14,964 children receiving services through CMSP, with 434 children in Boston, 314 in Lynn, 259 in Chelsea, and 200 in Framingham. Worcester, Everett, Cape and the Islands, Somerville, Waltham, Brockton, New Bedford, Malden, Lawrence and Revere also have high numbers (more than 100) of children on CMSP.³⁶ This mirrors communities with high numbers of undocumented persons (See Vulnerable Populations Domain for a further discussion of this population).

Head Start

Head Start and Early Head Start are programs of the United States Department of Health and Human Services that provide comprehensive education, health, nutrition, and parent involvement services to low-income children and their families, including pregnant women. Head Start/EHS offer center-based, family child care and home visiting options on a part-day, part-year or full-time basis. Head Start/EHS comprehensive services support children's physical, social-emotional, nutritional and dental health. In Massachusetts, according to 2008-2009 Head Start Program data, there were 29 Head Start programs and 12 Early Head Start programs, with a total cumulative enrollment of 15,662.

Massachusetts Head Start Program Total Cumulative Enrollment

	N	%
Total cumulative enrollment	15,662	100
Children	15,546	99.3
Head Start children	14,304	92.0
Early Head Start children	1,242	8.0
Preschool children (aged 3-5 years)	14,304	92.0
Infants and toddlers (aged 0-1 years)	1,242	8.0
Pregnant women (EHS programs)	116	0.7

Data source: 2008-2008 Head Start Program Information Report (PIR), Health Services Report – State Level, August 30, 2010

Figure 3C-8

Among children enrolled in Head Start, 99.2% had health insurance at the end of the enrollment year.

Health Insurance Status of Massachusetts Head Start Children

	N	%
Children with health insurance (at end of enrollment year)	15,419	99.2
Medicaid (at end of enrollment year)	7,853	50.5
CHIP (at end of enrollment year)	809	5.2

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Combined CHIP/Medicaid (at end of enrollment year)	5,004	32.2
State funded insurance (at end of enrollment year)	438	2.8
Private health insurance (at end of enrollment year)	1,378	8.9
Other health insurance (at end of enrollment year)	16	0.1
Children without health insurance (at end of enrollment year)	127	0.8

Data source: 2008-2008 Head Start Program Information Report (PIR), Health Services Report – State Level, August 30, 2010

Figure 3C-9

More than 95% of Massachusetts Head Start enrolled in 2008-2009 had completed all recommended medical screenings. Just under 20% of these children were diagnosed as needing medical treatment, and among them, 96.8* received or are receiving medical treatment for these diagnosed conditions.

Medical Services Reported for Massachusetts Head Start Children

	N	%
Completed all medical screenings	14,867	95.6
Diagnosed as needing medical treatment	2,815	18.9
Received or are receiving medical treatment	2,726	96.8
Anemia	310	2.0
Asthma	1,816	11.7
Hearing difficulties	342	2.2
Overweight	2,164	13.9
Vision problems	470	3.0
High lead levels	45	0.3
Diabetes	4	0.03

Data source: 2008-2008 Head Start Program Information Report (PIR), Health Services Report – State Level, August 30, 2010

Figure 3C-10

For information on oral health service for Head Start children, please see section 3C.17: Oral Health below.

3C.3 Massachusetts Framework for Adolescent Health

Massachusetts has revised its strategic vision for youth with the current vision focused on five goals centered on the availability of resources to support youth development both mentally and physically. *A Shared Vision for Massachusetts Youth and Young Adults 2008*, a report that presents data on a variety of health indicators for youth and young adults in the Commonwealth, updated and replaced the previous 2003 version with current research and knowledge. The full report is available online at http://www.mass.gov/Eeohhs2/docs/dph/com_health/shared_vision_report.pdf. *A Shared Vision* was created through an interdepartmental collaboration with the Governor's Adolescent Health Council and the Massachusetts Department of Public Health, with support from the Office of Youth Development within the Executive Office of Health and Human Services.

A Shared Vision contains within it an agenda for adolescent health based on five articulated goals:

1. All youth have access to resources to promote optimal physical and mental health.

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2. All youth have nurturing relationships with adults and positive relationships with peers.
3. All youth have access to safe places for living, learning and working.
4. All youth have access to educational and economic opportunity.
5. All youth have access to structured activities and opportunity for community service and civic participation.³⁷

The goals stated above as well as the data described in *A Shared Vision* are derived from various data sources such as the Massachusetts Youth Risk Behavior Survey (YRBS), the Massachusetts Youth Health Survey (MYHS), and the National Survey for Children's Health (NSCH). These standardized sources were used to illuminate the larger state picture, and YRBS and NSCH offered comparative data with the nation.

3C.4 Overview of Child and Adolescent Health Indicators in Massachusetts

Massachusetts children compare favorably to children throughout the nation on a number of child health indicators. According to parent-report data from the 2007 NSCH:

- 86.3% of Massachusetts children aged 0-17 years enjoy excellent/very good overall health status, significantly higher than the national statistic (84.4%)
- 79.5% of parents reported that the overall condition of their child's (aged 1-17 years) teeth was excellent/very good, significantly higher than the national finding (70.7%)
- 22.1% of Massachusetts children aged 4 months to 5 years were considered by their parents to be at moderate or high risk of developmental or behavioral problems (versus 26.5% nationally)
- 96.6% of Massachusetts children aged 0-17 years had a preventive medical visit in the past year, significantly higher than the national statistic (88.5%)
- 66.6% of Massachusetts children aged 2-17 years with problems requiring counseling received mental health care (versus 60.0% nationally)
- 56.1% of Massachusetts children lived in neighborhoods with a park, sidewalks, a library and a community center (versus 48.2% nationally)
- 8.6% of Massachusetts children lived in neighborhoods with poorly kept or dilapidated housing (versus 14.6% nationally)

MDPH has worked in conjunction with the University of Massachusetts Center for Survey Research to develop a youth health questionnaire, the Massachusetts Youth Health Survey (MYHS), which includes questions about risk factors such as drug, alcohol, and tobacco use, general health issues, dieting and eating habits, mental health, and physical safety. The purpose of the survey is to produce an accurate picture as possible of the entire spectrum of health related issues for Massachusetts' public school children. Beginning in 2007, MDPH has collaborated with the Department of Elementary and Secondary Education (DESE) to jointly administer the MYHS with the Youth Risk Behavior Survey. The MYHS is administered to middle and high school youth, and the YRBS is administered to high school youth. Key findings from these surveys are presented in the sections that follow.

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3C.5 Child and Adolescent Deaths

Fortunately, death is a rare event among children and youth. Massachusetts children and youth have lower death rates in every age group than do youth nationally. However, while still infrequent, injuries account for the largest proportion of deaths among Massachusetts children and adolescents.

- Massachusetts has met the HP2010 goal for reducing death rates among youth aged 10–14 years and has almost met the goal for youth aged 15–19 years (Figure 3C-11).

**Youth Death Rates*, by Age Group
Massachusetts, 2007, United States, 2006, and Healthy People 2010 Targets**

Age Group	Massachusetts, 2007	United States, 2006	HP2010
10–14 years	11.8	16.6	16.8
15–19 years	43.7	64.4	39.8
20–24 years	67.8	100.2	49.0

* Rates per 100,000 population per year.

Data source: Registry of Vital Records and Statistics, MDPH; CDC Wonder, and National Vital Statistics System, CDC.

Figure 3C-11

- In 2007 there were a total of 128 deaths among children aged 1-14 years and 505 among youth aged 15-24 years. Unintentional injuries were the leading cause of death among children and youth, with 1.8 deaths per 100,000 children aged 1-14 years (20 deaths) and 25.8 deaths per 100,000 youth aged 15-24 years (234 deaths).³⁸
- The leading causes of death from injury among youth and young adults aged 15–24 years were motor vehicle crashes and other unintentional injuries, suicide, homicide, and deaths of undetermined intent.³⁹
- Cancer was the second leading cause of death among children aged 1-14 years (18 deaths, 1.6 deaths per 100,000). Homicide was the second leading cause of death among youth aged 15-24 years (73 deaths, 8.1 deaths per 100,000 population)⁴⁰

Injury Deaths

Increasing the integration of injury prevention activities into MCH programs is a MCH priority in Massachusetts. Injury deaths may be unintentional or intentional, such as suicide and homicide. “Unintentional” injuries are often portrayed as “accidental,” but from a public health perspective, they are preventable. Injuries can be caused by a range of mechanisms, such as a motor vehicle crash, poisoning, drowning, firearm, and so on.

- In 2007 the rate of injury deaths among male children aged 1-14 years (16 deaths, 2.9 deaths per 100,000 population) was substantially higher than that of females (4 deaths, rate not calculated due to small numbers). The disparity was also observed among youth aged 15-24 years: the rate was 36.6 per 100,000 among males and 15.0 per 100,000 among females
- In 2007, 62% of all injury deaths were unintentional, 22.3% were homicide, and 12% were suicide. Unintentional injuries resulting in death for youth were

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predominantly due to auto accidents (leading cause of death among youth aged 15-24 years accounting for 57% of unintentional deaths and 37% of deaths overall.)⁴¹

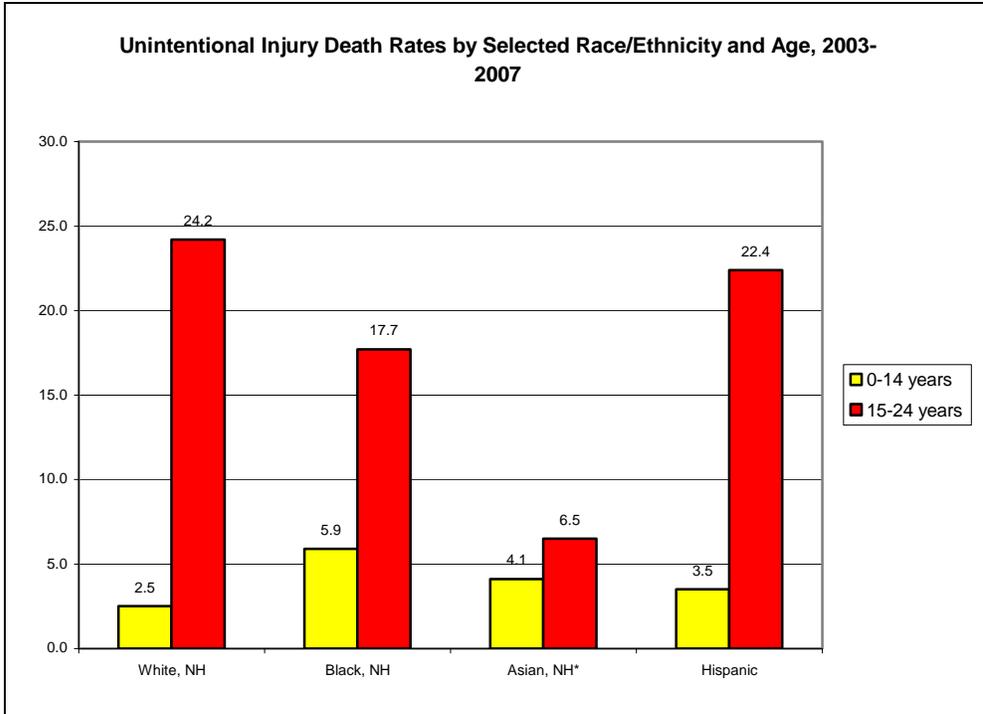
- Among non-fatal unintentional injuries, falls were the leading cause of injury for all age groups under 14 years⁴²

Leading types of injury deaths, 2007:

- Homicide was the leading cause of injury death among children aged 0-14 years (n=19, representing 40% of the injury deaths in this age group). Unintentional drowning was the second leading cause of injury death in the 0-14 year age group (n=6, 13% of the total injury deaths in this age group)
- Unintentional motor vehicle traffic crashes (including occupants, motorcyclists, pedestrians, and bicyclists in traffic) were the leading cause of injury deaths among youth aged 15-24 years (n=129, representing 35% of the injury deaths in this age group)
- Homicide was the second leading type of injury death among youth aged 15-24 years, accounting for 73 (20%) of the injury deaths in this age group. Ninety-two percent (92%) of these deaths were among males and 78% involved a firearm
- Unintentional poisoning, including drug overdoses, was the third leading cause of injury death among youth aged 15-24 years, accounting for 60 (16%) of the total injury deaths in this age group
- Suicide ranked as the fourth leading type of injury death in youth aged 15-24 years, accounting for 50 (14%) of the injury deaths in this age group. Eighty-six percent (86%) of these deaths were among males

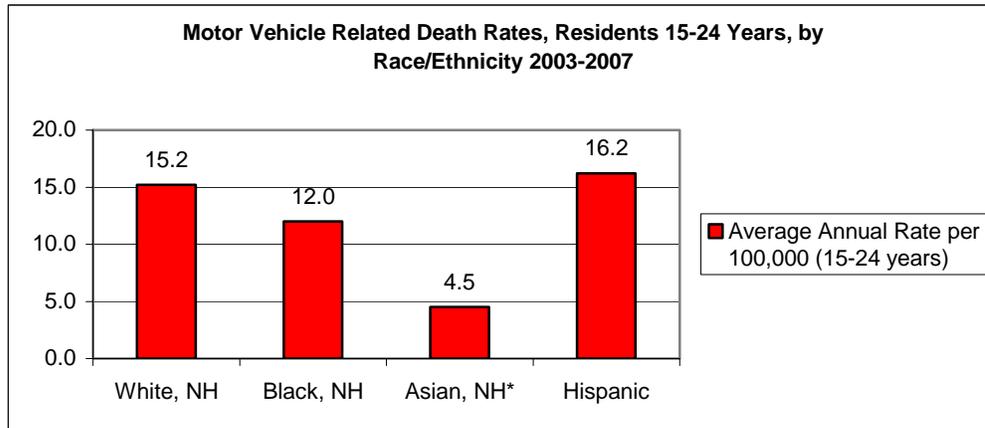
Analysis of 2003-2007 Massachusetts Vital Records death data indicates that the average annual rates of death due to unintentional injury (Figure 3C-12) and motor vehicle-related deaths (Figure 3C-13) vary by race and Hispanic ethnicity.

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*Rates based on numbers less than 20 are unstable.
 Data source: Massachusetts Registry of Vital Records and Statistics, 2003-2007

Figure 3C-12



*Rates based on numbers less than 20 are unstable.
 Data source: Massachusetts Registry of Vital Records and Statistics, 2003-2007

Figure 3C-13

As part of our particular focus on disparities, Massachusetts has selected a violence prevention state outcome measure that evaluates the large gap between White, non-Hispanic and Black, non-Hispanic homicide deaths. Youth and young adult males, especially Black, non-Hispanic males, are disproportionately involved as victims of homicide. The trends seen nationally are consistent with what is observed in the Commonwealth.⁴³ As seen in Figure 3C-14, during 2005-2007 the homicide rates for Black non-Hispanics, Hispanics, and Asians aged 15-24 years were 25, 12, and 8 times that of White non-Hispanics in this age group,

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respectively. In 2007 the ratio of black, non-Hispanic to white, non-Hispanic homicide deaths in Massachusetts was roughly 36 to 1.

Three-Year Average Annual Homicide Rates by Selected Race/Ethnicity among Youth Aged 15-24 Years, 2005-2007		
	3 year total	average annual rate per 100,000
White, NH	41	2.0
Black, NH	125	60.6
Asian, NH	7	4.8
Hispanic	49	17.3

Data source: MassCHIP Custom Report: Massachusetts Homicide Rates by Race/Ethnicity, 2005-2007

Figure 3C-14

Youth suicide disproportionately affects certain groups. Among high school students who self-identified as gay, lesbian, or bisexual (sexual minority youth) in 2009, 41.8% reported that during the past 12 months they had seriously considered suicide, 33.2% reported that they had attempted suicide in the past year, and 13.2% required medical attention for an attempted suicide.⁴⁴

GLB youth risks compared to heterosexual youth, 2009		
Reported Behaviors	GLB Students	Other Students
Seriously considered attempting suicide	41.8%	8.6%
Attempted suicide in the past year	33.2%	3.5%
Required medical attention as a result of a suicide attempt	13.2%	1.1%

*All differences between GLB students and other students are statistically significant, p. < 0.05.

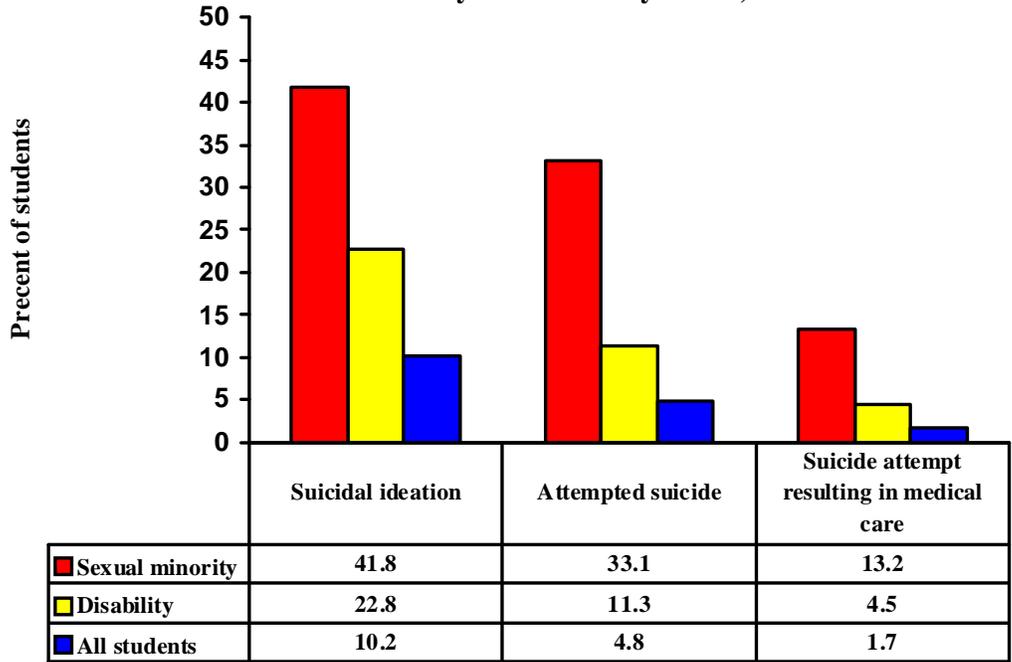
Data source: MYHS 2009

Figure 3C-15

Among high school students with disabilities, 22.8% reported that during the past 12 months they had seriously considered suicide and 11.3% actually attempted suicide (compared with 4.5% and 1.7% of their counterparts without disabilities, respectively). For 4.5% of youth with disabilities, the suicide attempt resulted in medical attention.⁴⁵

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Suicidal Ideation and Behaviors among MA High school Students, by Sexual Minority and Disability Status, 2009



Data source: MYHS 2009

Figure 3C-16

Cancer Incidence and Deaths

Within the Commonwealth, the median age at diagnosis with any type of cancer during 2002-2006 was 68 years for males and 67 years for females. However, certain cancers continue to disproportionately affect children and youth. During 2005-2007, Massachusetts had 161 deaths among children aged 24 years and less due to cancer (ICD 10).⁴⁶ The table below illustrates the incidence rates during 2002-2006 for selected cancer types by age.

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Age-Specific Incidence Rates (per 100,000) and Median Age Group at Diagnosis for Selected Cancer Sites, Massachusetts, 2002-2006 ⁴⁷

Cancer Site / Type	Age group at diagnosis (yrs)				
	0-4	5-9	10-14	15-19	20-24
All Sites	23.2	12.6	13.6	24.2	36.9
Brain & Other Nervous System	5.7	3.6	2.2	2.6	1.8
Bronchus & Lung	0.2	--	--	0.2	0.2
Colon / Rectum	--	--	0.1	0.4	0.5
Hodgkin Lymphoma	0.1	0.5	1.8	4.2	5.6
Kidney & Renal Pelvis	1.6	0.6	0.1	0.0	0.2
Leukemia	8.1	3.7	2.9	2.9	2.1
Liver & Intrahepatic Bile Ducts	0.8	0.1	0.0	0.0	0.1
Melanoma	0.1	0.2	0.5	1.8	5.0
Non-Hodgkin Lymphoma	0.4	1.1	1.6	2.2	2.4
Oral Cavity & Pharynx	--	0.1	0.3	0.8	0.8
Ovary	0.1	0.2	0.3	0.6	1.0

Data source: Massachusetts Cancer Registry, 2002-2006.

Figure 3C-17

3C.6 Immunization

Vaccines were among the greatest public health achievements of the 20th century. Immunization prevents disability and death from infectious diseases for individuals and helps control the spread of infections within communities. Massachusetts continues to be among the leaders in the nation in immunization coverage of children aged 19-35 months based on the National Immunization Survey administered by the CDC. Massachusetts was again the second highest state for vaccine coverage in 2008 for the 4:3:1:3:3 series with 83.9% ($\pm 5.5\%$); while the national average is 78.2% ($\pm 1.1\%$).⁴⁸

Massachusetts has met or exceeded the *Healthy People 2010* goals for 7th graders for coverage with hepatitis B vaccine (goal: 90%) and 2 or more doses of measles, mumps and rubella (MMR) vaccine (goal: 90%)

Percentage of Students Entering 7th Grade with Completed Immunization Series — Massachusetts, 2005–2006

No. of students entering 7 th grade	> 1 Measles, mumps, and rubella vaccination	Hepatitis B series completed	Varicella (chickenpox) vaccination	Immunity to varicella (chickenpox)	Tetanus and diphtheria booster
82,144	99%	98%	43%	96%	84%

Data source: MDPH Immunization Program, 2005–2006

Figure 3C-18

The Advisory Committee on Immunization Practices (ACIP) recommends three newly licensed vaccines for adolescents: meningococcal conjugate vaccine (MCV4; 1 dose); tetanus, diphtheria, acellular pertussis (Tdap; 1 dose); and, for girls, quadrivalent human papillomavirus

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vaccine (HPV4; 3 doses).⁴⁹ ACIP also recommends that adolescents receive recommended vaccinations that were missed during childhood: measles, mumps, rubella vaccine (MMR; 2 doses); hepatitis B vaccine (HepB; 3 doses), and varicella vaccine (VAR; 2 doses). Data from the 2008 National Immunization Survey – Teen indicate that vaccination coverage among youth aged 13-17 years for MCV4 (55.9%) and HPV4 (53.3%) in Massachusetts was significantly higher than in the United States overall (41.8% and 37.2%, respectively). The coverage rate for Tdap was similar in Massachusetts (43.3%) and the United States (40.8%). Massachusetts is one of only 9 states with coverage >50% for MCV4 and one of only 3 states with coverage >50% for HPV4. Vaccination coverage in Massachusetts for the catch-up vaccines MMR (99.5%), HepB (97.4%), and VAR (95.0%) was significantly higher than in the United States overall (89.3%, 87.9% and 81.9%, respectively).⁵⁰

Despite being a leader in vaccination coverage and enjoying higher coverage rates than most other states, Massachusetts continues to seek ways to improve coverage throughout the Commonwealth, particularly among underserved populations. Though it did not emerge as a top priority in the Needs Assessment process, improving vaccination efforts remains a strong focus for the Title V agency and the state.

3C.7 Healthy Weight among Children and Adolescents

Nationally, and in Massachusetts, attention is being focused on obesity and risk factors associated with being overweight. Many adverse health outcomes are associated with obesity such as diabetes, heart disease and many other chronic diseases. To address the important public health problem of obesity, MDPH launched its statewide Mass in Motion initiative in January 2009. Mass in Motion aims to promote wellness and to prevent overweight and obesity in Massachusetts – with a particular focus on the importance of healthy eating and physical activity. Mass in Motion uses a multi-faceted approach, including:

- The release of a *Call to Action* that documents the extent of the obesity epidemic in Massachusetts, its consequences, and efforts to combat it;
- Support for regulatory changes to promote healthy diet and exercise, including Body Mass Index (BMI) screening of public school students in grades 1, 4, 7 and 10, and menu labeling for chain restaurants operating in Massachusetts.
- An Executive Order by Governor Patrick requiring state agencies responsible for large-scale food purchasing (e.g., DPH and DMH hospitals) to follow healthy nutritional guidelines in their food service operations. State purchases of food by these agencies run into the tens of millions of dollars per year;
- Municipal Wellness grants to cities and towns to make wellness initiatives a priority at the community level. Funding for these grants comes from five major health-funding foundations and other leading health organizations in the Commonwealth;
- The expansion of a state-sponsored Workplace Wellness program to help employers create work environments that encourage healthy behaviors and reduce absenteeism and health insurance costs;
- The launch of a state-sponsored Mass in Motion web site that promotes eating better and moving more at home, work, and in the community.

As a key component of the Mass in Motion initiative, in April 2009, the Public Health

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Council unanimously approved a regulation requiring school systems to measure the height and weight of public school students in grades 1, 4, 7 and 10 and use those figures to calculate their Body Mass Index (BMI). School nurses are responsible for oversight of the screening, including: parent notification, providing privacy during screening, training for any ancillary staff assisting with screening, recording and the confidential reporting of individual results to parents, and submitting aggregate data to MDPH. The BMI screening program is being phased in across Massachusetts. The most recent data available are from 80 school districts in the Essential School Health Services (ESHS) program collected during the 2008-2009 school year on 109,674 students. This sample represents 38% of the 287,107 public school students in all Massachusetts schools in grades 1, 4, 7, and 10. Findings include the following:

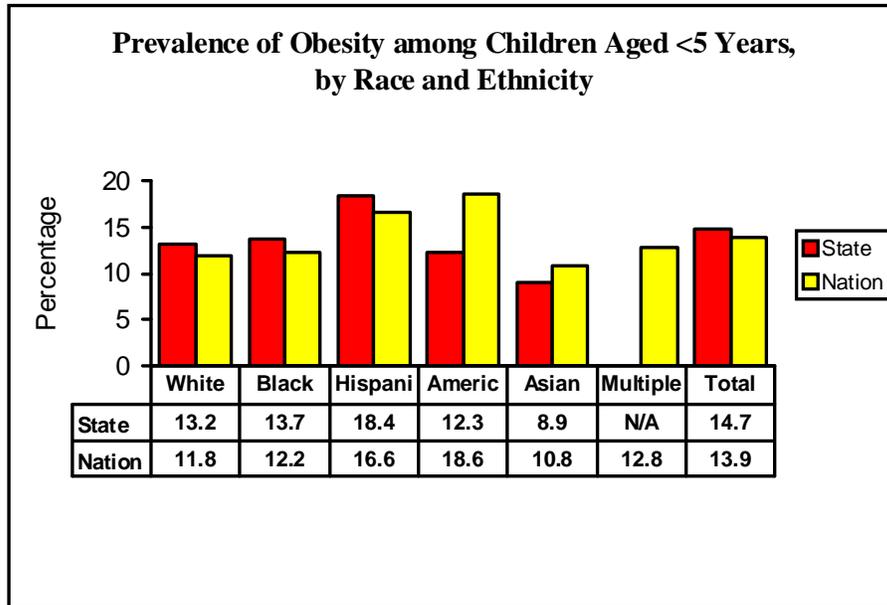
- Of the 109,674 public school students in grades 1, 4, 7 and 10 who were screened in 2008-2009, 63.2% were in the healthy weight category, 16.9% were overweight, and 17.3% were obese. Thus, 34.3% of students were either overweight or obese. Of the male students, 35.9% were overweight or obese compared to 32.5% of the female students screened. More males fell into the obese or overweight category for each grade.
- There was substantial variation among the 80 ESHS Districts in the proportion of their students who were overweight or obese, ranging from 9.6% in Arlington to 46.6% in Lawrence.
- Similarly, there was also substantial variation among the ESHS Districts in the proportion of their students in the healthy weight category for each of the 4 grades. For example, the percentage of 4th grade male students in the healthy weight category ranged from 40.2% to 82.1%, with an average of 57.7%.
- There was substantial variation by grade and gender in the percentage of students who were in the obese category. The lowest percentage of obesity was among 10th grade females at 11.9 % compared to 16.0 % of 10th grade males. The highest percentage of obesity was among 4th grade males at 21.6% compared to 18.0% for 4th grade females.
- There were no major differences by gender or grade in the percentage of students who fell into the overweight category.
- The percentage of students who were either overweight or obese did not differ substantially by grade: for grade 1, 31.9% fell into these two categories, compared to 37.6% for grade 4, 35.6% for grade 7 and 30.5% for grade 10.
- The overall percentage of students who fell into the underweight category was low, 2.5 %, and did not vary as dramatically among the 80 ESHS districts. The range of percentage of underweight students varied from 1 % to 5.5%.

Massachusetts uses data from other sources, including the Pediatric Nutrition Surveillance System, National Survey of Children's Health, Youth Risk Behavior Survey and Youth Health survey to monitor the weight status of children and youth in the Commonwealth. Relevant findings from those sources appear below.

- According to the 2008 Pediatric Nutrition Surveillance System (PedNSS), which assesses weight status of children from low-income families participating in WIC, of children aged <5 years, 14.7% were obese⁵¹

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- More than a third of children aged 2-5 years participating in the Massachusetts WIC program are either overweight (85th-<95th percentile, 16.8%) or obese (>95th percentile, 16.7%)⁵²

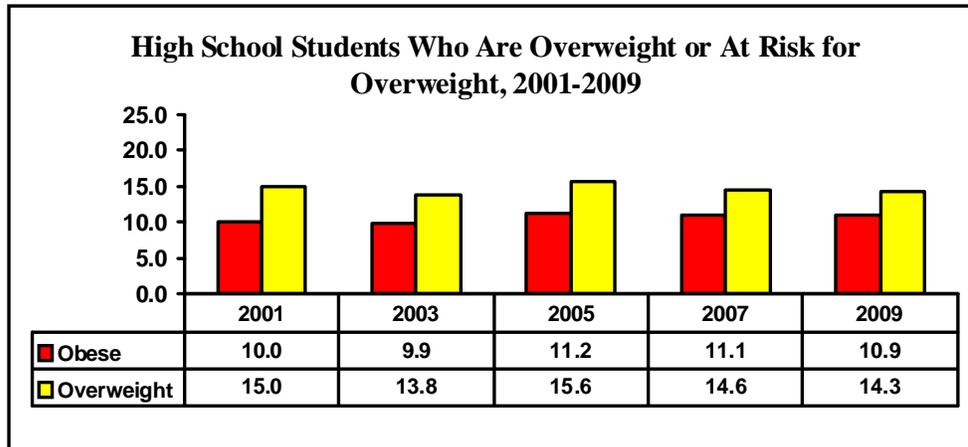


Data source: Pediatric Nutrition Surveillance System 2008

Figure 3C-19

- According to parent-report data from the 2007 NSCH:
 - Approximately 199,115 of 663,077 Massachusetts children aged 10-17 years (30.0%) were considered overweight or obese^{53 54}
 - The prevalence rate of overweight and obesity was more than 40% for Massachusetts children aged 10-17 years who were poor (44.8%), on public health insurance (42.6%), or Hispanic (45.2%). The Massachusetts Hispanic prevalence rate was surpassed by only four other states⁵⁵
 - Massachusetts children aged 10-17 years were less likely than their counterparts nationwide to be physically active for at least 4 days per week, but they were also less likely to spend 2 hours or more in front of a television or computer screen⁵⁶
- According to self-report student data from the 2009 YRBS and 2009 MYHS:
 - Over 14% of high school students in Massachusetts were overweight (85-<95th percentile) and 10.9% were obese (>95th percentile). Black (18.1%) and Hispanic (15.3%) high school students were more likely to be obese than their White (9.2%) counterparts⁵⁷

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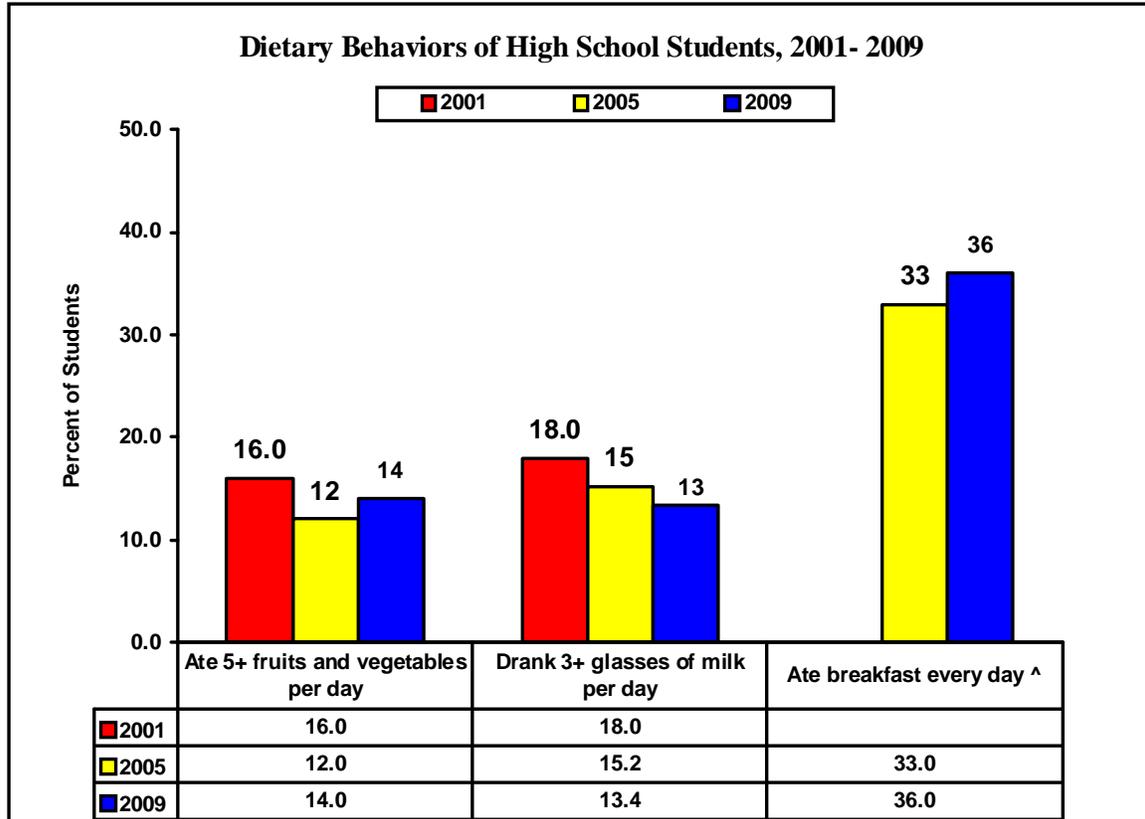


Data source: YRBS 2001-2009

Figure 3C-20

- 41% of high school students did not attend physical education during an average school week, and 82% did not have daily physical education⁵⁸
- In 2009, only 14% of high school students consumed the recommended 5 or more fruits and vegetables per day; 13% drank 3 or more glasses of milk per day; and just over one-third (36%) ate breakfast every day⁵⁹

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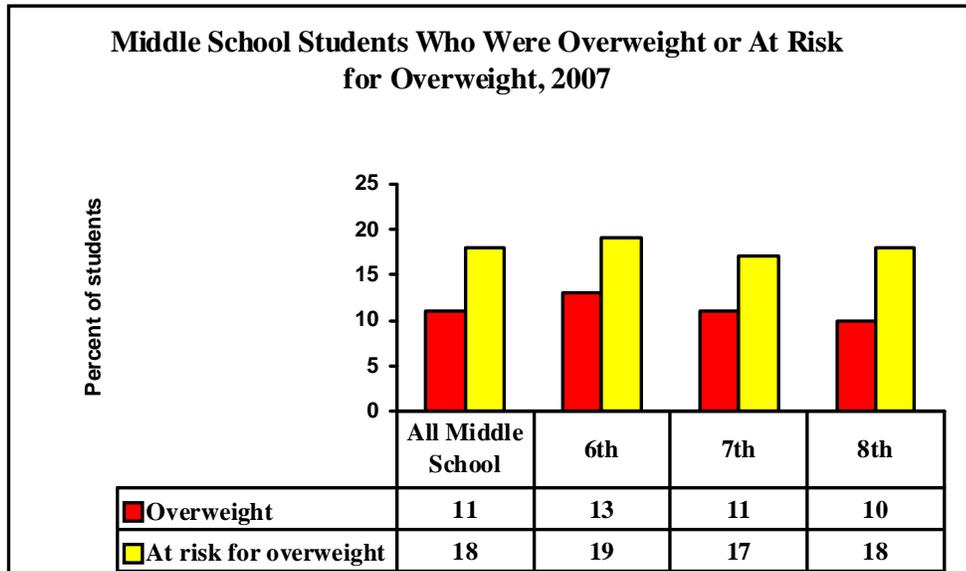
^Not asked in 2001

Data source: YRBS 2009

Figure 3C-21

- 30% of high school students watched three or more hours of television on school days, despite the CDC recommendation that youth get no more than 2 hours of non-school media time per day. Over half of high school students who identified as Black, non-Hispanic (51.6%) and 42.3% of those who identified as Hispanic reported watching 3 or more hours of television on school days, significantly higher than their White, non-Hispanic counterparts (26.0%)⁶⁰
- In 2007, 11% of middle school students were overweight and 18% were at risk for overweight.⁶¹

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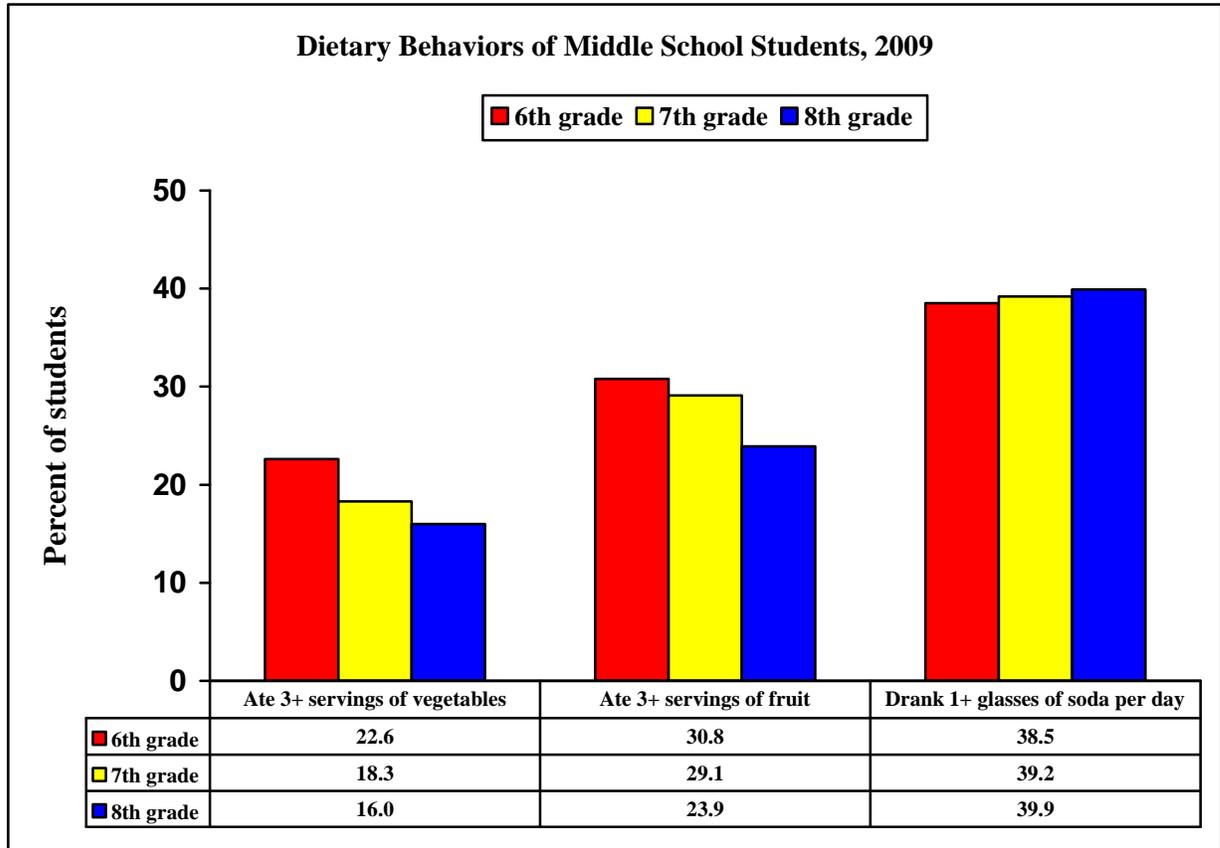


Data source: MYHS 2007

Figure 3C-22

- Among middle school students, 19% reported eating 3 or more servings of vegetables the day before survey administration; 28% reported consuming 3 or more servings of fruit or 100% fruit juice; and 39% reported drinking at least one glass of soda on the day before survey administration.⁶² Vegetable, fruit and soda intake by grade is shown in Figure 3C-23.

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Data source: MYHS 2009

Figure 3C-23

- 66% of high school students and 67% of middle school students did not meet the recommended levels of physical activity (60 minutes per day) on at least 5 days per week⁶³
- In 2009, 58% of high school students attended physical education class in an average week, a decrease from 68% in 2001. Over half (59%) of high school students played on a sports team⁶⁴

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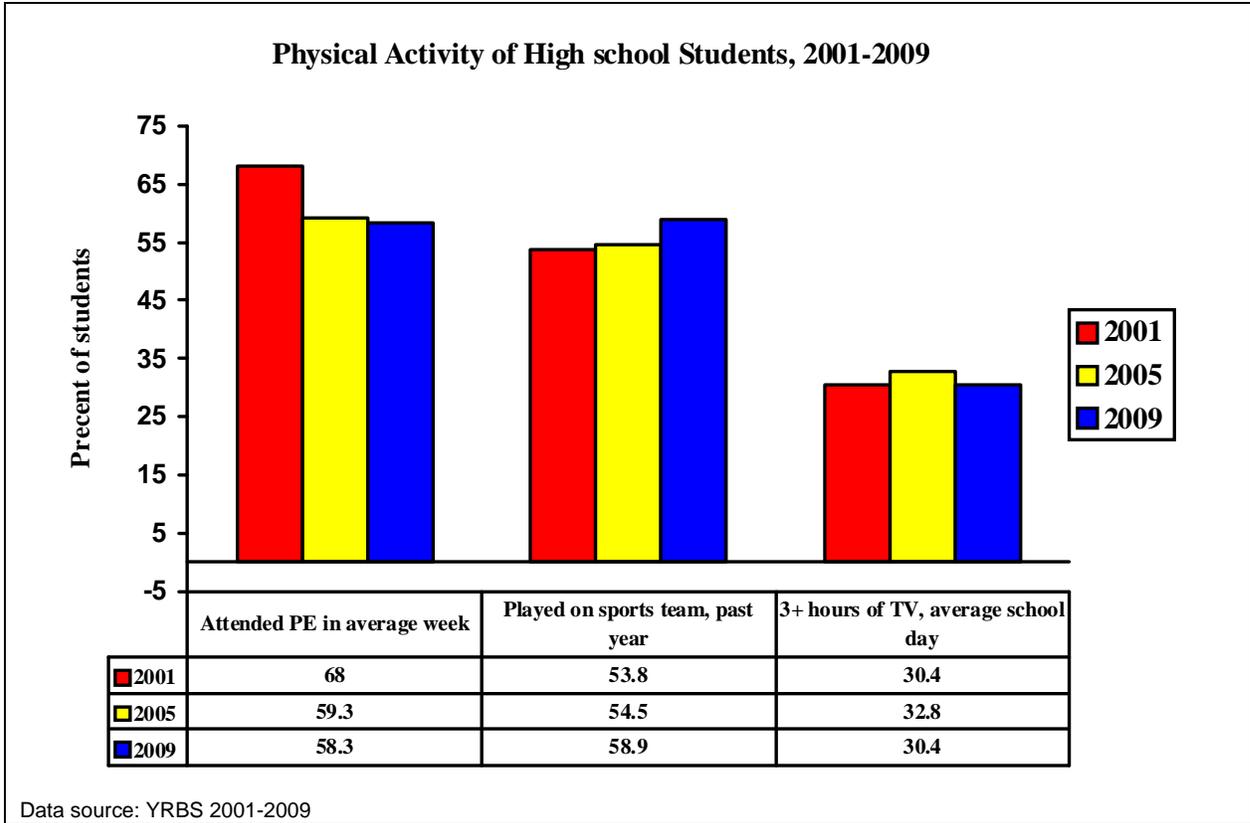


Figure 3C-24

- In 2007, almost one in five (18%) middle school students reported using the internet for three or more hours per day. The prevalence of three or more hours per day of internet usage increased with grade from 14% in grade 6 to 22% in grade 8 (Figure 3C-25, question not asked on the 2009 MYHS).

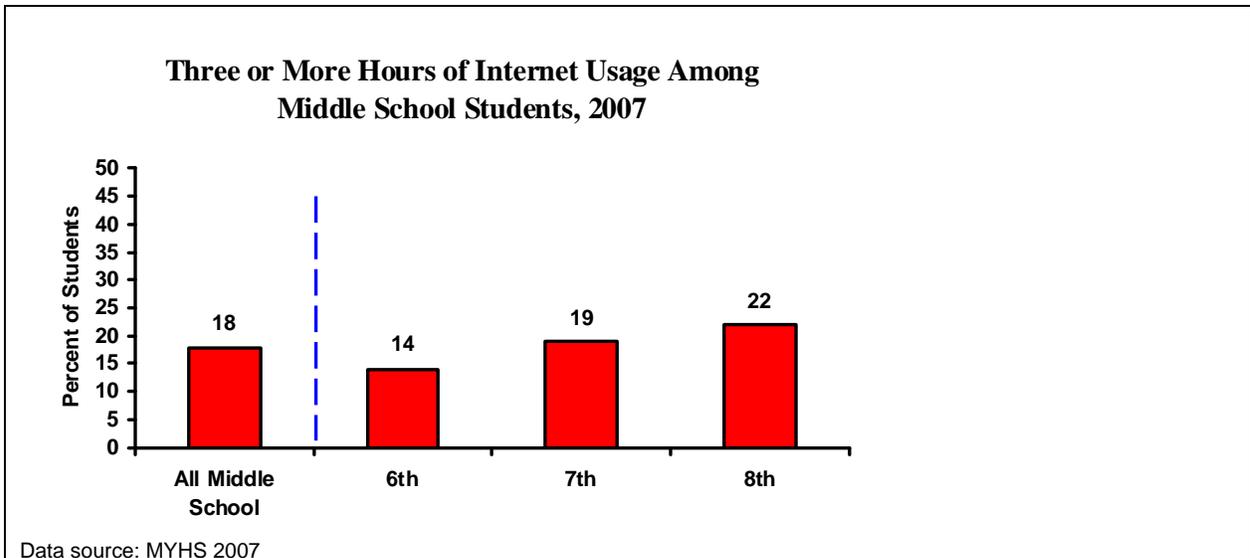


Figure 3C-25

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- Nearly half (45%) of Massachusetts high school students in 2009 were currently trying to lose weight. Females were more likely to report they were trying to lose weight compared to males (60.0% vs. 30.7%)⁶⁵

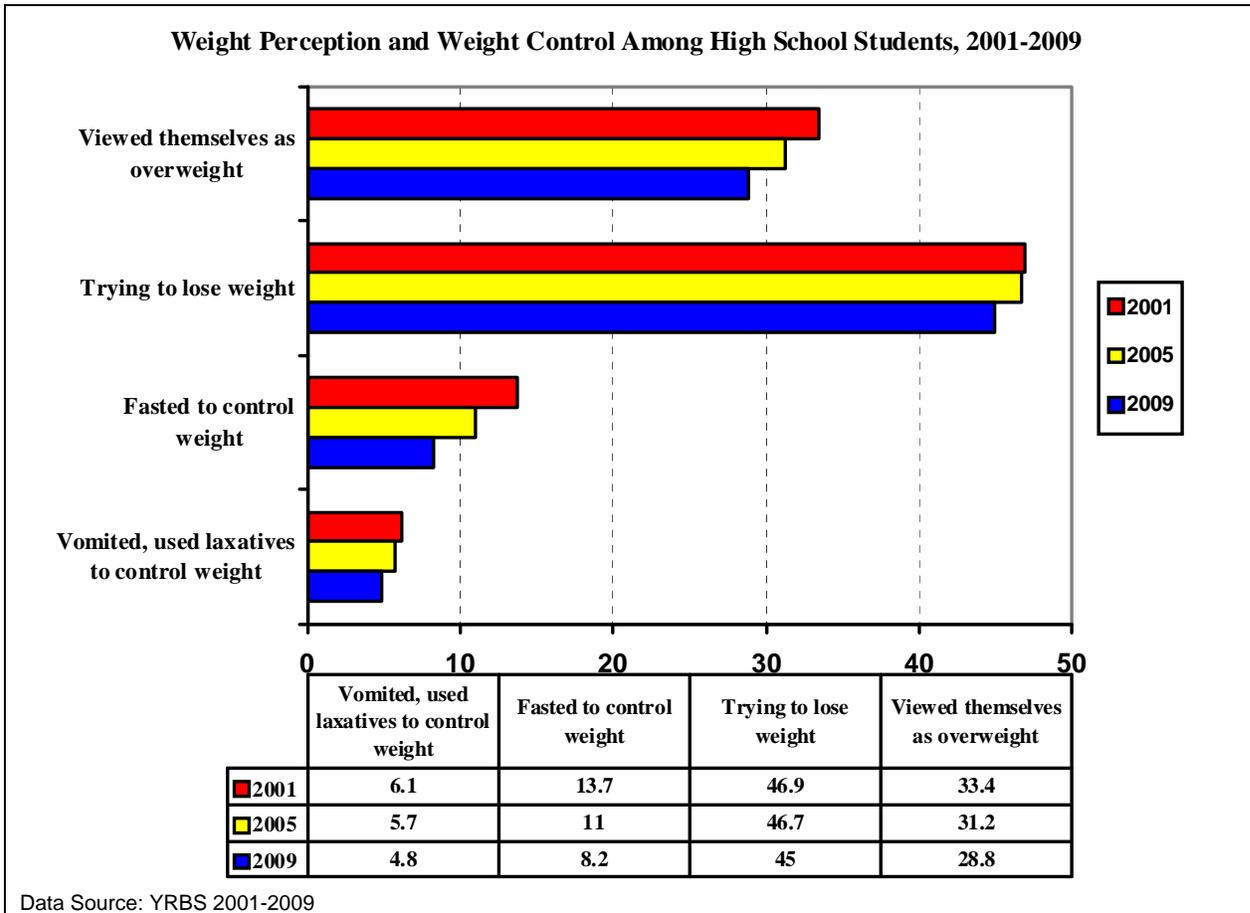


Figure 3C-26

3C.8 Child and Adolescent Violence and Injury Risk Behaviors

Massachusetts continues to develop programs around reducing risk and injury in the youth population by focusing on areas of preventable injury and the causes of injury. Behaviorally, adolescence is the highest risk period, as youth have not fully matured into adulthood. High risk behaviors contribute to high rates of injury. The leading causes of death for youth and young adults are largely preventable. Adolescence is also a period of increased violence and sexual activity. Many behaviors related to violence and sexual activities are learned early or are the result of experiences starting at a young age.

The Massachusetts Department of Public Health has a strong focus on preventing violence, bullying and suicide among adolescents. These three factors have come together in several schools in the Commonwealth culminating in at least one recent highly publicized death from suicide related to bullying.

According to data from the 2009 YRBS:

- 11% of high school youth had experienced dating violence ever in their lifetimes (females 15%, males 8%)

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- 11% of high school youth had experienced unwanted sexual contact ever in their lifetimes (females 16%, male 7%)
- 4% of high school youth had missed school on one or more of the past 30 days because they felt they would be unsafe at school or on their way to or from school (females 4%, males 4%) (Figure 3C-27)
- 19% of high school youth had been bullied at school in the past year (females 20%, males 19%) (Figure 3C-27)
- 7% of high school students reported that they had been threatened or injured with a weapon at school in the past year (females 4%, males 10%) (Figure 3C-27)

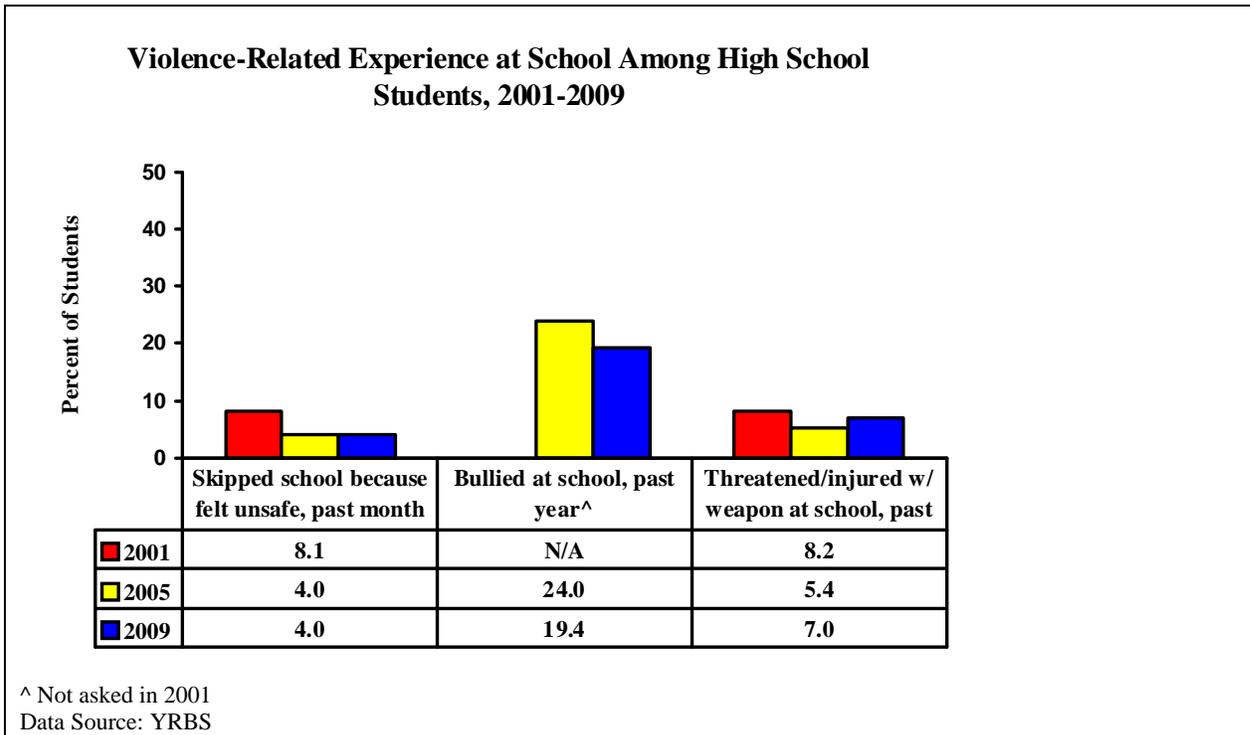


Figure 3C-27

- 4% of high school students reported that they had carried a weapon on school property during the past month (females 2%, males 7%)
- 9% of high school students reported that they had been in a physical fight during the past year (females 6%, males 12%)

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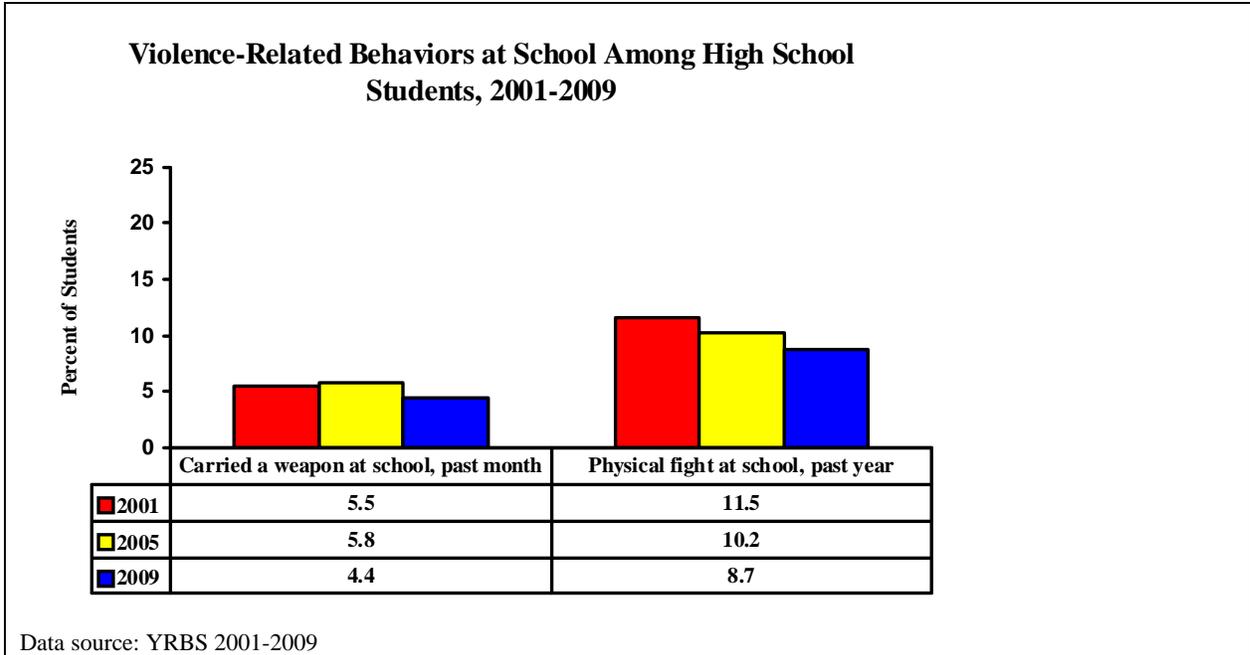


Figure 3C-28

- 14% of high school youth reported that they never or rarely wore a seatbelt when riding in a car driven by someone else (females 11%, males 17%)
- 27% of high school students had ridden in a vehicle driven by someone who had been drinking in the past month (females 27%, males 27%)
- 9% of high school students had driven a vehicle after drinking in the past month (females 8%, males 10%)
- 17% of high school students had purposely injured themselves without wanting to die in past year (such as cutting or burning themselves on purpose) (females 21%, males 13%)
- 7% of high school students had attempted suicide in the past year (females 7%, males 7%)
- 5% of high school students had used glue, aerosol, paints, or sprays to get high in the past month (females 5%, males 6%)
- 11% of high school students had witnessed violence in their families (females 12%, males 9%)⁶⁶

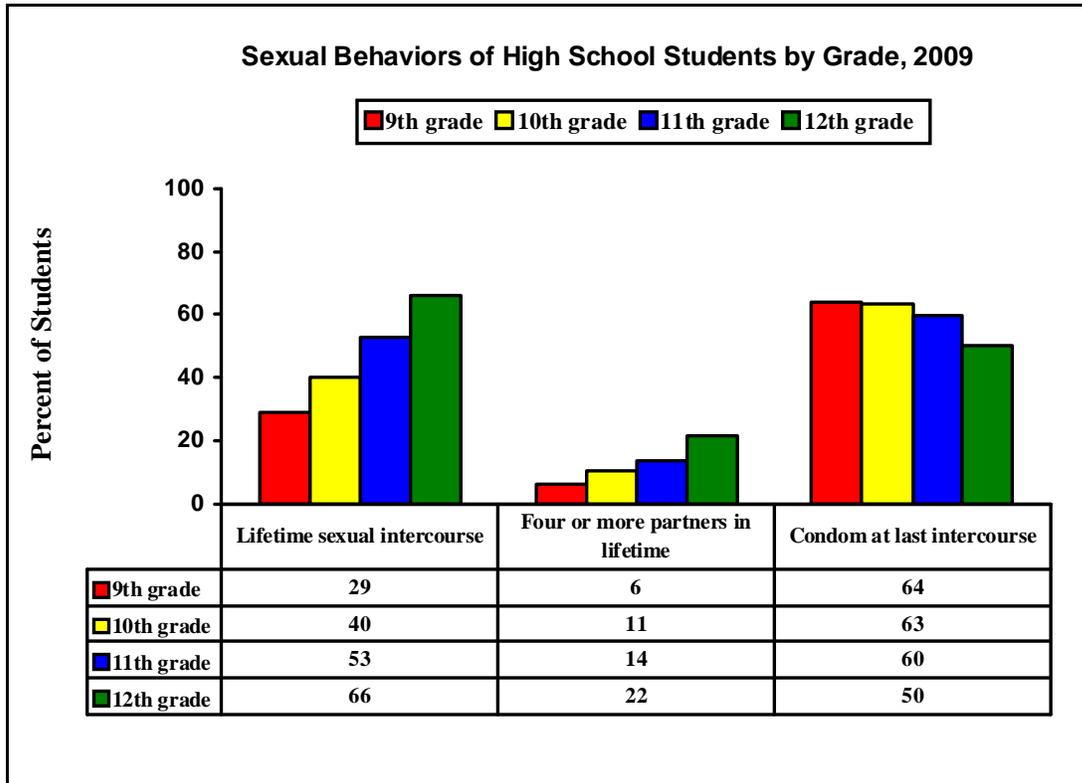
3C.9 Sexual Risk Behaviors

Early initiation of sexual activity can have negative consequences for youth and young adults including teen pregnancy, sexually transmitted diseases, and related future health consequences.⁶⁷ Overall, Massachusetts has had declining rates of teen pregnancy with a teen pregnancy rate significantly lower than that of the nation (see Maternal and Infant section for more information on teen pregnancy).

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According to the 2009 YRBS:

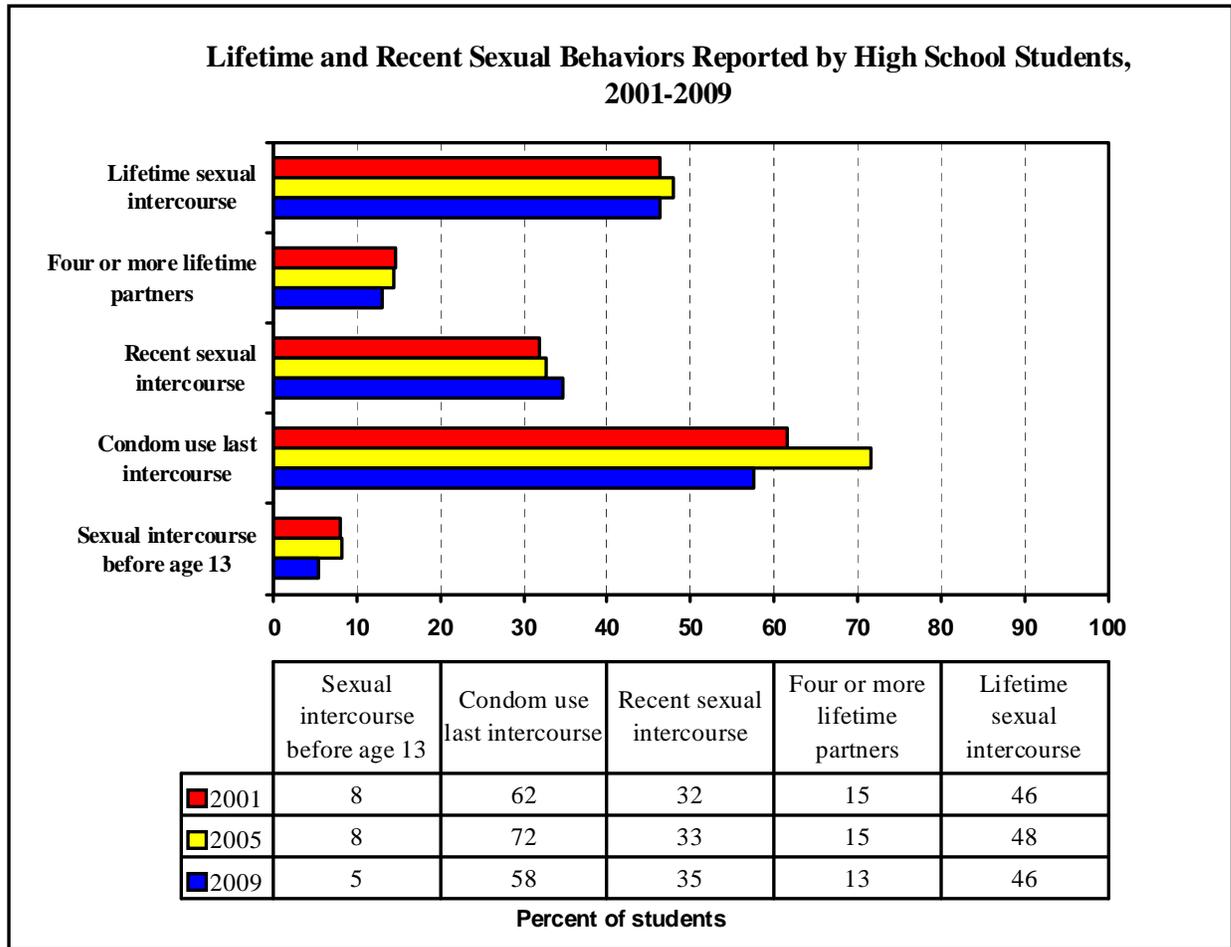
- 82% of Massachusetts high school students abstained from sexual intercourse or, if sexually active, used a condom at last intercourse
- The majority (53.6%) of Massachusetts high school students reported never having had sexual intercourse⁶⁸



Data source: YRBS 2009

Figure 3C-29

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Data source: YRBS 2009

Figure 3C-30

Nevertheless, many high school youth in Massachusetts were still engaging in sexual behaviors that put them at risk⁶⁹:

- Over one-third of Massachusetts students were currently sexually active (34.6%), that is, they reported having had intercourse within the past three months (females 36%, males 33%)
- 5% of high school students reported that they had sexual intercourse for the first time before age 13 years (females 3%, males 8%). This represents a decrease from 13% in 1993.
- 11% of high school students reported that they drank alcohol or used drugs before they had sexual intercourse the last time (females 20%, males 28%).
- The proportion of students who were currently sexually active increased with grade level from 18.9% of 9th grade students to 52.2% of 12th grade students. 42% of Hispanic students and 38.4% of Black students were currently sexually active versus 33.5% of White students and 25.5% of students of other races
- Higher proportions of Hispanic and Black students reported sexual intercourse before age 13 years, and four or more lifetime partners compared with White students

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- 6% of high school students identified as gay, lesbian or bisexual, or reported any lifetime same-sex sexual contact.
- 15.5% of female high school students reported that they had encountered sexual contact against their will versus 7.2 % for male students⁷⁰

3C.10 Sexually Transmitted Infections

Compared to older adults, sexually active youth (aged 15–19 years) and young adults (aged 20–24 years) are at higher risk for acquiring sexually transmitted infections (STIs). This higher risk is due to a combination of behavioral, biological and cultural factors. In addition to high-risk sexual behaviors, the higher prevalence of STIs among adolescents often reflects multiple barriers to quality STI prevention services, including lack of insurance or other ability to pay, lack of transportation, discomfort with facilities and services designed for adults, and concerns about confidentiality.⁷¹

- Approximately 12% of all high school students had ever been tested for HIV infection and 12.1% had been tested for other sexually transmitted infections such as genital herpes, chlamydia, syphilis, or genital warts⁷²
- 2.4% of students reported having been told by a doctor or other health care professional that they had a STD or were HIV positive⁷³
- The majority of reported chlamydia infections and gonorrhea cases in Massachusetts are in adolescents and young adults. In 2007, 67% of reported chlamydia cases and 51% of reported gonorrhea cases were in youth and young adults aged 15-24 years.⁷⁴
- In 2007, the incidence of reported chlamydia infections in Massachusetts among youth (aged 15-19 years) and young adults (aged 20-24 years) exceeded 1,000 per 100,000. These rates are significantly higher than the statewide rate of 260.6 per 100,000.⁷⁵
- In 2007, the incidence of gonorrhea in Massachusetts was highest among young adults (aged 20-24 years) followed by youth (aged 15-19 years). Compared to the statewide incidence (43.0 per 100,000) of gonorrhea, the incidence was 3.2 times higher for adolescents and 4.2 times higher for young adults.⁷⁶

Furthermore, the number of reported chlamydia cases among youth aged 15-19 years has been increasing in Massachusetts, from 3,823 cases (1,674 per 100,000) in 2005 to 4,386 (1,921 per 100,000) in 2009. Since chlamydia infection is often asymptomatic and diagnosis is dependent on laboratory testing, increased screening for chlamydia infection is one cause of increased reports of cases. Periodic screening is now recommended for all sexually active young women and successful implementation of these screening recommendations leads to increases in reported cases.

Substantial racial/ethnic differences in STI rates exist among adolescents and young adults in Massachusetts. In 2006, among persons aged 15–24 years, when compared to Whites, the rate of reported chlamydia infection was 15 times higher in Blacks and 10 times higher in Hispanics and the rate of reported gonorrhea infection was 28 times higher for Blacks and 10 times higher for Hispanics.⁷⁷ Possible explanations for these differences include socioeconomic status, variability in access to and utilization of health care and screening,

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reporting differences, differences in sexual behavior, and varying risk of STDs among sexual networks.⁷⁸

A website called “Maria Talks” (<http://www.mariatalks.com/>) was launched in January 2009. It is hosted by the AIDS Action Committee (AAC) and developed with the DPH Family Planning Program, Office of Adolescent Health and Youth Development, the STD Bureau, the Division of Violence and Injury Prevention and other related MDPH programs. It offers comprehensive, medically accurate information on ‘sex, birth control and things that matter,’ STI and STD, sexual violence, substance use, and GLBTQ information and programs. The target population is adolescents with the goal of providing accurate health information and referrals to family planning and related services. The website is linked to social networking sites such as MySpace and a Statewide Sexual Health Hotline (877) MA-SEX-ED or (877) 627-3933 which uses a multi-language service line to meet the needs of callers. In the first 6 months of operation, there were over 4,300 visits to the website.

In FY09, 41.69% of female clients aged 15-17 years who had at least one visit to Massachusetts School Based Health Centers (SBHCs) were identified to be at risk for STD/pregnancy. Of those clients, 99.88% had a follow up plan (i.e., received risk reduction counseling), as appropriate. SBHCs provided extensive health education on topics including contraception, STIs, healthy sexual relationships, & reality-based implications of teen parenting.

Community-based agencies and community health centers in the 6 Massachusetts communities with the highest teen pregnancy rates (see section 3B for more information on teen pregnancy in Massachusetts) are replicating science-based programs to prevent primary teen pregnancy, sexually transmitted infections (STIs) including HIV/AIDS, and early sexual activity among youth ages 10-19. These programs are funded and monitored by the MDPH Office of Adolescent Health and Youth Development. The programs being replicated include "Making Proud Choices" - an after-school culturally competent program model; "Teen Outreach Program (TOP)" - a comprehensive service-learning program; "California Siblings Program" - an intensive case-management program targeting siblings of parenting teens; "Focus on Kids" a community-based risk reduction program and an adaptation to the CAS-Carrera adolescent pregnancy prevention model. These programs are culturally competent, science-based, medically accurate, and are designed to prevent teen pregnancy and sexually transmitted infections through comprehensive programming delivered through a public health approach.

3C.11 HIV/AIDS

The proportion of Massachusetts youth and young adults aged 13-24 years diagnosed and reported with HIV infection is lower (9%) than that of their national counterparts.⁷⁹ Furthermore:

- During 2005-2007, 189 adolescents and young adults aged 13–24 years and 2,023 adults aged 25 years and older were diagnosed with HIV infection in Massachusetts
- On December 31, 2008, 423 (2%) persons living with HIV/AIDS were aged 13–24 years. Among persons living with HIV/AIDS in Massachusetts, 1,663 (10%) were diagnosed with HIV infection between ages 13 and 24 years⁸⁰

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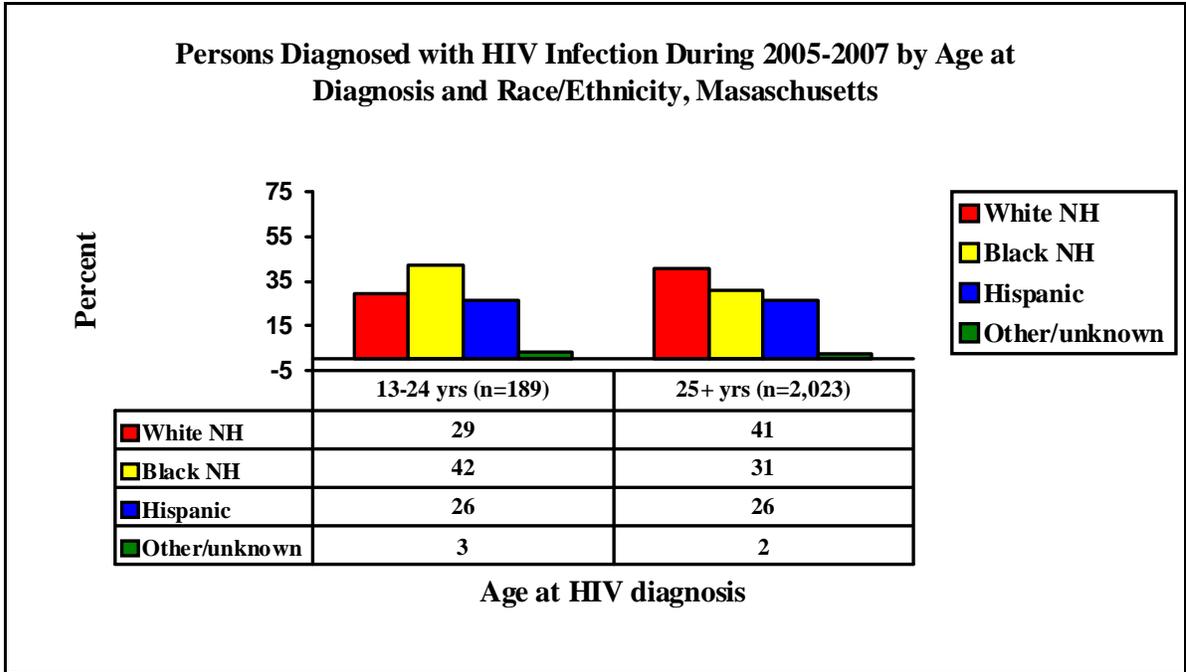
Significant racial/ethnic and gender disparities in HIV/AIDS diagnoses exist in Massachusetts⁸¹

- Among persons aged 13-24 years diagnosed with HIV infection during 2005-2007, 42% were black, non-Hispanic compared to 31% of persons diagnosed at age 25 years or older (Figure 3C-31)
- Among persons aged 13-24 years living with HIV/AIDS on December 31, 2008, 42% were Black, non-Hispanic compared to 31% of persons aged 25 years or older
- Among persons aged 13-24 years diagnosed with HIV infection during 2005-2007, 63% were male compared to 74% of persons diagnosed at age 25 years or older (Figure 3C-32)
- With age-adjusted prevalence rates of 1,620 and 1,412 cases per 100,000 population, Black (non-Hispanic) and Hispanic individuals are affected by HIV/AIDS at levels 12 and 10 times that of White (non-Hispanic) individuals (138 per 100,000)
- With age-adjusted prevalence rates of 2,063 and 2,055 cases per 100,000 population, Black (non-Hispanic) and Hispanic males are each affected by HIV/AIDS at levels 9 times that of White (non-Hispanic) males (232 per 100,000)
- With age-adjusted prevalence rates of 1,248 and 851 cases per 100,000 population, Black (non-Hispanic) and Hispanic females are affected by HIV/AIDS at levels 25 and 17 times that of White (non-Hispanic) females (49 per 100,000)⁸²

Perinatal Exposure

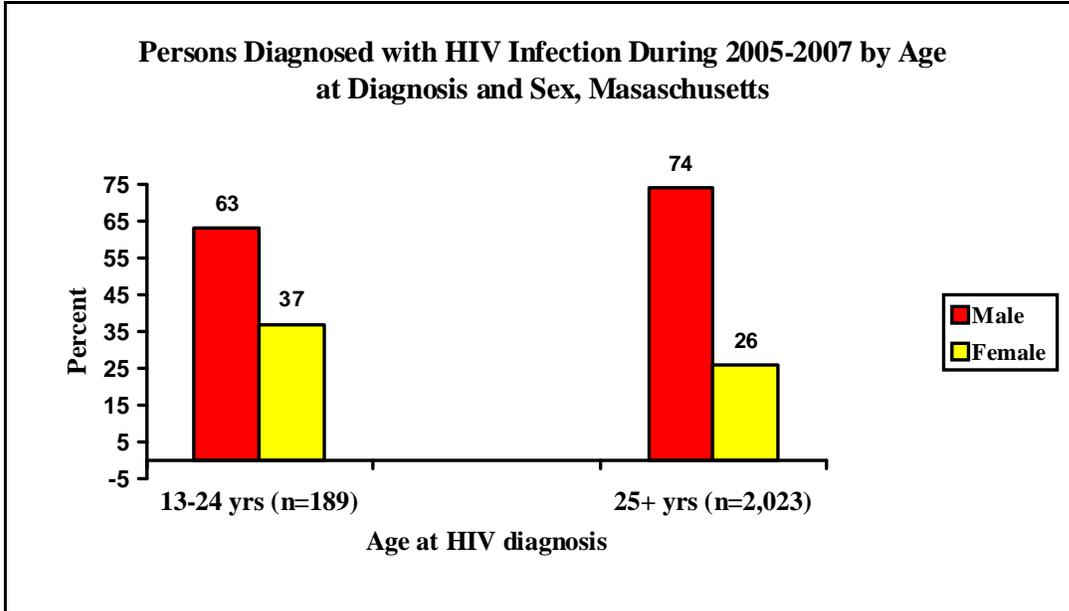
- Among 330 persons living with HIV/AIDS who were exposed to HIV before age 13 years, 255 (77%) are currently aged 13–24 years old. Of these 255 individuals, 53% are male and 47% are female; 40% are black (non-Hispanic), 36% are Hispanic, and 24% are white (non-Hispanic)⁸³

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Data source: MDPH Office of HIV/AIDS: Available at http://www.mass.gov/Eeohhs2/docs/dph/aids/2009_profiles/adolescents_young_adults.doc

Figure 3C-31



Data source: MDPH Office of HIV/AIDS: Available at http://www.mass.gov/Eeohhs2/docs/dph/aids/2009_profiles/adolescents_young_adults.doc

Figure 3C-32

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HIV/AIDS-related risk behaviors as reported by Massachusetts students in the 2009 YRBS⁸⁴:

- In 2009, 1.9% of high school students reported ever having used a needle to inject an illegal drug
- Among high school students reporting sexual intercourse in the past 3 months, 57.5% had used a condom at last sexual intercourse
- 13% of high school students reported having had four or more lifetime sexual intercourse partners
- 24% of high school students who reported that they had sexual intercourse in the past three months reported that they used alcohol or drugs the last time they had sexual intercourse

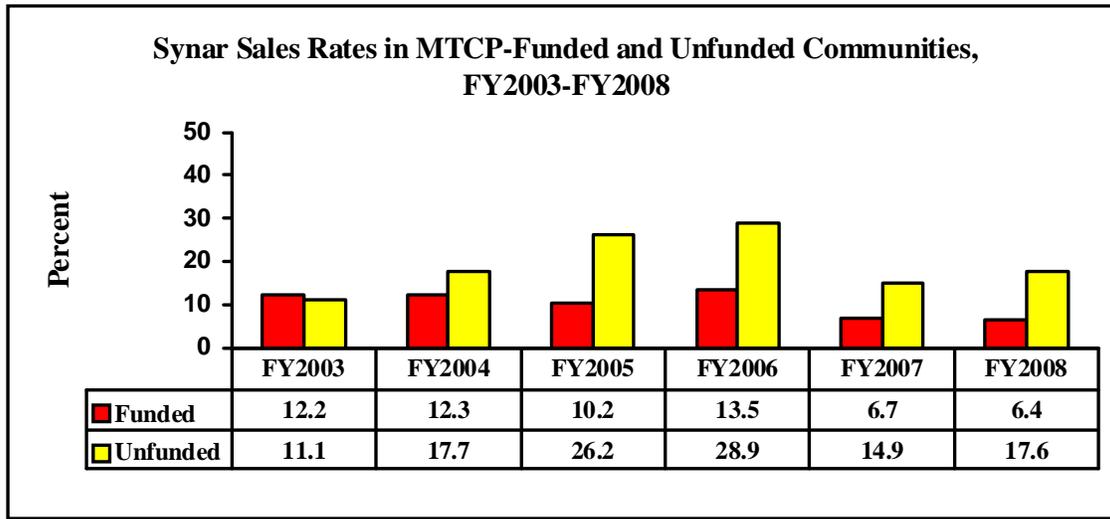
3C.12 Tobacco Use

Cigarette smoking causes about 8,000 deaths in Massachusetts each year.⁸⁵ The earlier the age at which people begin to smoke, the greater their likelihood of permanent lung damage and the more likely they are to be heavily addicted.⁸⁶ In addition to being a serious health threat, adolescent tobacco use is also associated with illicit drug use, alcohol use, and poor school performance.⁸⁷

Changes in tobacco regulations since the last Needs Assessment have curtailed tobacco use in Massachusetts. Smoking in restaurant establishments and the use/sale of flavored tobacco have been outlawed; however, the use of electronic cigarettes has been on the rise. A Massachusetts Department of Public Health initiative to combat youth tobacco use (<http://www.makesmokinghistory.org>) was started in 2005 and has shown great promise.⁸⁸ Also, the Massachusetts Tobacco Control Program (MTCP) funds local programs to provide retailer education, conduct compliance checks, and enforce the law prohibiting sales of tobacco to persons aged less than 18 years. The MTCP's success is demonstrated by the following statistics:

- The compliance rate in 2009 was 92.2% in MTCP-funded communities. The illegal sales rate was 7.8%.
- The compliance rate in 2009 was 82.9% in non-funded communities. The illegal sales rate was 17.1%.

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Data source: Massachusetts Tobacco Cessation and Prevention Program, Annual Report 2009: Available at: http://www.mass.gov/Eeohhs2/docs/dph/tobacco_control/annual_report_2009.pdf

Figure 3C-33

- Current cigarette smoking (past 30 day use) among high school students was 16.0% in 2009. Since reaching 35.7% in 1995, current smoking has declined by 55%
- The percentage of students who have ever tried smoking cigarettes (lifetime use) among high school students was 43.3% in 2009. Since 1995, lifetime use of cigarettes has decreased by almost 40%
- Frequent cigarette smoking (more than 20 of the last 30 days) among high school students was 6.9% in 2009. Since 1995, frequent smoking has decreased by 62%
- The percentage of high school students who smoked a whole cigarette before age 13 years was 9.3% in 2009. Since 1995, the percentage has decreased by over 60%⁸⁹

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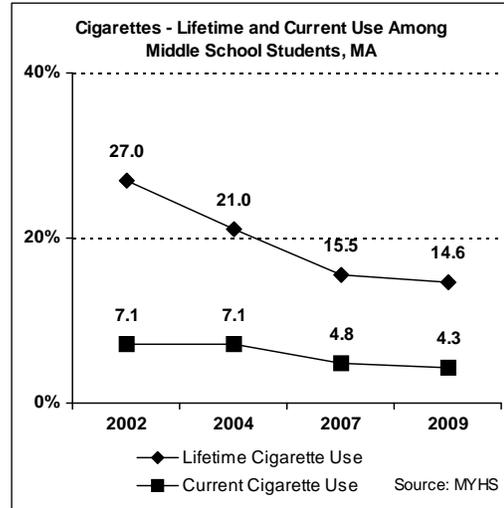
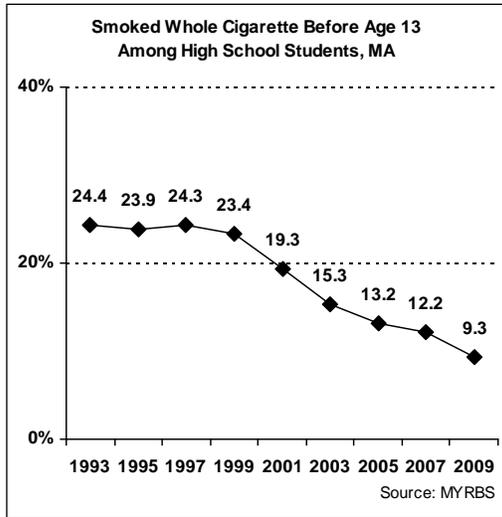


Figure 3C-34

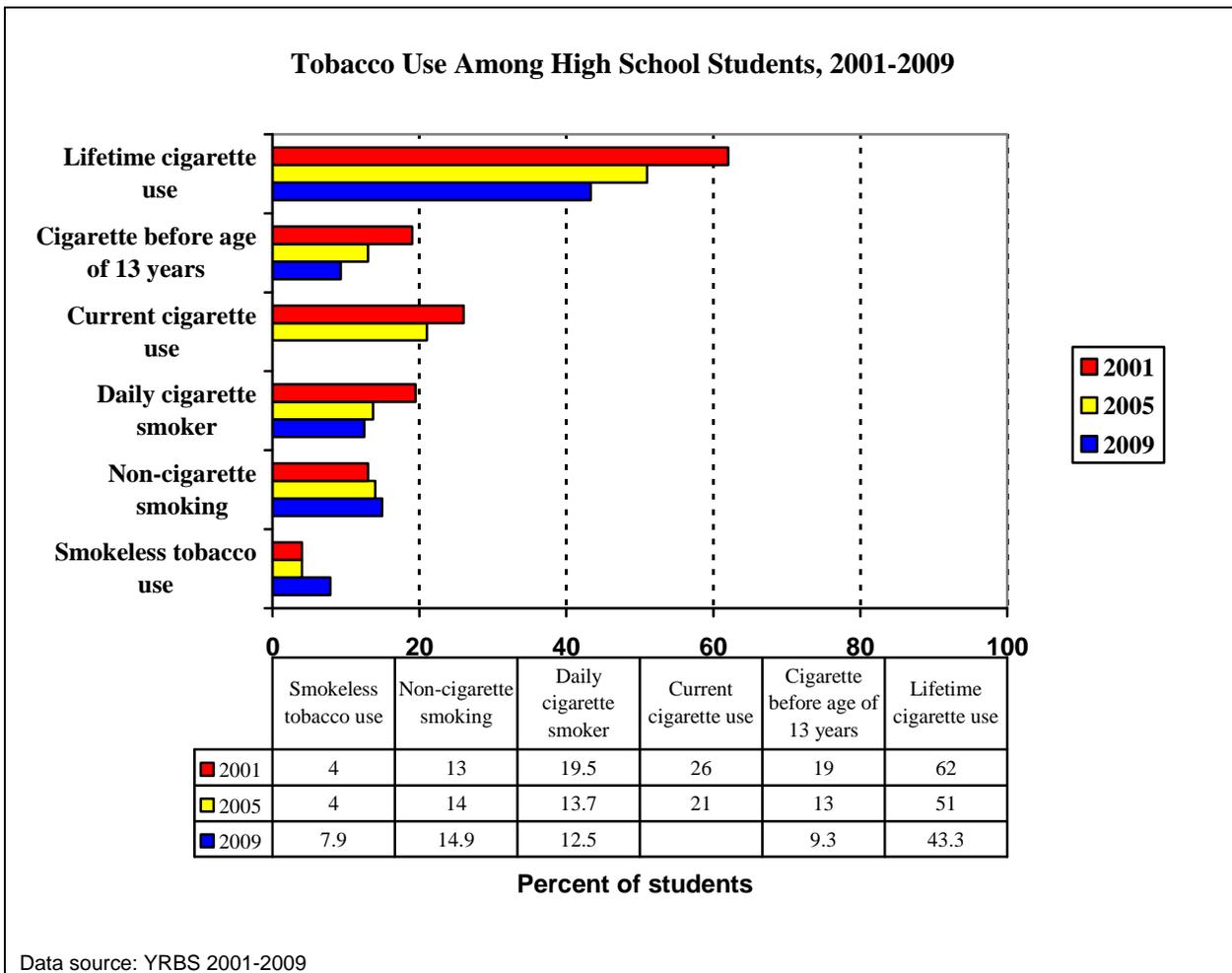


Figure 3C-35

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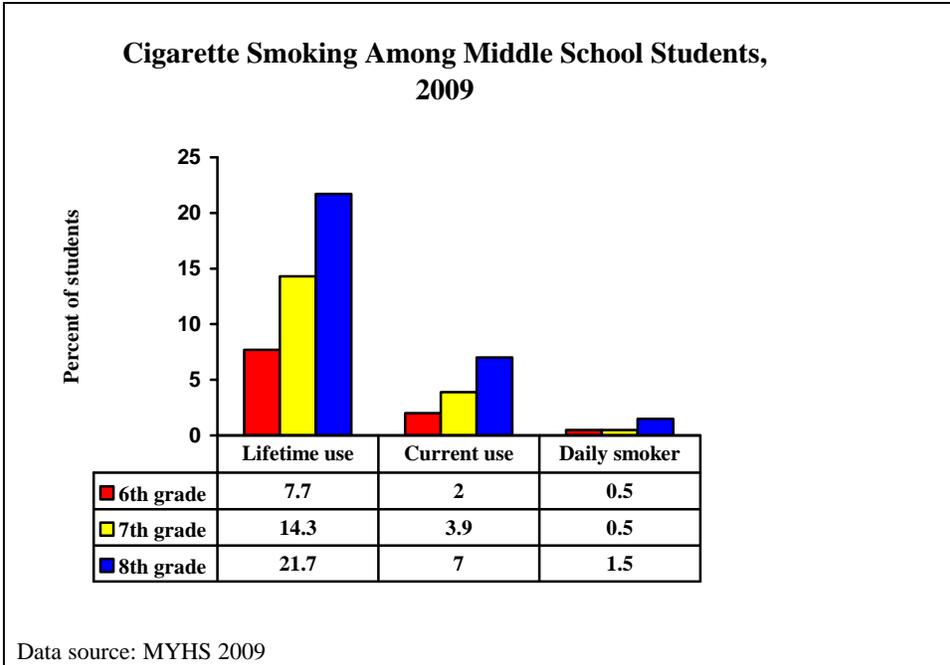


Figure 3C-36

Smokeless Tobacco Use

While Massachusetts smoking rates have declined, use of smokeless tobacco has been increasing in the past decade. According to data from the YRBS from 1993-2009, there was a significant decline in the use of smokeless tobacco from 1993 to 2003. However, it has been on the rise in recent years from 4.1% in 2003 to 7.9% in 2009.

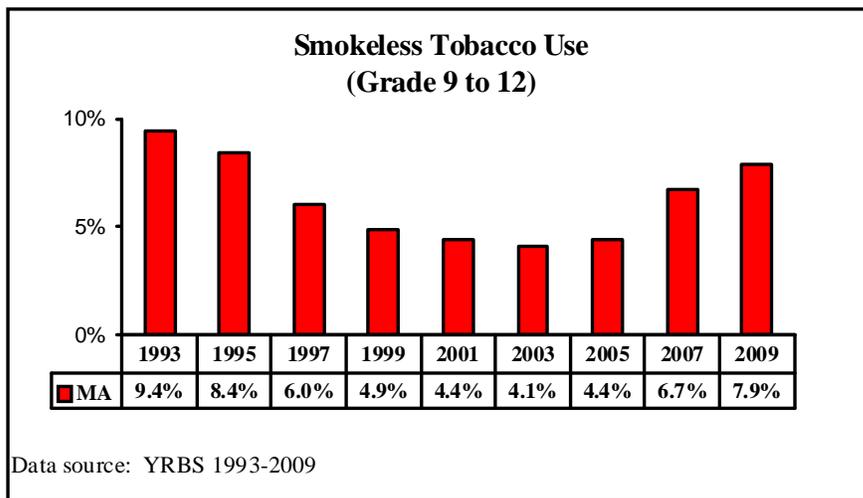


Figure 3C-37

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3C.13 Alcohol and Drug Use

Massachusetts has had mixed success with drug and alcohol use compared with the nation. The state has overall had lower rates of illicit drug use than other states. In contrast, Massachusetts is among the top ten states for alcohol use among youth.⁹⁰ Massachusetts has continued to have higher rates of alcohol use compared with other states even as the state has managed to reduce rates over time. Binge drinking rates remain high as youth age into adulthood. (See discussion of implications of alcohol use on pregnancy in Maternal Health section). Alcohol use also correlates with other high risk behaviors and is a contributor to motor vehicle accidents being the leading cause of death among adolescents.

- The percentage of students who reported ever having at least one drink of alcohol during their lives (lifetime use) has decreased from 81.2% in 2001 to 71.3% in 2009. The percentage of students who reported having their first alcoholic drink, other than a few sips, before age 13 years has decreased during this time from 27.9% to 17.2%. Figure 3C-38 below illustrates the decreasing trend in alcohol use among high school students
- In 2009, a significantly larger percentage of males reported having their first drink of alcohol before age 13 years compared to females (19.9% vs. 14.3%).
- In 2009, 43.6% of students reported having an alcoholic beverage in the previous 30 days (current use). Less than one quarter (24.5%) of high school students reported binge drinking (having five or more drinks of alcohol in a row within a couple of hours) in the previous 30 days.⁹¹

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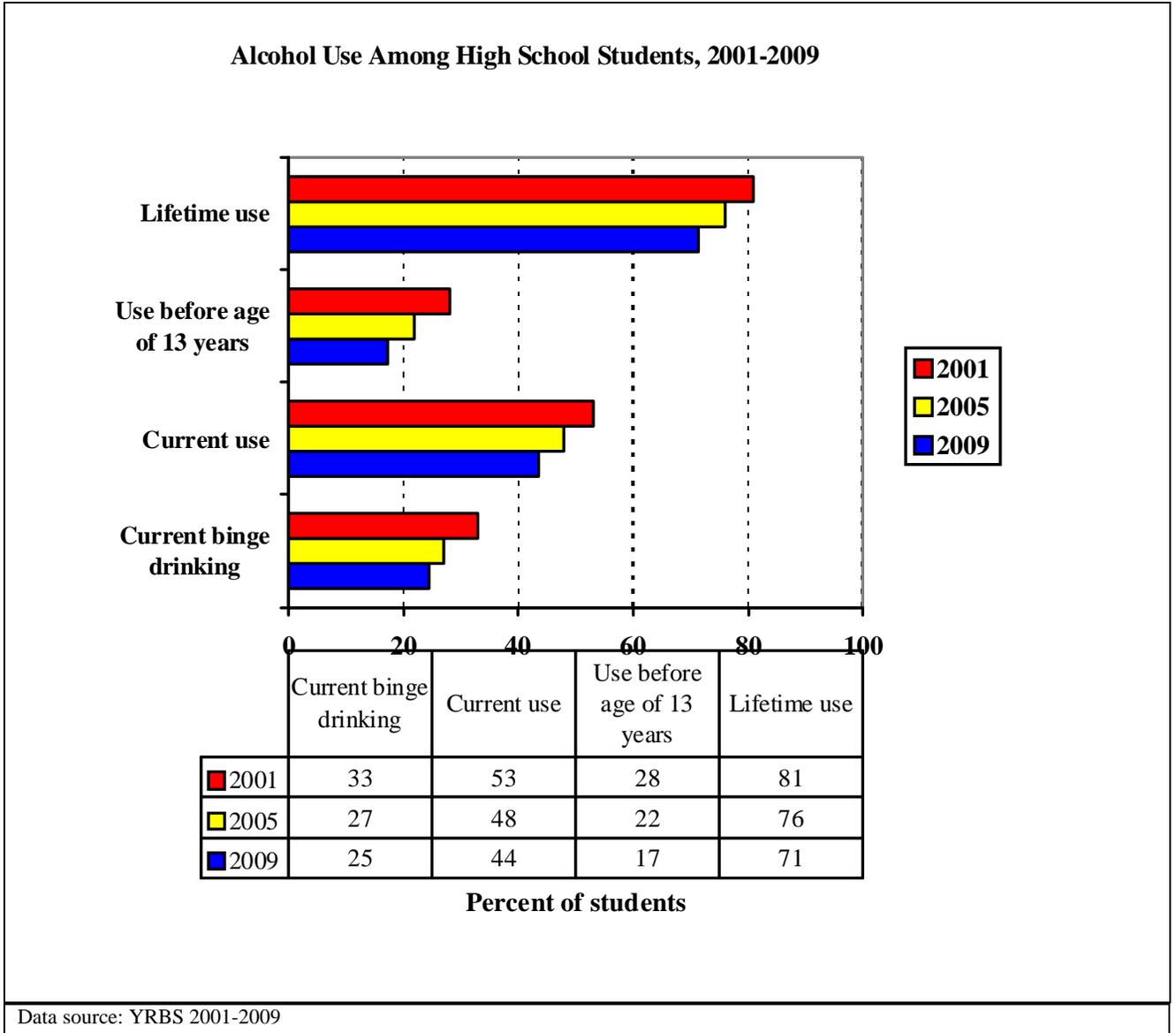


Figure 3C-38

- Among middle school students, lifetime alcohol use in 2009 jumped from 18% in sixth grade to 43% in eighth grade (3C-39). Current use of alcohol increased from 5% in sixth grade to 18% in eighth grade. Among middle school students who had ever consumed alcohol, 17% had their first drink at age 8 years or younger; 18% at age 9-10 years; 38% at age 11-12 years; and 25% at age 13-14 years (Figure 3C-40).

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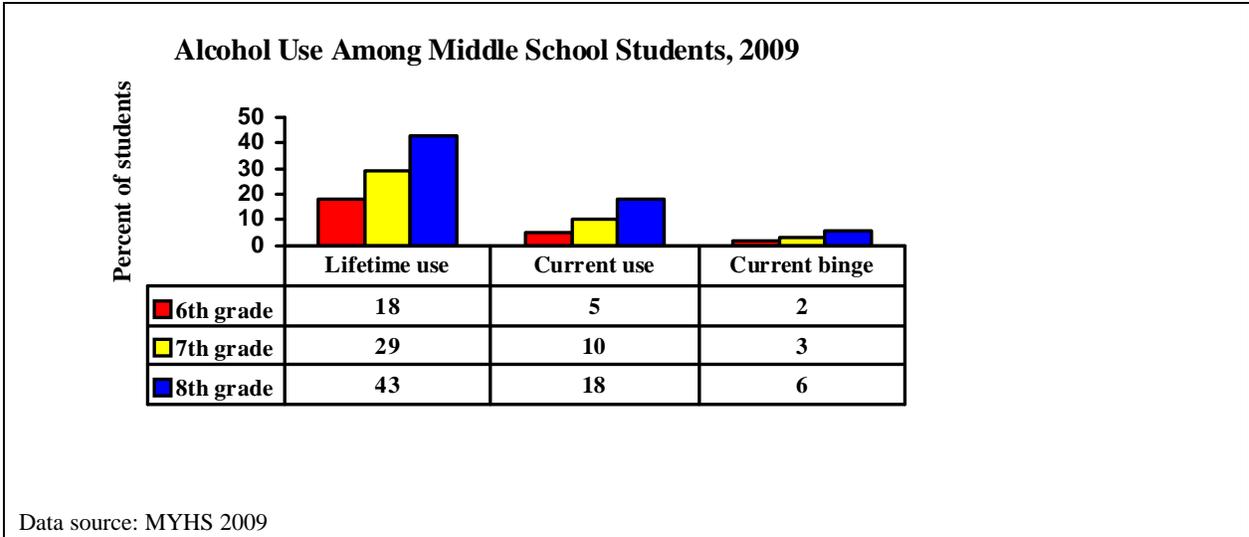


Figure 3C-39

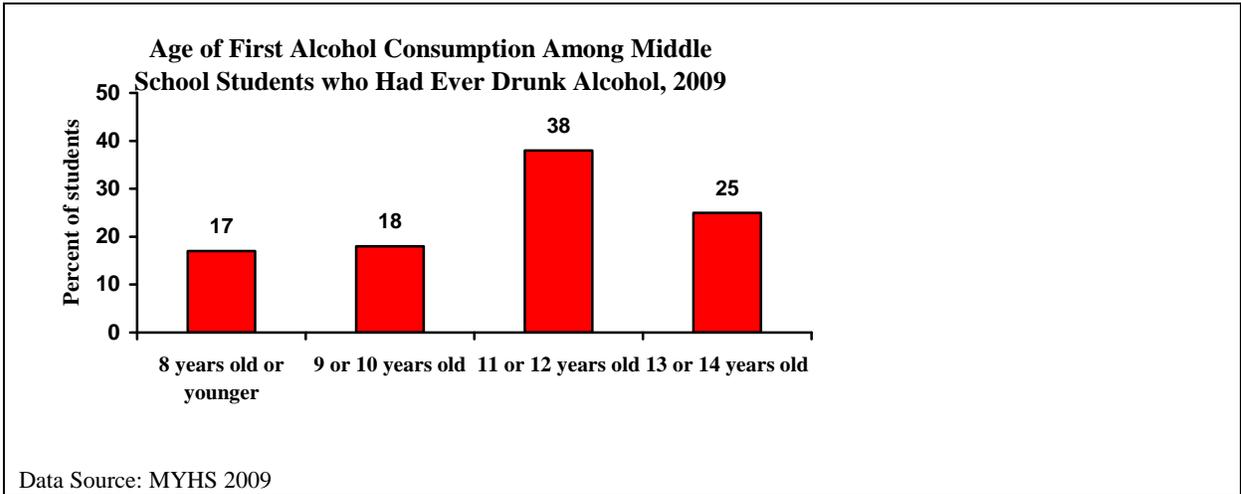


Figure 3C-40

- Marijuana use among high school students has remained steady from 2001-2009 (Figure 3C-41). Marijuana use among middle school students, as with alcohol, increases with age and grade (Figure 3C-42).

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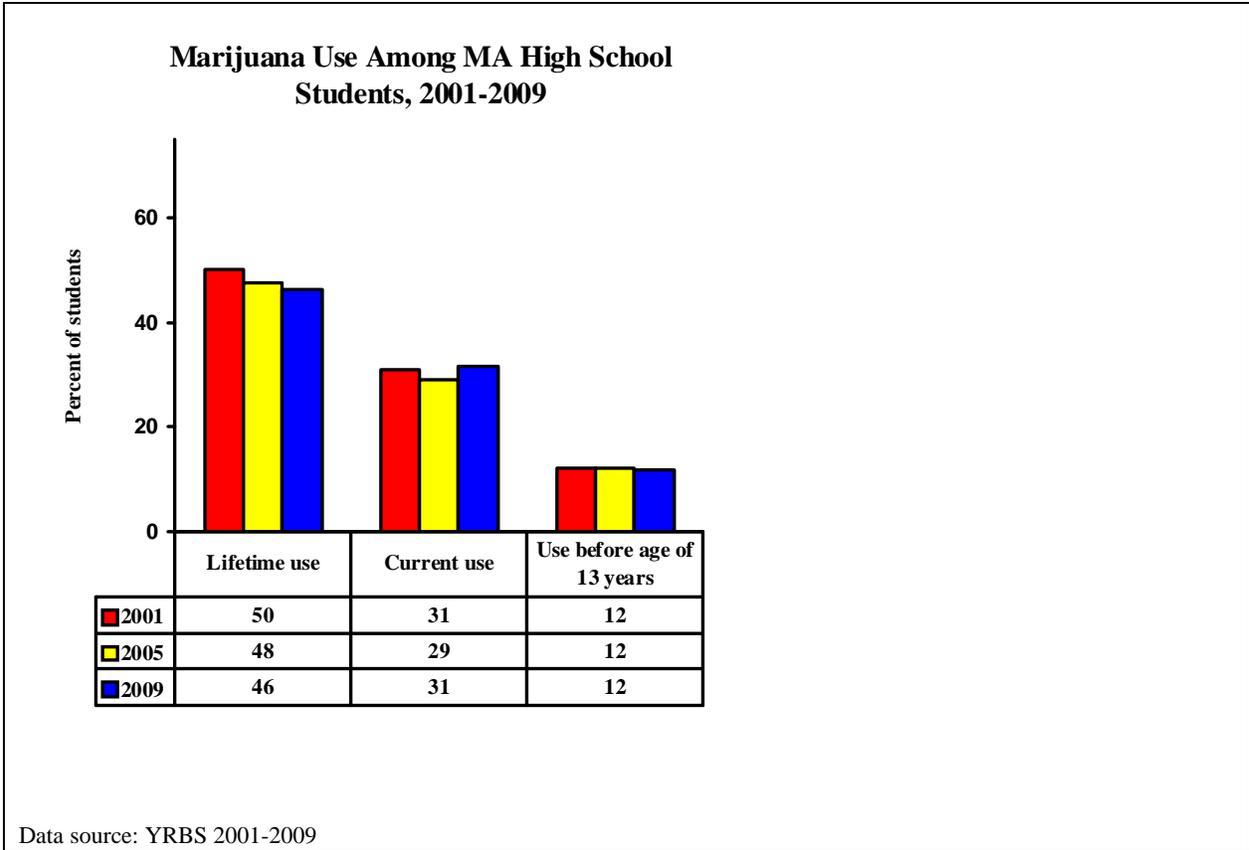


Figure 3C-41

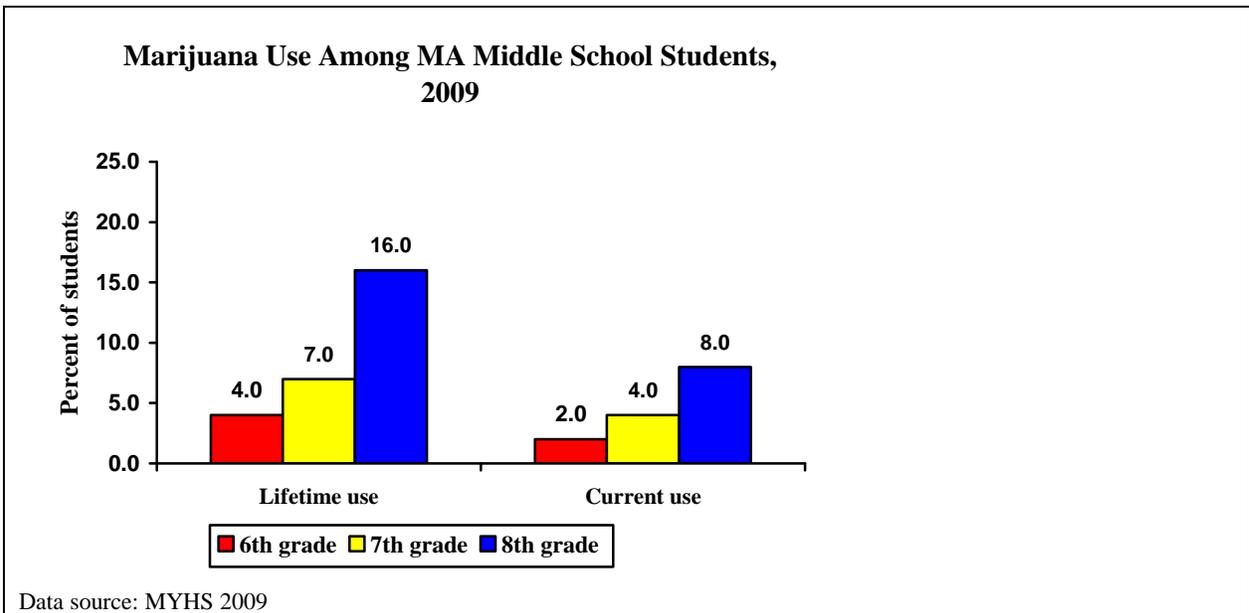


Figure 3C-42

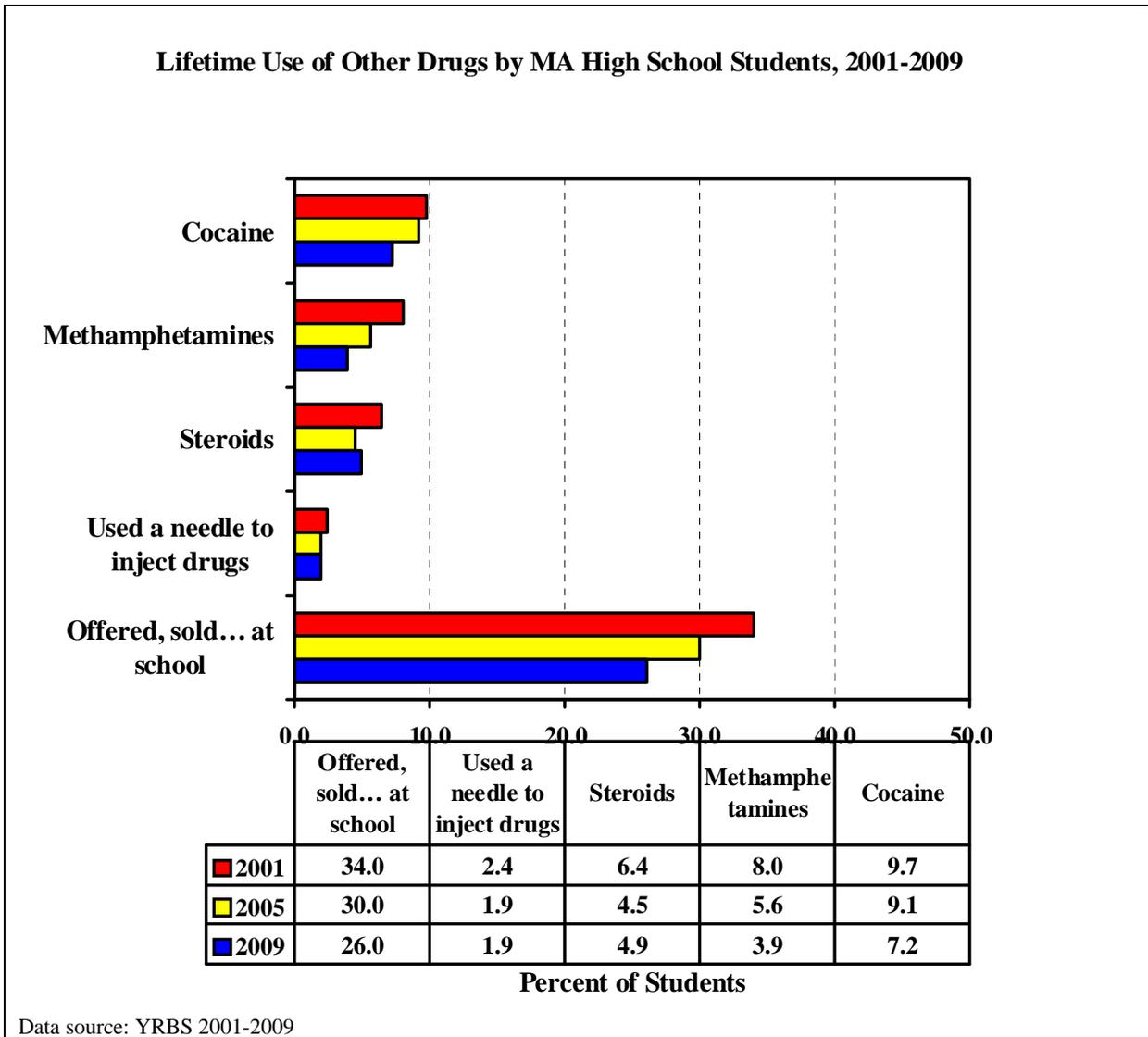


Figure 3C-43

Findings from analysis of the 2002 National Household Survey on Drug Abuse data indicate that almost twice as many youth aged 12-17 years perceived higher risk from cigarette use compared with marijuana use or binge drinking. Massachusetts rates of binge drinking and marijuana use significantly exceed national rates, while cigarette smoking does not.⁹²

3C.14 Clustering of Adolescent Risks

Strong relationships exist between various adolescent risk behaviors. For example, compared to high school students who did not currently smoke cigarettes, current cigarette smokers were⁹³:

- more than 5 times more likely to report current marijuana use
- about 14 times more likely to report ever using cocaine
- 15 times more likely to report ever using crack
- Almost 10 times more likely to have ever tried oxycontin without a prescription

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Data from the 2009 MYHS indicate that compared to non-drinkers, students who report current alcohol use were more likely to report:

- Having attempted suicide in the past year (7.8% vs. 2.9%)
- Initiating a physical fight with someone (20.3% vs. 6.4%)
- Experiencing sexual contact against their will (11.0% vs. 4.6%)

3C.15 Relationships between Adolescent Strengths and Risks

Factors often identified otherwise as “strengths,” “assets,” or “resiliency factors,” such as perceived adult support in and out of school, volunteer work, and other extra-curricular activities, are associated with lower levels of risk behavior among youth. Data from the Massachusetts YRBS provide data about strengths of Massachusetts youth (Figure 3C-44).

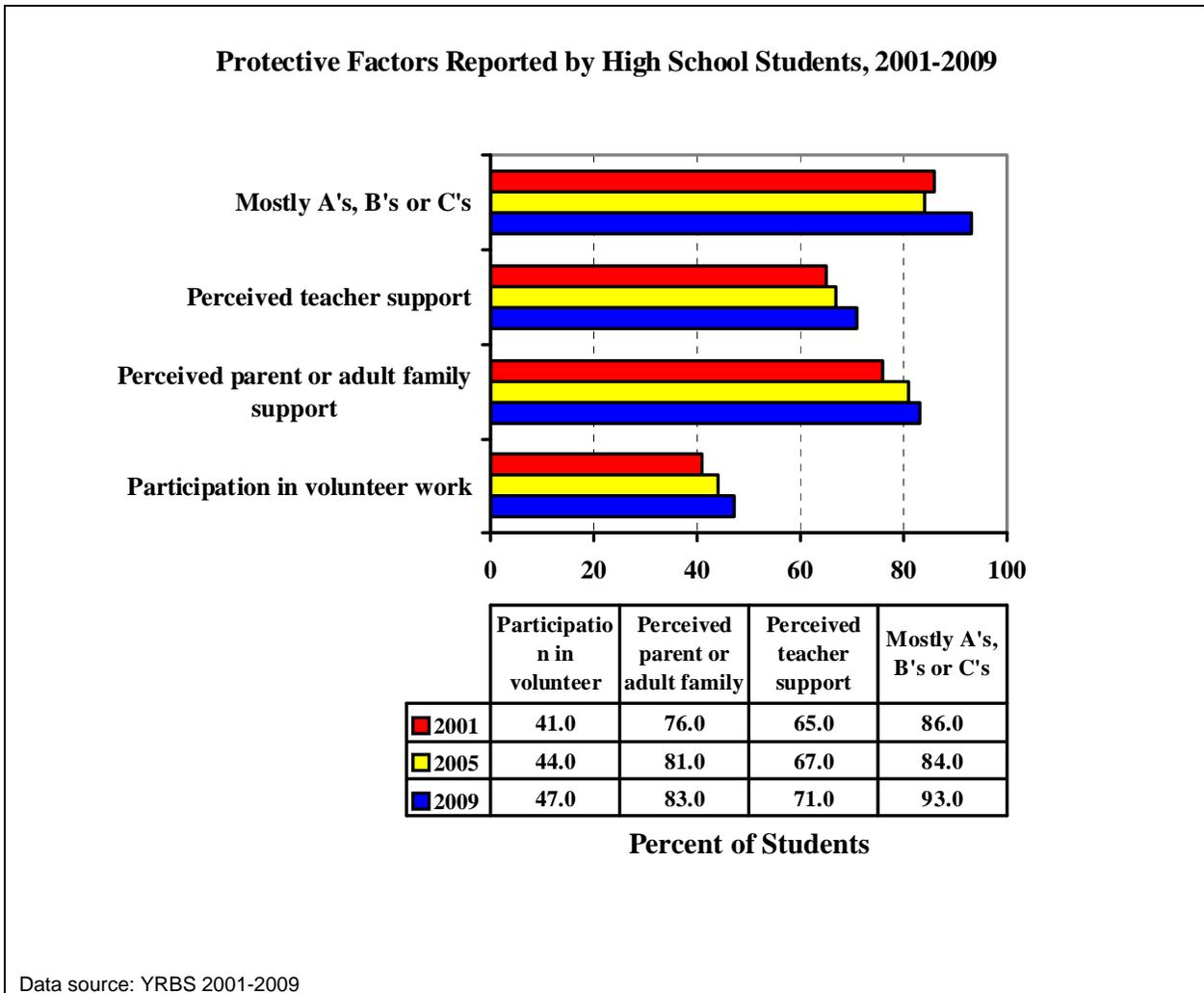


Figure 3C-44

Having an adult family member to talk to about important things is one such asset. According to the YRBS, from 2001 to 2009, there has been an increase in percentage of high

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school students reporting that they could talk to at least one teacher or adult in their school if they had a problem (65% in 2001 vs. 71% in 2009) and an increase in students reporting that there was at least one parent or adult family member they could talk to about important issues (76% in 2001 vs. 83% in 2009).

3C.16 Mental Health

Infant and Early Childhood Mental Health

The Zero to Three infant mental health task force defines infant mental health as the developing capacity of the child from birth to age 3 years to 1) experience, regulate, and express emotions; 2) form close interpersonal relationships; and 3) explore the environment and learn - all in the context of family, community, and cultural expectations for young children. Infant and early childhood mental health is synonymous with healthy social and emotional development.⁹⁴

Multiple factors can influence infant and early childhood mental health including maternal depression, maternal or family drug and alcohol use, including in utero exposure to drugs, alcohol, and other adverse childhood experiences. Both prenatal and postpartum exposure to drugs and alcohol can compromise cognitive development, learning, behavior and psychopathology of the child

The social and emotional health of young children profoundly affects their general development and ability to learn. Stressors in their environments and difficulties in relationships with caregivers can increase the risk of developmental problems and lead to maladaptive changes in brain structure and function.⁹⁵ Infants and young children are especially vulnerable to “toxic stress,” that is, extreme stress absent the buffering effects of consistent caregiver relationships. Toxic stress in early childhood can lead to long-term negative effects on cognition, behavior, and health and mental health.⁹⁶

Thrive in 5 is a city-wide program in Boston that brings together young children's families, early care and education providers, health and human service providers, and the city to work in new ways, across traditional sectors and systems, that will more effectively and efficiently support the healthy development and school readiness of our children. A recent Thrive in 5 research review estimated the incidence of children experiencing high levels of toxic risk factors in four key areas: prenatal exposure to drugs or alcohol; a caregiver with postpartum depression or mental health disorder; an open child protective case; or exposure/witness to domestic violence.⁹⁷ Using conservative assumptions, 26% of Massachusetts children aged <5 years were estimated to have experienced one or more risk factors and roughly 1 in 6 children (16%) experienced at least two of the four risks. More than 100,000 children from birth through age 18 years in Massachusetts do not receive the mental health care they need. Felitti et al. studied the correlation between adverse childhood experiences (ACE) and self-reported adult health. They found high correlations between the number of ACE and harmful health conditions or behaviors, including alcohol and drug abuse, depression, smoking, poor health, and severe obesity.⁹⁸

Healthy child development relies on responsive caregiving, characterized by emotional availability and responsiveness.⁹⁹ ¹⁰⁰ Maternal depression seriously undermines these crucial aspects of parenting. An impressive knowledge base clearly delineates the link between maternal depression and a host of poor child health and developmental outcomes, including

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cognitive and language delays^{101 102}, difficulties in emotional regulation and attachment^{103 104}¹⁰⁵, psychopathology¹⁰⁶, early onset of depression¹⁰⁷, and behavioral and educational problems.¹⁰⁸ Older children are more likely to need special education, be held back in school, or drop out of school.¹⁰⁹

The mental health needs of infants, toddlers and preschoolers, however, are only beginning to be addressed. This is due both to insufficient recognition that there is such a thing as infant mental health¹¹⁰ and also to the fact that many mental health problems in early childhood do not become pressing until the child faces difficulties in school. But the case for early intervention to address social and emotional problems in early childhood is compelling. Prompt intervention to address social and emotional problems in the context of the child's key relationships and environments has been shown effective in reducing behavior problems and referrals for special education (SPED).¹¹¹ Furthermore, in 2009, 18% of children enrolled in Massachusetts Head Start/Early Head Start programs received consultation from a mental health professional.

Efforts to develop a systemic infant and early childhood mental health (IECMH) approach in Massachusetts have been challenged by many of the barriers noted nationally.¹¹² These include administrative fragmentation, inconsistent or conflicting eligibility, repetitive reporting requirements, lack of easy access to specialized services, and poor use of scarce professional development resources.

These barriers are exacerbated by the fact that Massachusetts lacks a workforce that is sufficiently trained in IECMH in any service sector, including primary care, behavioral health (BH), IDEA Part C Early Intervention (EI), Part B SPED, and child care. Among the 2,200 early education and care (EEC) centers and 11,000 Family Child Care homes statewide, mental health consultants are embedded in only 16 of the large EEC centers statewide. Finally, only one in five consultants in these centers have expertise in infant mental health, and even fewer speak a language other than English.¹¹³

Children's Behavioral Health Initiative (CBHI)

The Children's Behavioral Health Initiative (CBHI) was designed to strengthen, expand and integrate Massachusetts services into a comprehensive system of community-based, culturally competent behavioral health (BH) and complementary services for all children with behavioral needs, including children with serious emotional disturbance and their families. CBHI includes initiatives to assure the delivery of Early Periodic Screening, Diagnosis and Treatment (EPSDT) services and a coordinated system of community-based care for children with BH needs. All state child serving agencies are involved with CBHI and the initiative is committed to coordinating services and resources.

Specific goals of CBHI include 1) procuring program models that provide trauma-sensitive environments and are focused on strengthening connections to family and community; 2) embedding evidence-based clinical programs that are responsive to the complex social, emotional, educational and psychological needs of children and families; 3) unifying state agencies' administrative and management structure to improve efficiency; 4) supporting stronger integration and continuity of out-of-home behavioral health services with those that are delivered in the home; 5) providing a fair rate of reimbursement for these services; and 6) rewarding providers that consistently deliver positive outcomes.¹¹⁴

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Despite increasing infant and early childhood mental health (IECMH) resources, much of the Massachusetts system is built around the needs of school-age children and youth. Relatively few mental health clinicians have been trained to manage young children, and professional training continues to have limited IECMH content. For instance, while Boston's network of community health centers is extensive, with 25 serving different neighborhoods, only 5 offer MH services to children aged <4 years.

The latest available screening data are from the second quarter of calendar year (CY) 2009, April 1 through June 30. Data are only available for providers who are part of the Primary Care Clinician (PCC) Plan and for providers who bill MassHealth on a Fee-for-Service (FFS) basis. Additionally, the rates of screening correlate with anecdotal reports from Primary Care Clinicians (PCPs) that they are not satisfied with the current instruments available for screening children under one years of age.

Behavioral Health Screening, by Age Group, January 1-June 30, 2009

Age Group	Jan. 1 – Mar. 31, 2009	Apr. 1 – June 30, 2009
< 6 months	29.7%	26.9%
6 months through 2 years	59.3%	61.3%
3 through 6 years	64.5%	67.4%
7 through 12 years	65.6%	69.1%
13 through 17 years	58.6%	61.8%
18 through 20 years	27.4%	28.8%

Data source: MassHealth.

Figure 3C-45

Youth and Young Adult Mental Health

Mental and emotional health is an integral part of health and wellness. Youth mental health is manifested in how a youth responds to stress, perceives his or her self-image and even how they see themselves in the future. Youth and young adults, in general, have experienced barriers to accessing behavioral and mental health services.¹¹⁵

- 66.6% of children aged 2-17 years received mental health care or counseling when it was needed, compared to 60.0% nationally in the last 12 months¹¹⁶
- In 2009, 7% of Massachusetts high school students reported that they had attempted suicide, substantially higher than the *HP2010* target of 1%.
- The proportion of high school students reporting a suicide attempt in the past year declined between 1997 and 2009, from 10% to 7%. In 2009, 7% of male and 7% of female students reported that they attempted suicide in the past year.
- From 1997 to 2009 there has been a significant decrease in the percentage of high school students who reported that they seriously considered a suicide attempt (20% and 32% in 1997 vs. 11% and 16% in 2009 for males and females, respectively)¹¹⁷
- Youth who identified as gay, lesbian or bisexual, or who reported any lifetime same-sex sexual contact had suicidality rates substantially higher than those of their peers (see section 3C.5 above)

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- Twenty-four percent of high school students reported that in the past year there had been a period of two weeks or more in which they felt so sad and hopeless that they had stopped doing some usual activities (females 29%, males 19%)¹¹⁸

3C.17 Oral Health

Throughout the 20th century, much progress has been made in preventive measures relating to oral health. As is seen throughout the literature, good oral health is inextricably linked to good overall health.¹¹⁹ Dental caries is the most common childhood chronic disease, disproportionately affecting children of lower socioeconomic status. Poor children and adolescents are at higher risk of dental caries than their more affluent peers, and their disease is more likely to be untreated. These poor-non poor differences continue into adolescence. Irrespective of age, dental caries is almost completely preventable with good access to prevention measures such as dental sealants, regular cleaning/exams, topical fluoride, and fluoridated drinking water.

Among children enrolled in the Massachusetts Head Start Program, 88.2% received continuous accessible dental care at the end of the 2008-2008 enrollment year.¹²⁰ Approximately 87% of enrolled children received dental preventive care and 87.8% completed an oral health examination. Among those having completed an oral health examination, 15.7% were diagnosed as needing dental treatment and among them, 88.8% received or are receiving dental treatment for these diagnosed conditions.

Massachusetts promotes the use of school-based dental sealant programs, with at least 165 schools participating.¹²¹ These programs specifically target children at high-risk for dental disease. Furthermore, 59.1% of the population on a public water supply receives fluoridated water.¹²²

A 2007 Statewide Oral Health Assessment in Massachusetts¹²³ revealed that:

- 46% of third-graders (age 8 years) had at least one dental sealant
- 48% of third graders had experienced tooth decay (compared with 50% nationally). MA does not meet the HP2010 goal that less than 42% of children have dental caries experience in their primary and permanent teeth.
- 17% of third graders had untreated tooth decay (compared with 26% nationally), meeting the *HP2010* goal that less than 21% of children experience untreated dental decay in primary and permanent teeth
- 52% of sixth-graders (age 12 years) had at least one dental sealant
- 34% of sixth-graders had experienced tooth decay
- 11% of sixth-graders had untreated tooth decay

Furthermore,

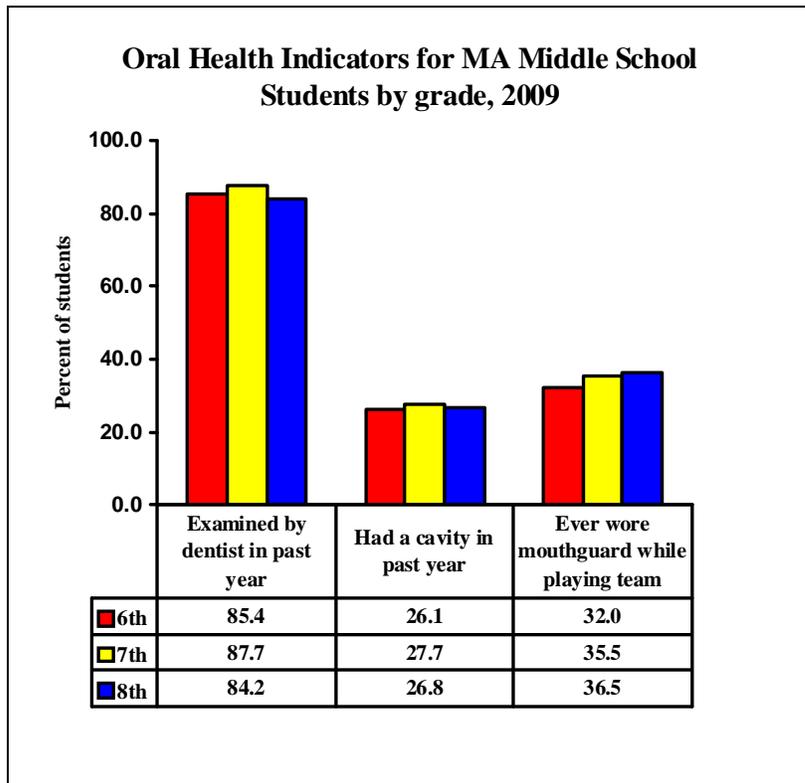
- 79.5% of respondents to the 2007 National Survey of Children's Health stated that their children's (aged 1-17 years) teeth were 'excellent' or 'very good' as compared to the national statistic of 70.7%
- 83.8% of Massachusetts adolescents had one or more preventive dental care visits, as compared to the national statistic of 78.4%¹²⁴
- In 2008, among Massachusetts residents aged 18-24 years, 77.3% reported having had a dental visit within the last year.¹²⁵

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Only about one-third of Massachusetts students reported ever wearing a mouth guard while playing team sports, and among high school students this proportion decreased with increasing grade. A school nurse survey conducted throughout Massachusetts in 2008 reported that only 31% of schools require mouth protection to be worn during sports activities¹²⁶.

Middle School:

- Overall, 85.8% of middle school students reported being examined by a dentist in the previous year
- More than one in four (26.8%) middle school students self-reported having a cavity during the previous year



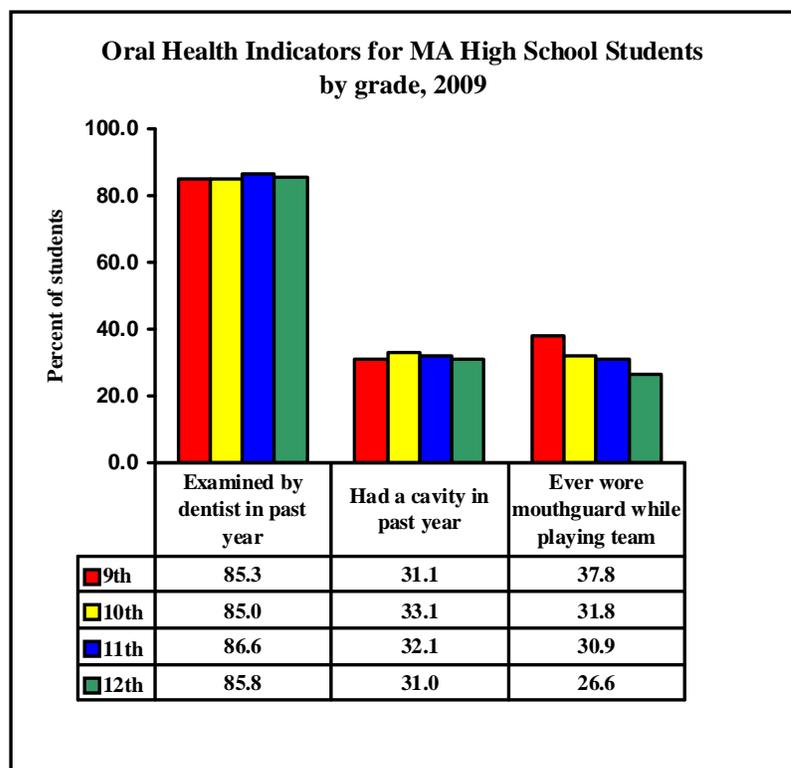
Data source: MYHS, 2009

Figure 3C-46

High School:

- Overall, 85.6% of high school students reported being examined by a dentist in the previous year
- Almost one in three (31.8%) high school students self-reported having a cavity during the previous year

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Data source: MYHS, 2009

Figure 3C-47

3D.18 Stakeholder Involvement to Enhance Qualitative Analysis

Stakeholders were engaged throughout the needs assessment process to provide qualitative feedback on the data trends and analysis and to help direct further areas for exploration. For the child and adolescent population, key informant interviews and a direct survey of youth were conducted. Additional sources of feedback included focus groups that indirectly involved general youth issues, such as teen mothers and CYSHCN. Overall, the feedback reinforced the need to focus on the transition into adult life and responsibility and preparing for adult health through healthy weight, reduction in violence, reduction in risky behaviors, and availability of a medical home.

Key Informant Interviews

During 2009-2010, MDPH conducted a number of key informant interviews internal to MDPH, as well as external interviews with experts and stakeholders in the community, to inform the Needs Assessment and help support decision making. In addition, these key informant interviews helped to assess the needs of target populations - such as children and adolescents - through the use of data and broad input from stakeholders, and also helped to examine Massachusetts' strengths and capacity to address identified needs. Although the following summaries of both internal and external interviews and the youth survey are by no means exhaustive, they do indicate the larger take-home points of the conversations.

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Overall, major priorities and issues raised in internal and external interviews were similar to the priorities identified for the CYSHCN population. Both MDPH staff and external experts emphasized the importance of the following topics for children and adolescents, specifically in regards to setting priorities for the next five years:

- Healthy weight
- Emotional wellness/ suicide
- Substance abuse
- Oral health
- Violence and bullying
- Unintentional injury
- Medical home
- Youth risk behaviors
- Transition into adult life
- Asthma

Youth Needs Assessment Survey

In order to gather information directly from youth regarding their current health-related priorities and suggestions for future directions for the Title V Agency regarding youth programming and interventions, the project team developed an adolescent needs assessment survey. The survey creation and refinement was in part based on initial interviews with stakeholders. In developing questions, the project team also reviewed the major data trends available for youth health and wellness issues.

This survey was administered at “Connecting for Change: The Youth Empowerment Project, Statewide Youth Health Initiative” held in Marlborough, Massachusetts during October 2009. The goal of the conference was to support, engage, and encourage young people in promoting positive action and change in their communities. The Initiative encourages participation of all youth in the Commonwealth in a youth-led, adult-supported movement. Approximately 600 youth from throughout the Commonwealth attended the conference. Among them, 184 youth aged < 24 years completed a survey (37% Hispanic, 28% Black, non-Hispanic, 21% White, non-Hispanic, 11% Asian, and 3% Native American). Questions focused on gathering youth perspectives on four main issues: health care access, violence and discrimination, risk behaviors and protective factors. A Likert scale was used and translated into three categories to indicate whether youth perceived each of a number of factors under these broad categories to be “minor issue/somewhat of an issue”, “important/extremely important issue” or “not an issue/not applicable.” The issues that emerged as being the most important to Massachusetts youth were:

- **Health Care Access**
 1. Access to medications
 2. Access to health care
 3. Social supports
- **Violence and Discrimination**
 1. Violence in the community
 2. Violence on the basis of age, race, sexuality, income, language, gender or religion

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3. Discrimination on the basis of age, race, sexuality, income, language, gender or religion
- **Risk Behaviors**
 1. Drug and alcohol abuse
 2. Abuse by peers
 3. Tobacco use
- **Protective Factors**
 1. Completing education
 2. Cultural and diversity awareness
 3. Being prepared for a career/entering the workforce

The survey results reinforced trends found through quantitative analysis of existing state datasets discussed above. One notable exception was the level of awareness and concern for violence in the community. Violence emerged as a leading issue for the youth population surveyed. While the survey did have an overrepresentation of minority and urban youth versus the overall state, the findings led to renewed understanding of the issues facing youth and adolescents. This understanding in part led to the ratio of black/white homicides for males aged 15-24 years being chosen as the first state outcome measure.

All prevalence and priority discussions and survey results were incorporated into the state priority decision making process either as part of the initial brainstorming with internal staff or as part of the expansion and refinement process with external stakeholders. These discussions led to unintentional injury, healthy behaviors, and medical home emerging as the leading issues for child and adolescent health. The child and adolescent priorities and tradeoffs are further discussed in section 5 in addition to the cross-population priorities which are inclusive of all children and adolescents.

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3D. Children and Youth with Special Health Care Needs

Overview

Among the 6,497,967 residents of Massachusetts in 2008, roughly 32.2%, or 2,092,912, were children and youth aged less than 24 years. The population breakdowns by age were as follows¹:

- < 5 years: 383,568 (5.90%)
- 5-9 years: 384,444 (5.92%)
- 10-14 years: 399,518 (6.15%)
- 15-19 years: 460,398 (7.09%)
- 20-24 years: 464,984 (7.16%)

Based on 10 featured indicators measuring child well-being from 2005-2007, the Annie E. Casey Foundation Kids Count 2009 rated Massachusetts equal or better than the national average for each of the 10 indicators, ranking fifth compared to all other states. Indicators measuring child well-being in which Massachusetts did worse since 2000, but which were better than the national average, were the percent of low-birthweight babies (up from 7.1% to 7.9%); infant mortality rate per 1,000 live births (up from 4.6% to 4.8%); and the percent of children living in families where no parent has full-time, year-round employment (up from 31% to 32%)².

The percent of children in Massachusetts < 18 years living in poverty in 2008 was estimated to be 12%, compared to the national average of 18.2%; 7 states had lower poverty rates³. Finally, a child born in 2007 in Massachusetts has a life expectancy of 80.2 years, compared with 78.1 years for the US⁴.

3D.1 Demographics

According to the 2005-2006 National Survey of Children with Special Health Care Needs (NS-CSHCN), 16.4% of Massachusetts children aged < 18 years had a special health care need⁵. This percentage exceeded the National rate of 13.9%. NS-CSHCN is a random-digit-dial survey that provides national and state estimates of the prevalence and impact of special health care needs for children aged < 18 years and their families. Overall, the survey demonstrated substantial need in the state and, compared with the US overall, the need is growing – up 1.7% versus 1.1% nationally.

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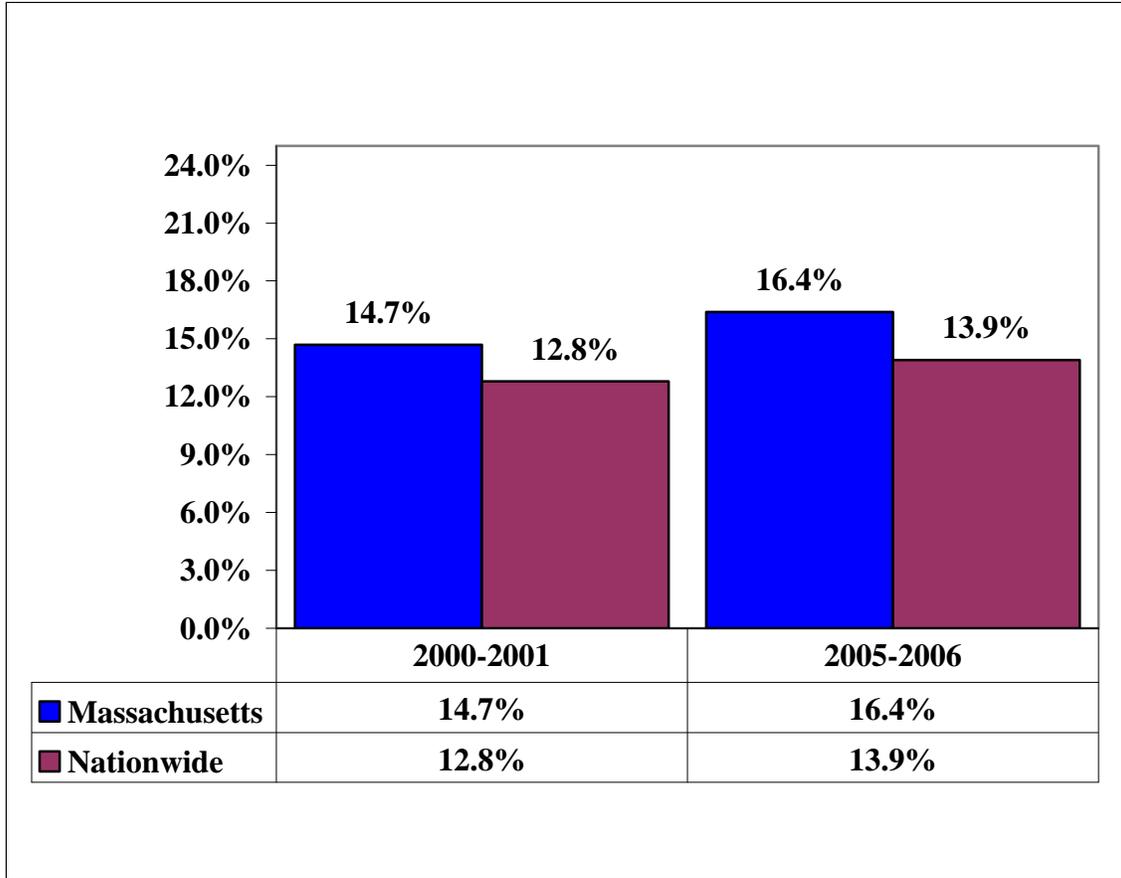


Figure 3D-1

Based on data from the 2005-2006 NS-CSHCN, the estimated number of CYSHCN aged < 18 years in Massachusetts, weighted for population characteristics, was 237,838. Furthermore:

- The percentage of children aged < 6 years with special health care needs in Massachusetts was 10.2% (compared to 8.8% nationally)
- The percentages of older children in Massachusetts who had a special health care need were higher than those aged < 6 years: among children aged 6-11 years, 17.9% in Massachusetts vs. 16.0% nationally; among youth aged 12-17 years, 20.6% in Massachusetts vs. 16.8% nationally
- Approximately one in four (25.2%) households in Massachusetts had one or more children with a special health care need
- Massachusetts reported a higher percentage of White (17.2%) and Hispanic (13.9%) children with special health care needs than the US average, which was 15.5% and 8.3%, respectively. There were no significant differences between Massachusetts and the nation in other racial/ethnic subgroups.
- There was a higher percentage of children with special health care needs in Massachusetts under 100% of poverty (19.9% vs. 13.9% nationally) and between 100-199% of poverty (17.6% vs. 14% nationally) than the nation

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According to the 2007 National Survey of Children's Health (NSCH), the prevalence of special health needs among Massachusetts children aged < 18 years is 22.8%, compared to 19.2% for the nation; this equates to about 326,038 children with special health care needs in Massachusetts⁶. Differences in prevalence between the NSCH and the NS-CSHCN may relate to differences in the sample, differences in the positioning of the questions, or other methodological issues. The same definition of *special health care needs* is used in both surveys, however.

According to data from the Massachusetts Department of Elementary and Secondary Education (MDESE), students with disabilities receiving special education services comprised 17.1% (n=166,037) of the Massachusetts public school student population during the 2008-2009 school year, up from 15.6% (n=154,391) during the 2003-2004 school year⁷. The trend over the past few years shows a steady increase in the overall percentage of students with disabilities in Massachusetts. It is notable that while total enrollment of the Commonwealth's students has declined, from 991,478 in 2003-2004 to 970,059 in 2008-2009, enrollment of students with disabilities has increased.

In 1997, the University of Washington's Seattle Quality of Life Group developed and validated a 4-item self-report Youth Quality of Life-Disability Screener (YQOL-DS), for use among youth aged 11-18 years. The 2009 Massachusetts Youth Health Survey (MYHS) defined disability using three of the four YQOL-DS questions. On the 2009 MYHS, 16% of middle school and 23% of high school youth in Massachusetts self-reported having a disability⁸. Finally, the 2008 Massachusetts Behavioral Risk Factor Surveillance System (BRFSS) estimates that 16.6% of Massachusetts adults aged 18-24 years have a disability, which is a weighted frequency of 91,454 Massachusetts adults aged 18-24 years that have a disability⁹.

3D.2 Type of Special Health Care Need

The special health care needs of children and youth in Massachusetts cover a broad spectrum of physical, mental, and functional disorders. The state broadly defines special health care needs and, due to the lack of a single definition, draws upon multiple sources to identify the special health needs of the population, including EI enrollment, school-based special education statistics, and the NS-CSHCN, NSCH, and other surveys.

According to data from the NS-CSHCN and NSCH, Massachusetts CYSHCN needed or used the following health-related services during the past 12 months (Note: comparisons between children with and without a special health care need were reported when possible. If a direct comparison of children with and without special health care needs could not be made for a specific question, a comparison between CYSHCN in Massachusetts and CYSHCN nationally was made):

- 88.2% of CYSHCN saw a dentist for preventive dental care (compared to 82.4% of children and youth without a special health care need)
- 87% of CYSHCN received BOTH routine preventive medical and dental care visits (compared to 81.3% of children and youth without a special health care need)
- 85.8% of CYSHCN needed or used prescription medicines (compared to 86.4% of CYSHCN nationally)

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- 54% of CYSHCN needed or received care from a specialist (compared to only 25.4% of children and youth without a special health care need)
- 30.2% of CYSHCN needed eyeglasses or vision care (compared to 33.3% of CYSHCN nationally)
- 30% of CYSHCN needed physical, occupational or speech therapy (compared to 22.8% of CYSHCN nationally)
- 15.5% of CYSHCN needed disposable medical supplies (compared to 18.6% of CYSHCN nationally)
- 10.7% of CYSHCN who received or needed specialist care had a problem getting specialist care (compared to only 4.9% of children and youth without a special health care need)
- 10.2% of CYSHCN needed durable medical equipment (compared to 11.4% of CYSHCN nationally)
- 4.9% of ALL children (both CYSHCN and non-CYSHCN) qualified as needing or using special therapy, such as occupational, physical or speech therapy
- 2.9% of CYSHCN have hearing problems (compared to 0.8% of children and youth without a special health care need)
- 1.7% of CYSHCN ages 8-17 needed substance abuse treatment or counseling (compared to 2.8% of CYSHCN nationally)

Early Intervention (EI) program eligibility gives an indication of the type of special needs for children aged < 3 years. EI served 6.4% (14,902) of children aged < 3 years residing in Massachusetts in FY 2009, and the EI population continues to grow. During FY 2008, there were a total of 15,140 (up from 13,862 in FY 2004) children newly enrolled in EI (See Figure 3D-2 below)¹⁰. Among these enrollments, language delay represented the largest proportion, with the other major categories as follows:

- 72% had a language delay (up from 60% in FY 2004)
- 36% had a motor delay (up from 31% in FY 2004)
- 27% had a cognitive delay (up from 23% in FY 2004)
- 20% had an adaptive/self-help delay (down from 22% in FY 2004)
- 12% had a social/emotional delay (the same as in FY 2004)

New EI Enrollments and Reasons for Enrollment, FY07-FY08

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Developmental Delay	FY04		FY05		FY06		FY07		FY08	
	#	%	#	%	#	%	#	%	#	%
Adaptive/Self-Help	3,105	22%	2,815	21%	2,909	21%	3,036	20%	3,057	20%
Cognitive	3,216	23%	3,215	24%	3,529	25%	3,746	25%	4,046	27%
Language	8,372	60%	9,149	67%	9,822	70%	10,336	70%	10,915	72%
Motor	4,307	31%	4,283	31%	4,824	34%	5,100	34%	5,526	36%
Social/Emotional	1,704	12%	1,642	12%	1,745	12%	1,808	12%	1,883	12%
Total eligible due to delay (unduplicated)	10,585		11,127		12,105		12,880		13,334	
Total new admissions (unduplicated)	13,862		13,604		14,070		14,823		15,140	

Figure 3D-2

The number of students receiving special education services has increased from 154,391 during 2003-2004 (15.6% of all students) to 166,037 during 2008-2009 (17.1% of all students). According to the MDESE¹¹, students receiving special education services during the 2008-2009 school year were classified into the following disability categories:

- 35.8% Specific Learning Disabilities (compared to 45.9% in 2003-2004)
- 17.3% Communication (compared to 13.6% in 2003-2004)
- 10.1% Developmental Delay (compared to 9% in 2003-2004)
- 8.4% Emotional (compared to 8.6% in 2003-2004)
- 6.9% Health (compared to 3.5% in 2003-2004)
- 6.6% Intellectual (compared to 8.1% in 2003-2004)
- 5.9% Autism (compared to 3.2% in 2003-2004)
- 3.9% Neurological (compared to 2.8% in 2003-2004)
- 2.9% Multiple Disabilities (compared to 3.4% in 2003-2004)
- 1.0% Physical (compared to 0.8% in 2003-2004)
- 0.7% Sensory/Hard-of-Hearing (same in 2003-2004)
- 0.3% Sensory/Vision Impairment (same in 2003-2004)
- 0.1% Sensory/Deaf-Blindness (compared to 0.2% in 2003-2004)

For middle and high school youth, the screening questions used on the 2009 MYHS also provide an indication of type of disability or special health need:

- 10% of middle and 13% of high school students said they had “physical disabilities or long-term health problems”
- 9% of middle and 14% of high school students said they had “long-term emotional problems or learning disabilities”

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3D.3 MCHB Core Outcomes and National CYSHCN Performance Measures

The first six MCH national performance measures (NPM) concern CYSHCN. These measures also relate to the six MCHB core outcomes for CYSHCN, although they may be somewhat narrower. The following table summarizes the core outcomes and NS-CSHCN findings for Massachusetts:

The MCHB Core Outcomes	% of CSHCN Achieving Outcome in MA	% of CSHCN Achieving Outcome in the Nation
1. Families of children and youth with special health care needs partner in decision making at all levels and are satisfied with the services they receive	57.1	57.4
2. Children and youth with special health care needs receive coordinated ongoing comprehensive care within a medical home	45.7	47.1
3. Families of CSHCN have adequate private and/or public insurance to pay for the services they need	63.1	62.0
4. Children are screened early and continuously for special health care needs	75.8	63.8
5. Community-based services for children and youth with special health care needs are organized so families can use them easily	87.6	89.1
6. Youth with special health care needs receive the services necessary to make transitions to all aspects of adult life, including adult health care, work, and independence	46.6	41.2

Figure 3D-3

Although Massachusetts ranked about the same as most other states in most of the core measures, and even higher than most other states on early and continuous screening as well as youth transition, room for improvement still clearly exists in Massachusetts. For example, of Massachusetts families:

- 54.3% reported that they do not receive care within a medical home

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- 42.9% reported that they do not partner in decision-making and/or are not satisfied with the services they receive
- 32.7% of currently insured CYSHCN reported their coverage to be inadequate
- 32.3% reported that their child's doctors and other health care providers did not always make them feel like partners in caring for their child
- 25.4% of publicly-insured CYSHCN did not receive any preventive dental care during the past 12 months
- The percentage of families who stated need, but reported their needs unmet, for:
 - Family respite care: 45.2%
 - Family mental health services: 17.0%
 - Family genetic counseling: 15.8%

Particular need continues to exist for transition services. NS-CSHCN data indicate that 67.4% of Massachusetts (49.3% of U.S.) CYSHCN stated that their doctors and other health care providers have not talked with them about transitioning into seeing doctors or other health care providers who treat adults. In addition, even though Massachusetts' overall percentage on the MCHB core outcome of youth transition is higher than the national percentage, both numbers are low, and efforts must be made to make youth transition more successful.

The importance of these measures has been demonstrated in Massachusetts by two other measures: financial burden for the family and unmet need:

- 36.9% of Massachusetts families reported a finance-related problem associated with their child's health status
- 15% reported their child's health conditions had caused financial problems
- 13.1% needed additional income to cover health-related expenses
- 18.2% of family members had cut work hours to provide care
- 12.1% of family members had stopped working to provide care

Families with adequate insurance, a medical home, or services organized for ease of use were less likely to report financial burden.

A 2009 national study examined the association between state Medicaid and State Children's Health Insurance Program (SCHIP) income eligibility and the financial burden reported by low-income families raising CYSHCN, and found that¹²:

- Nationwide, 61% of low-income families reported having paid out-of-pocket for medical needs (MA reported 59.5%)
- Among these families, 30% had expenses between \$250 and \$500
- 34% had expenses of more than \$500, as compared to 24.7% of Massachusetts families
- 27% of the families reporting any expenses had expenditures that exceeded 3% of their total household income
- The percentage of low-income families with out-of-pocket expenses that exceeded 3% of their income varied considerably according to state, and ranged from 5.6% to 25.8%:
 - Massachusetts, at 13.1%, was the 14th best ranked state in regards to this category

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- Families living in states with higher Medicaid and SCHIP income eligibility guidelines were less likely to have high absolute burden (out-of-pocket costs of \$500 or more) or high relative burden (out-of-pocket spending that exceeded 3% of income)

Low-income families' out-of-pocket expenditures for their CYSHCN vary considerably state-by-state. A portion of this variability is associated with states' Medicaid and SCHIP income-eligibility thresholds. Families living in states with more generous programs report less absolute and relative financial burden than families living in states with less generous benefits. Compared to the rest of the nation, fewer low-income Massachusetts families reported having out-of-pocket expenses exceeding 3% of their income. However, there is still much room for improvement regarding income eligibility and financial burden reported by low-income families raising CYSHCN in Massachusetts.

Finally, focus groups conducted from late 2009 to early 2010 revealed that the types of needs people discussed were similar to those of parents surveyed: preparing CYSHCN for life transitions; medical home; mental health/social isolation; bullying; healthy weight and nutrition/physical activity; sexual education/healthy sexuality; care coordination and collaboration; eliminating disparities; improving outreach and enhancing knowledge about available services; respite care; and keeping CYSHCN in their communities and homes.

3D.4 Conditions Related to Special Health Needs

Massachusetts monitors and develops interventions for childhood conditions that are high in prevalence, such as asthma, or conditions whose rates may be increasing either due to increases in incidence or changing definitions and surveillance methods, such as autism. Information about these and selected other conditions of long-standing MCH interest, which may result in special health care needs, is presented in this section.

Asthma

Asthma Prevalence

Asthma is one of the more prevalent health conditions among children. Proper management, including: personalized medical care that educates the child, parents, teachers, and extended family about symptoms; the use of medications; and the avoidance of environmental triggers can significantly reduce asthma hospitalizations and deaths and dramatically improve the child's quality of life.

According to a three-year average annual estimate from 2005-2007 BRFSS data, which asks respondents about current asthma among children in their household, 10.3% of children aged < 18 years had asthma, representing an increase in prevalence from previous years¹³.

Massachusetts also has a unique data source that tracks asthma prevalence by individual schools called the Pediatric Asthma Surveillance Project. A 2009 report, *Pediatric Asthma in Massachusetts 2006 – 2007*, examined asthma data from a total of

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2,075 public, private, and charter schools (approximately 97.1% of the schools serving grades K-8 in the Commonwealth during the 2006-2007 school year) and reported that the prevalence of asthma was 10.8%, up from 9.2% in 2002-2003¹⁴. In addition, reported asthma prevalence for all children by grade level showed that prevalence generally increased by grade through grade 5 (Kindergarten 9.4% to 5th grade 11.4%). After grade 5, prevalence leveled off at approximately 11%, as the following table illustrates:

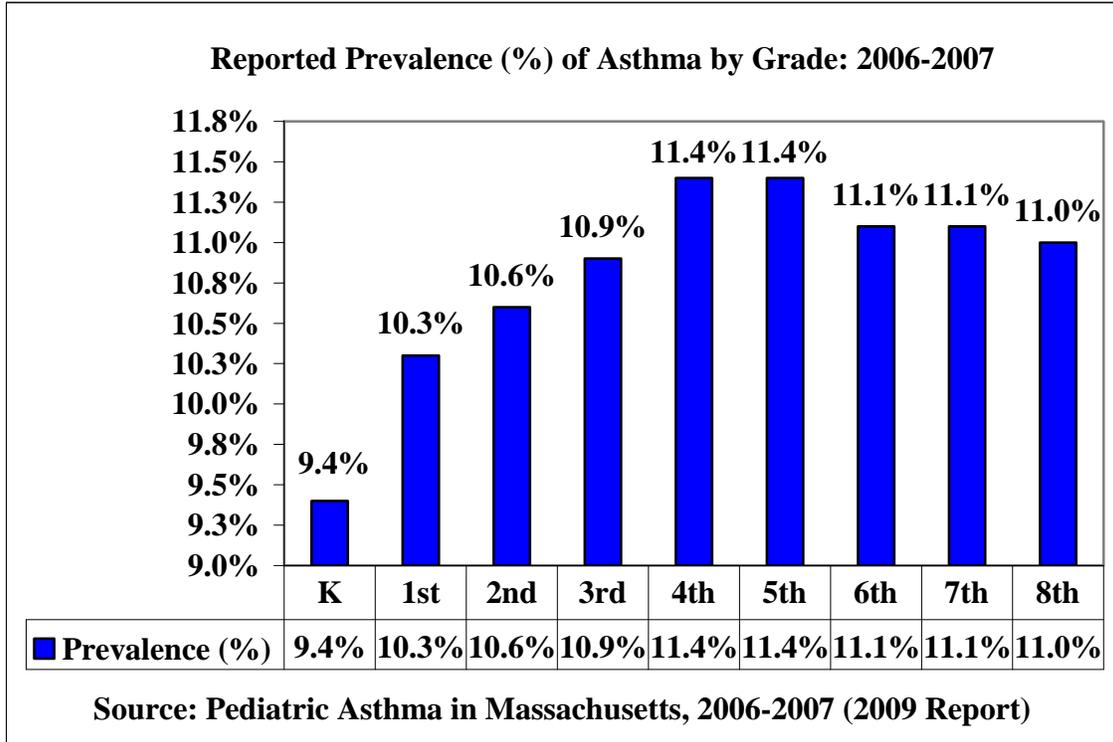


Figure 3D-4

Asthma prevalence was also observed to vary by gender, as 11.3% of males and 9.4% of females, respectively, had current asthma from 2005-2007¹⁵.

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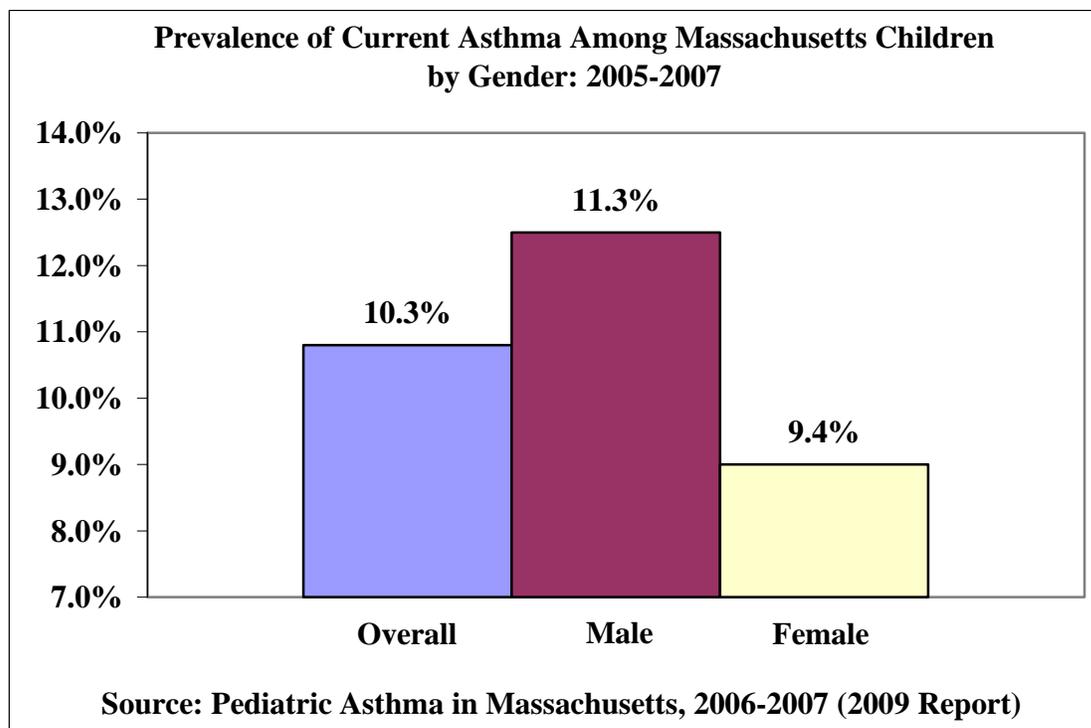


Figure 3D-5

Asthma is the most prevalent chronic disease reported by youth on the 2009 Massachusetts Youth Health Survey (MYHS). Eighteen percent (18%) of middle school students and 23% of high school students reported ever having been told by a health care provider that they have asthma (compared with 21% and 23% in 2007, respectively). These data were self-reported, and suggest high prevalence among teens, but are not unlike findings from other states¹⁶. According to data from the Strategic Plan for Asthma in Massachusetts 2009-2014, the prevalence of current asthma in Massachusetts was higher among children that were¹⁷:

- Aged 12 – 17 years
- Male
- Living in households with lower incomes
- Living in households with lower educational attainment by the adult
- Had a disability

This suggests that there are economic and social factors related to asthma incidence which may in part be due to the built environment - including older houses and access to recreational activities - experienced by low income, Black, and Hispanic populations in the state.

Of medications administered by school nurses through the Essential School Health Services (ESHS) Program during 2007-2008, asthma medications were the most common prescriptions taken on a “PRN” or “as needed” basis¹⁸. The PRN prescription rate in 2007-2008 was 33.4 per 1,000 students, up from 30.2 in 2003-2004. However, the 2,047 peak flow monitoring procedures and 1,119 nebulizer treatments per month among the 527,492 students in participating districts represented a decrease from 2003-2004.

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Finally, and perhaps most importantly, the level of asthma control among Massachusetts children with current asthma during the years of 2006-2007 was in need of substantial improvement. The results suggest that improvements in asthma education and management for children and families are needed, given that¹⁹:

- 65.2% of children's asthma was not well controlled or very poorly controlled
- 34.8% of children's asthma was well controlled

Asthma Hospitalizations & Emergency Visits

In 2005, there were 9,121 hospitalizations, 2,101 observation stays, and 36,146 emergency department visits due to asthma in Massachusetts across all age groups. From 2002 to 2005, there were an average 102 episodes of care due to asthma at an emergency department every day.

From 1994 through 1998, the age-adjusted rate of hospitalizations due to asthma decreased 31% from 18.4 to 12.7 per 10,000 residents. From 1999 through 2006, the rate remained relatively stable - from 13.5 to 14.7 per 10,000 residents - despite an increase in asthma prevalence. Furthermore, the rate of emergency department visits due to asthma also remained stable from 2002 through 2005.

However, disparities exist in asthma hospitalizations, emergency department visits, and outpatient observation stays by age, gender, race/ethnicity, geography, and season. From 2000 through 2006, Black, non-Hispanics and Hispanics consistently had substantially higher age-adjusted rates of hospitalization due to asthma than White, non-Hispanics.

Similar to the observed pattern in asthma prevalence by gender and age subgroup, the rates of hospitalization in 2000 - 2006 due to asthma were higher among males than females in the 0-4 and 5-11 year age subgroups. However, in the 18-24 year age subgroup, the rates of asthma hospitalization were higher among females than males.

The three-year average rates of hospitalization due to asthma were not evenly distributed geographically among the state. Although there is not city/town specific data regarding rates of hospitalization due to asthma in Massachusetts, there are areas in the state where rates are higher than the statewide rate (14.1 per 10,000 residents); these include areas surrounding Fall River, Boston, New Bedford, Brockton, Worcester, and Springfield.

From 2002-2005, children aged 0-4 years had the highest rates of emergency department visits, outpatient observation stays, and hospitalizations due to asthma of any group. However, they had an average hospitalization length of stay of 2.0 days, which was lower than any other age group.

Finally, the highest frequency of hospitalizations from 2002-2006 due to asthma was in the fall and winter months, and the lowest frequency of hospitalizations from 2002-2006 due to asthma was in the summer months.

Asthma Deaths

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From 1990 through 2006, there were 1,708 deaths due to asthma among Massachusetts residents, an average of about 100 per year. During this time period, the Massachusetts asthma death rate decreased 63.8% from 19.6 to 7.1 per 1,000,000 residents. Although asthma deaths are rare, disparities do exist with respect to age, race/ethnicity, and geography.

The five-year (2002-2006) average age-specific death rate due to asthma was highest among adults aged 65 years and older in Massachusetts (46.9 per 1,000,000 residents). The asthma death rates among Black, non-Hispanics and Hispanics were 3.4 and 2.7 times higher than the rates among White, non-Hispanics, respectively. Finally, asthma death rates were found to be higher in the Boston area (16.8 per 1,000,000 residents) as compared to the overall statewide rate (10.5 per 1,000,000 residents).

Autism Spectrum Disorders (ASD)

Autism spectrum disorders (ASD) - including autistic disorder, Asperger's syndrome, and pervasive developmental disorder, not otherwise specified (PDD-NOS) - are lifelong neurodevelopmental disorders characterized by impairments in social function, communication, and behavior²⁰. In most cases, symptom onset occurs before age three years. Autism is an important and growing public health concern with substantial impacts on those affected and their families.

Data from CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network indicate that the prevalence of ASD among children aged 8 years in 2006 was 90 per 10,000, an increase of 57% from the 2002 surveillance year²¹. In addition, a recent study by Kogan et al. using data from the 2007 NSCH found that the ASD prevalence among children aged 3-17 years was 110 per 10,000 – or 1 in 110 children - with an estimate of 673,000 U.S. children having an ASD. The Kogan study also found that²²:

- The odds of having ASD among boys was 4 times that of girls
- Non-Hispanic, Black and multi-racial children had lower odds of ASD than non-Hispanic, White children
- Nearly 40% of those ever diagnosed with ASD did not currently have the condition, and non-Hispanic, Black children were more likely than non-Hispanic, White children to not have current ASD
- Children with ASD were less likely than children without ASD to receive care within a medical home

MDPH linked Massachusetts EI program data to birth certificate data in the Pregnancy to Early Life Longitudinal (PELL) Data System. EI data was used to identify infants born during 2001–2005 who were enrolled in EI and receiving ASD services before age 36 months. A total of 3,013 children (77 per 10,000 live births) were enrolled in EI for ASD by age 36 months. MDPH found that ASD incidence increased from 56/10,000 among the 2001 birth cohort to 93/10,000 for the 2005 cohort. In multivariate analyses, infants of mothers aged <20 years, who were not high school graduates, whose primary language was not English, and who were foreign-born had lower odds of early ASD. Odds of early ASD were 4.4 (95% CI = 4.1-5.0) times higher for males than

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females. Finally, non-singleton, low birth weight, and preterm infants had higher odds of early ASD diagnoses.

Based on the American Community Survey 3-year estimate from 2006-2008, the population of Massachusetts is 6,469,770, and the population over 18 is 5,032,597. This leaves 1,437,173 children age 18 years and under. Applying the rate of 1 in every 110 children affected with ASD to the Massachusetts population, there are approximately 13,000 children aged 18 years and under with ASD in Massachusetts, an increase of approximately 3,000 children from 2005²³.

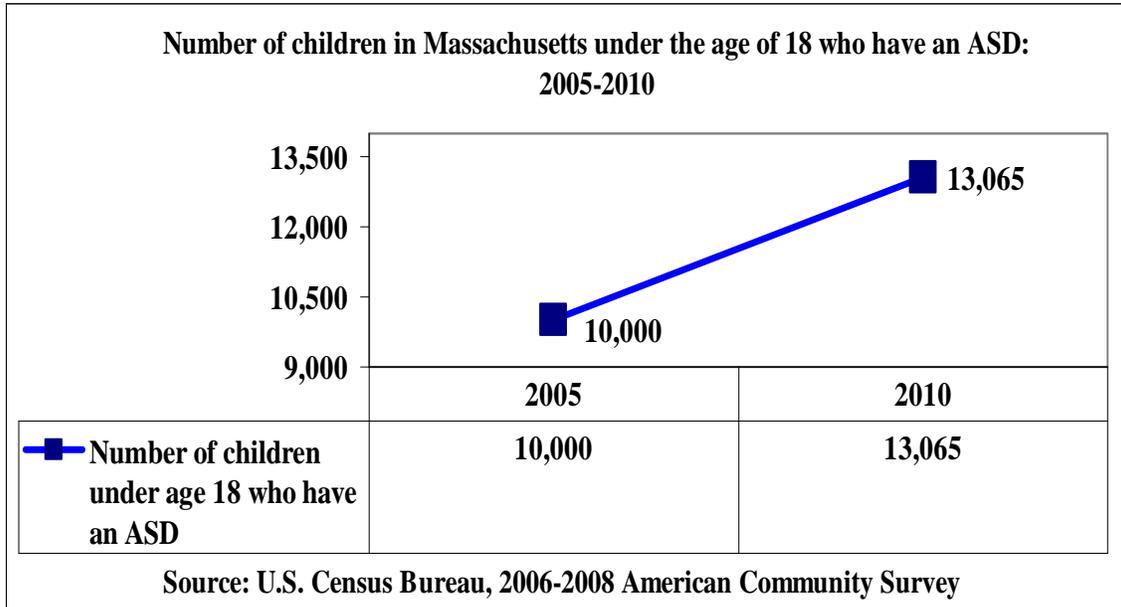


Figure 3D-6

MDPH oversees a system that provides intensive intervention to children with ASD who are enrolled in EI. Specialty Service Providers, with expertise in the area of autism, work with community EI programs to deliver services in the child’s home and in childcare settings. Highly structured, individualized treatment programs – which promote communication, social skills, and address behavior that interferes with learning - include parents and care providers in the intervention. The age of the child, the family’s schedule and preferences, the child’s learning style and behavioral characteristics, and rate of progress are also considered in developing treatment plans that typically provide between 6-20 hours a week of intensive engagement.

Enrollment in Specialty Services has increased steadily since the system was initiated in March of 1998, growing from 340 children in FY’99, to 775 children in FF’04, to 1,321 served in FY’09²⁴.

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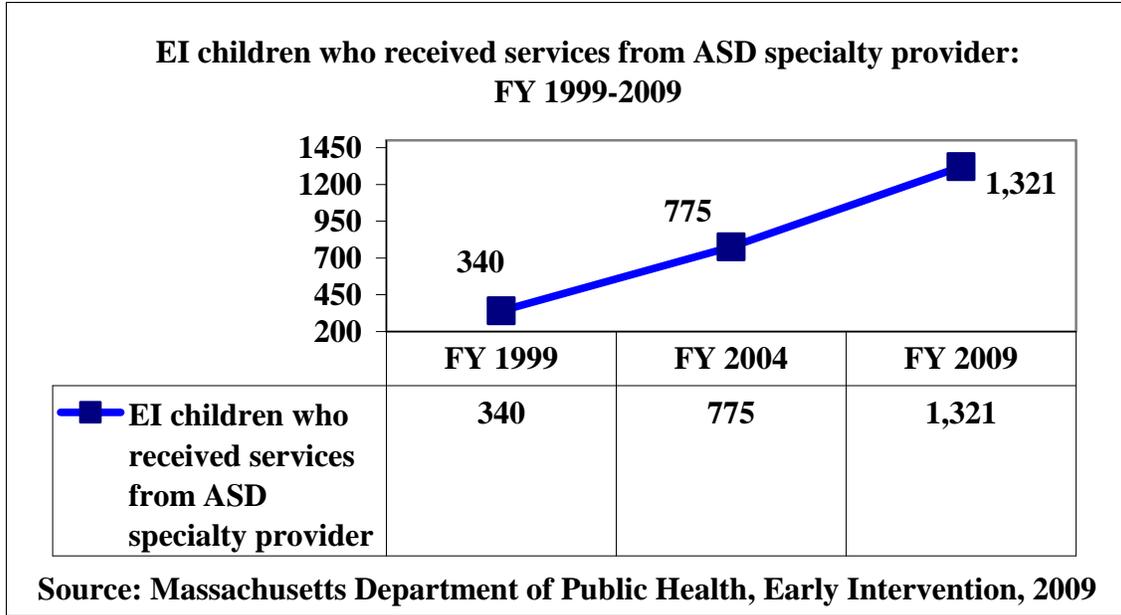


Figure 3D-7

On a program basis, this indicates a prevalence rate of 1 per 24 EI enrollees, which is up from the 1 per 38 EI enrollees in FY 2004.

Data have shown that individuals with an ASD had average medical expenditures that exceeded those without an ASD by \$4,110–\$6,200 per year²⁵. On average, medical expenditures for individuals with an ASD were 4.1–6.2 times greater than for those without an ASD. Finally, studies have estimated that the lifetime cost to care for an individual with an ASD is \$3.2 million.

Although autism is typically considered a disorder of childhood, its costs carry over well into adulthood. Specifically, the substantial costs resulting from adult care and lost productivity of both individuals with autism and their parents have important implications for those aging members of the baby boom generation approaching retirement, including large financial burdens affecting not only those families but society as well. Regardless of whether or not an increase in children with autism is a result of broadening the criteria for the diagnosis or caused by environmental or genetic factors, the fact remains that more children are being diagnosed as autistic than ever before.

Birth Defects

Birth defects include a wide range of abnormalities that can have very different consequences for a child’s health. Some are life threatening, while others are less severe and preventable by prenatal medical intervention or correctable after birth. Many birth defects can cause a range of both mental and physical disabilities.

The Massachusetts Birth Defects Monitoring Program

The Massachusetts Center for Birth Defects Research and Prevention conducts population-based active surveillance throughout the state and participates in the National

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Birth Defects Prevention Study. The primary focus of the program is the identification of major structural birth defects, with or without a chromosomal abnormality, and non-chromosomal malformation syndromes.

The Center uses multiple sources of ascertainment. Birth and tertiary care hospitals in Massachusetts routinely submit discharge lists and nursery data on infants born with birth defects. Two Rhode Island hospitals that deliver Massachusetts residents and Massachusetts Eye and Ear Infirmary are also included. Fetal death reports and infant death certificates are reviewed. Birth certificates are checked for additional information such as residency of the mother. Potential birth defects cases, reported from these varied sources, are assigned to medical record abstractors who review medical records of potential cases.

Birth Defects in Massachusetts 2004-2005

Massachusetts has been one of 11 states with population-based monitoring programs to contribute birth defect data to the CDC's published national prevalence estimates for 18 selected major birth defects. Of note, Massachusetts' rates for 2004-2005 were significantly lower than US rates for about half of the birth defects and were about the same as the national estimates for the other half. Differences in surveillance system methodology and regional variation may account for the lower rates for some defects.

According to the MDPH Center for Birth Defects Research & Prevention, birth defects are the leading cause of infant death and also contribute substantially to prematurity. Among live births and stillbirths to Massachusetts residents in 2004-2005, 2,590 (2,536 live births and 54 stillbirths) had one or more structural birth defects for an overall prevalence rate of 166.8 per 10,000 live births²⁶. Cardiovascular birth defects were the most commonly occurring birth defects in both Massachusetts and the nation, and contributed more to infant deaths than any other birth defect category. Of the ten most common birth defects in 2004-2005, three were cardiovascular (atrial septal defects, ventricular septal defects, and valvular pulmonary stenosis).

Common non-cardiovascular defects included Down syndrome, polydactyly/syndactyly, hypospadias, clubfoot, orofacial clefts, and obstructive genitourinary defects. Furthermore, as the following table from the MDPH Center for Birth Defects Research & Prevention demonstrates, adverse pregnancy outcomes (Cesarean section deliveries, low birth weight, prematurity, multiple births, and infant death) were more frequent among infants born with birth defects than among infants born without birth defects²⁷:

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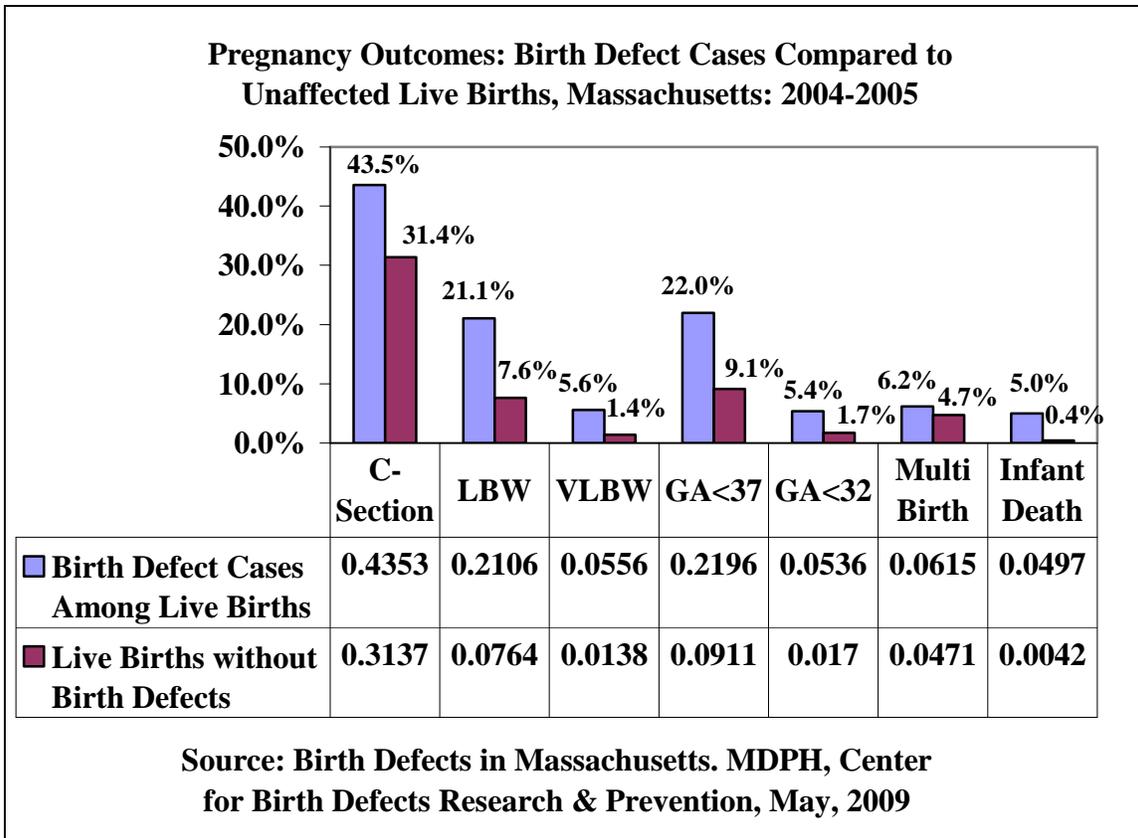


Figure 3D-8

- Cesarean deliveries (C-sections) were 38.5% higher for births with birth defects versus those without
- Infants born with birth defects were 2.8 times more likely to have low birth weight (less than 2,500 grams) and 2.4 times more likely to be born premature compared to infants without birth defects
- Infants with birth defects were 12.4 times more likely to die before their first birthday compared to infants without birth defects

The Massachusetts birth defect prevalence rates for 2004-2005 were 135.0 among females and 197.6 among males per 10,000 live births. While the prevalence of most types of birth defects did not substantially differ by sex of the infant or fetus, male infants uniquely had hypospadias, but they were also more likely than female infants to have obstructive genitourinary defects, Hirschsprung disease, clubfoot, polydactyly/syndactyly, and cleft lip with or without cleft palate.

The number of births to older mothers has been increasing over time in Massachusetts. There is a higher prevalence of birth defects and chromosomal defects in particular among mothers aged 35 years and older. Down syndrome and gastroschisis are two birth defects of interest in cases of relatively older or younger mothers, respectively.

- Although 45% of children with Down syndrome were born to women aged < 35 years, the Down syndrome rate of 27.0 per 10,000 live births for

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women aged 35 years and older was about three times that of any other maternal age group

- On the other hand, gastroschisis is a defect that occurs more among younger mothers, and is a condition of particular concern for that reason:
 - During 2004-2005, younger mothers (aged 19 years and under) in Massachusetts had the highest rate (14.1 per 10,000 live births) of infants born with gastroschisis

The CDC reports that more than 1% of all infants are conceived through assisted reproductive technology (ART). In 2005, Massachusetts was one of the five states with the highest frequencies of ART procedures performed, which may be due in part to more complete insurance coverage for ART in Massachusetts. Importantly, infants conceived by ART have been shown to be at two to four times greater risk for certain birth defects than infants conceived naturally.

Birth defects are more common among multiple births (more than one fetus) than in singleton births, and the number of multiple births has been increasing over time in Massachusetts. Specifically, during 2004-2005, the birth defect prevalence rate was 164.3 for singletons and 216.4 for multiple births per 10,000 live births. Birth defects that commonly occurred in multiple births included atrial septal defects, hypospadias, clubfoot, Down syndrome, and tetralogy of Fallot.

In Massachusetts and nationally, the prevalence of some birth defects is similar across all race groups, but other birth defects appear to vary by maternal race and ethnicity, as Figure 3D-9 illustrates²⁸.

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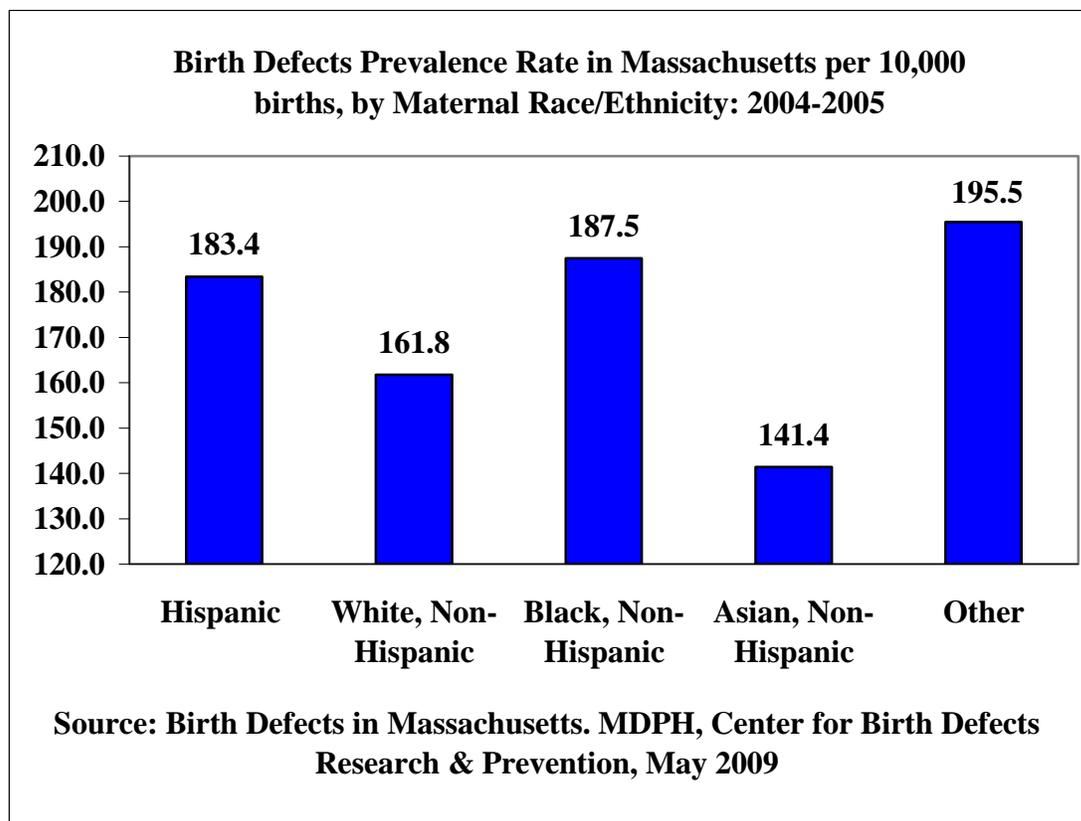


Figure 3D-9

The most common defects in Hispanics have included septal defects, microcephaly, obstructive genitourinary defects, transposition of great arteries, Down syndrome, and cleft lip. In Blacks, the most common defects have included septal defects, coarctation of aorta, Down Syndrome, hypospadias, microcephaly, and obstructive genitourinary defects. The most common defects in Whites have included septal heart defects, Down Syndrome, cleft lip, and cleft palate. In Asians, the most common defects have included cleft lip, hypospadias, gastroschisis, and omphalocele. Possible explanations for these differences include genetic variation, diet and lifestyle, and varying access to prenatal screening and health care services²⁹.

While numbers of infants with birth defects are relatively small, it is important to recognize the long-term medical, economic and human impact of these outcomes when diagnosing and treating a baby with a birth defect.

A recent estimate of hospital costs during the first two years of life for Massachusetts children born between 1998 and 2004 with orofacial clefts was \$10 million³⁰. In addition:

- The Massachusetts combined lifetime costs for babies born with 12 major structural birth defects was an estimated \$125 million in 2005 dollars³¹
- Nationally, the lifetime costs of 18 common birth defects have been estimated to be \$11 billion:³²

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- These figures include direct costs of medical treatment, developmental services and special education, as well as indirect costs to society for lost wages due to early death or occupational limitations
- Psychosocial costs, while also of concern, are difficult to directly quantify

Diabetes

When diabetes occurs during childhood, it is routinely assumed to be type 1, or juvenile-onset diabetes. However, in the last 2 decades, type 2 diabetes (which used to be known as adult-onset diabetes) has been reported among U.S. children and adolescents with increasing frequency. The epidemics of obesity and the low level of physical activity among young people, as well as exposure to diabetes in utero, may be major contributors to the increase in type 2 diabetes during childhood and adolescence.

Unfortunately, data is quite limited in regards to the prevalence of obesity or diabetes among Massachusetts children. Self-reports from the 2009 MYHS indicate that 3% of Massachusetts middle school children and 4% of high school children reported being told by a health care professional they had diabetes³³.

According to a 2007 CDC Diabetes Fact Sheet, about 186,300 persons aged < 20 years have diabetes (Type 1 or Type 2) in the United States, which is about 0.2% of all people in this age group³⁴. Furthermore, in 2003, CDC and NIH funded a multi-center study, entitled SEARCH for Diabetes in Youth, to examine diabetes (type 1 and type 2) among children and adolescents in the United States. SEARCH findings for the communities studied include the following³⁵:

- Based on 2002–2003 data, 15,000 youth in the United States were newly diagnosed with type 1 diabetes annually, and about 3,700 youth were newly diagnosed with type 2 diabetes annually
- The rate of new cases among youth was 19.0 per 100,000 each year for type 1 diabetes, and 5.3 per 100,000 each year for type 2 diabetes
- Non-Hispanic, White youth had the highest rate of new cases of type 1 diabetes
- Type 2 diabetes was extremely rare among youth aged <10 years. While still infrequent, rates were greater among youth aged 10–19 years compared to younger children, with higher rates among U.S. minority populations compared with non-Hispanic, Whites
- Children and adolescents diagnosed with type 2 diabetes are also generally obese, have a strong family history for type 2 diabetes, and have insulin resistance
- Among non-Hispanic, White youth aged 10–19 years, the rate of new cases of type 1 diabetes was higher than for type 2. For Asian/Pacific Islander and American Indian youth aged 10–19 years, the opposite was true - the rate of new cases of type 2 was greater than the rate for type 1 diabetes. Among African American and Hispanic youth aged 10–19 years, the rates of new cases of type 1 and type 2 diabetes were similar

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In addition, according to the 2008 Massachusetts BRFSS, 3.4% of persons aged 18-24 years in Massachusetts had pre-diabetes³⁶.

The 102 districts that participate in the Massachusetts Essential School Health Services (ESHS) program report that blood glucose testing was the most common procedure school nurses performed, at a rate of 58.5 procedures per 1,000 students each month³⁷. Also, the prescription rate for daily insulin administration has risen from 0.6 per 1,000 students in 2003-2004 to 1.3 in 2007-2008 (which is likely to be an underestimate given that daily administration may not be nurse administered):

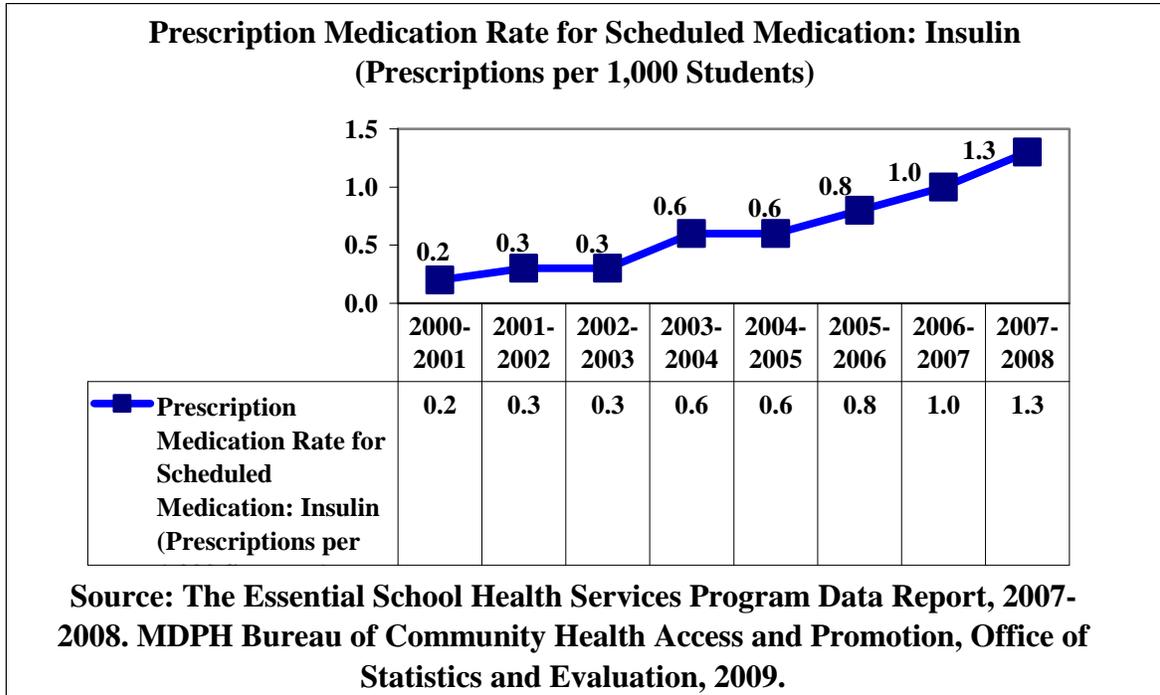


Figure 3D-10

Additionally, the prescription medication rate for as needed (PRN) insulin has risen from 1.2 per 1,000 students in 2003-2004 to 1.6 per 1,000 students in 2007-2008:

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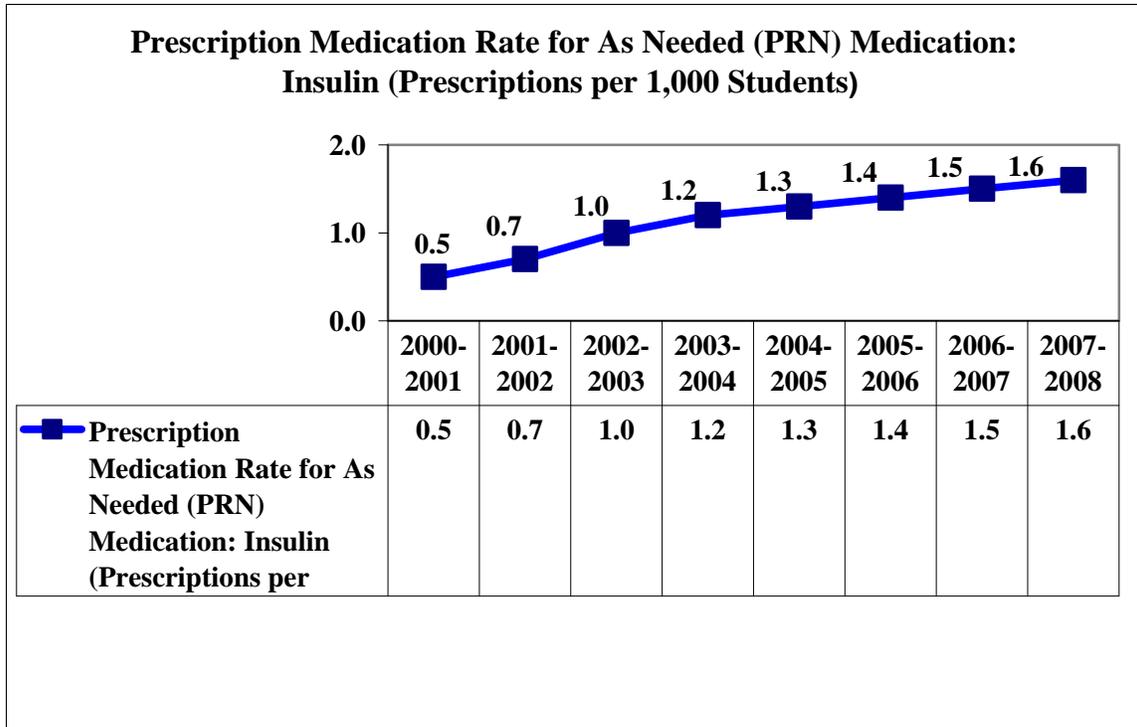


Figure 3D-11

Increases in medication could mean that diabetes occurring in youth is becoming more severe, new school policies have resulted in school nurses being more attentive of students with diabetes, or that diabetes prevalence is increasing.

Finally, in 2007-2008, MDPH began collecting diabetes data from school health records. As with pediatric asthma, school nurses and/or administrative staff at public and private schools in Massachusetts reported data. Counts were by type of diabetes (type 1, type 2, unknown type) and school only (no other demographic breakdown). Rates were estimated by community (based on location of school, not residence of child).

Approximately 98% of schools provided data³⁸, and the prevalence of diabetes in grades K-8 was estimated to be 265 per 100,000 persons. According to data from the 2005-2006 CDC National Health and Nutrition Examination Survey (NHANES), the roughly equivalent prevalence of diabetes in grades K-8 is 183 per 100,000. Although the CDC’s national rate is lower than the Massachusetts rate, differences in the methodologies used to arrive at these prevalence estimates could account for some of the difference.

Fetal Alcohol Spectrum Disorders (FASD)

The CYSHCN program has been working with the Bureau of Substance Abuse Services on fetal alcohol spectrum disorders (FASD). FASD is an umbrella term describing the range of effects that can occur in an individual who was prenatally exposed to alcohol. These effects may include physical, mental, behavioral, and/or learning disabilities with lifelong implications.

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FASD refers to 4 specific conditions: fetal alcohol syndrome (FAS), partial fetal alcohol syndrome (pFAS), alcohol-related neurodevelopmental disorder (ARND), and alcohol-related birth defects (ARBD). Data on FASD are limited due to lack of diagnostic criteria, with only FAS having diagnostic guidelines.

A diagnosis of FAS has three major components: neurologic abnormalities, distinctive facial features and growth deficiencies. FASD is the leading known, non-genetic, preventable cause of mental retardation and birth defects, and a leading cause of learning disabilities. Associated behavioral or cognitive problems may also include attention deficits, hyperactivity, poor impulse control, and social, language, and memory deficits. All of these problems contribute to an increase in school failure and trouble with the law.

ARND and ARBD describe cases in which individuals were prenatally exposed to alcohol and have some, but not all, signs of FAS. ARND refers to various neurologic abnormalities, while ARBD describes defects in the skeletal and major organ systems. Individuals with ARND and ARBD may or may not have distinctive FAS facial features.

The Substance Abuse and Mental Health Services Administration (SAMHSA) states that³⁹:

- The prevalence of FAS in the U.S. is estimated to be between 0.5 and 2 per 1,000 births
- The prevalence of FAS, ARND, and ARBD combined is at least 10 per 1,000, or 1% of all births
- In Massachusetts, this would translate into 770 infants born with FAS, ARND, and ARBD each year, based on the number of births (76,969 in 2008)
- Nationally, FASD affects nearly 40,000 newborns each year
- The cost to the nation of FAS alone may be up to \$6 billion each year:
 - For one individual with FAS, the lifetime cost has been approximated at anywhere from 1.4 million to at least \$2 million
- FASD affects 1 in 100 infants each year, more than Down syndrome, cerebral palsy, cystic fibrosis, spina bifida and sudden infant death syndrome combined
- FASD can affect anyone regardless of ethnicity, income or educational level
- FAS and FASD are not genetic disorders; women affected by FASD would have had healthy babies if they did not drink alcohol during their pregnancy

According to a comprehensive new 2009 study entitled, “Prevalence and Epidemiologic Characteristics of FASD from Various Research Methods with an Emphasis on Recent In-School Studies⁴⁰,” FASD in populations of younger school children may be as high as 2-5% in the United States. Such a percentage translates into at least 80,000 newborns a year with FASD. Furthermore, it suggests as many as 1 to 2 million school children under the age of ten have measurable affects of prenatal alcohol exposure.

Based on CDC data from the 2008 BRFSS, Massachusetts is in the upper range of all states in the prevalence of alcohol use among women aged 18-45 years⁴¹:

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- 63.1% of Massachusetts women aged 18-44 years reported having one or more drinks during the last 30 days, as compared to the national median of 50.3% (See Figure 3D-12 below)
- 19.5% reported binge drinking, which is 4 or more drinks on any one occasion during the last 30 days, as compared to the national median of 14.7%

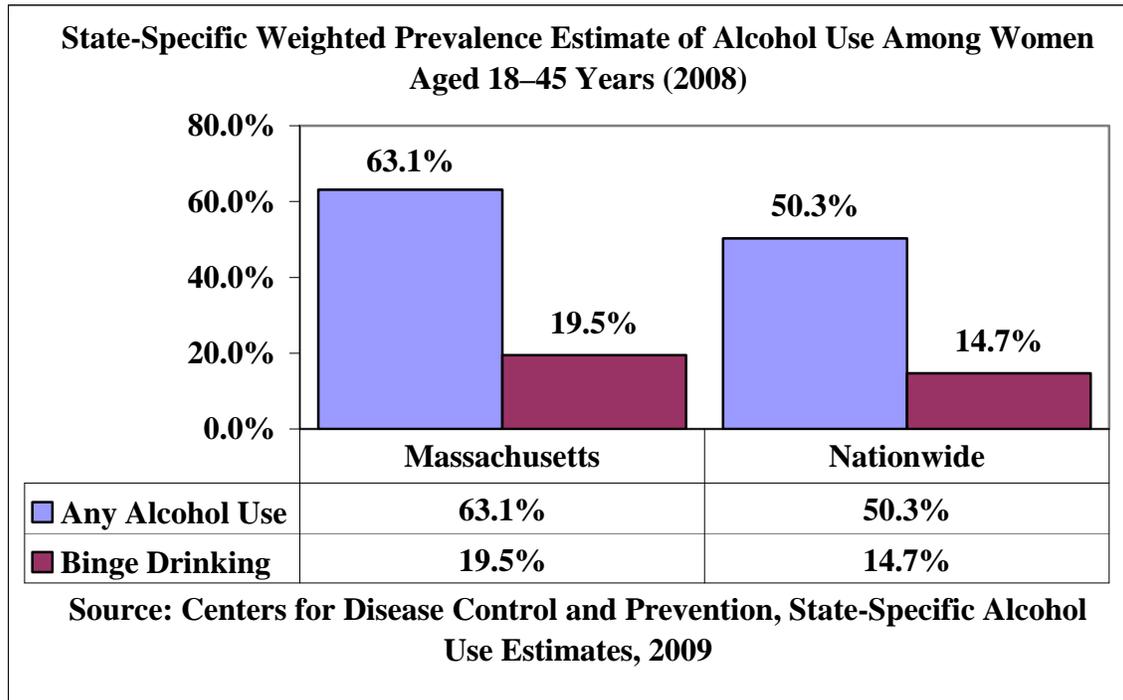


Figure 3D-12

Based on data from the Massachusetts Pregnancy Risk Assessment Monitoring System (PRAMS) 2007 Surveillance Report of women⁴²:

- 70.6% of Massachusetts women giving birth in 2007 reported ever having used alcohol in the past two years
- 61.0% reported using alcohol in the three months prior to becoming pregnant
- 11.5% reported using alcohol in the last three months of pregnancy while 0.6% reported binge drinking during the last three months of pregnancy

Perinatal and CYSHCN staff are working with the Bureau of Substance Abuse Services (BSAS) to develop an integrated plan to further understand the extent of the problem in Massachusetts and to enhance current program activities to address the need. Additionally, BSAS convened a task force to address the need to improve acute inpatient detoxification services for pregnant women. The task force developed recommendations for medical protocols; treatment programming and staff development; and outreach, marketing and linkages.

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Lead Poisoning

According to the CDC's State Surveillance Data⁴³, from 1997-2006 there was a clear decrease in the prevalence of both lead poisoning (blood lead levels [BLL] of 25 mcg/dL or above) and elevated lead levels (EBLL of 20-24 mcg/dL) among Massachusetts children aged 6 months to 6 years:

- The combined statewide incidence of blood lead levels greater than or equal to 20 mcg/dL was 2 per 1,000 screened in 1999 (from 3.2 per 1,000 in 1997) and less than 1 per 1,000 screened in 2006⁴⁴

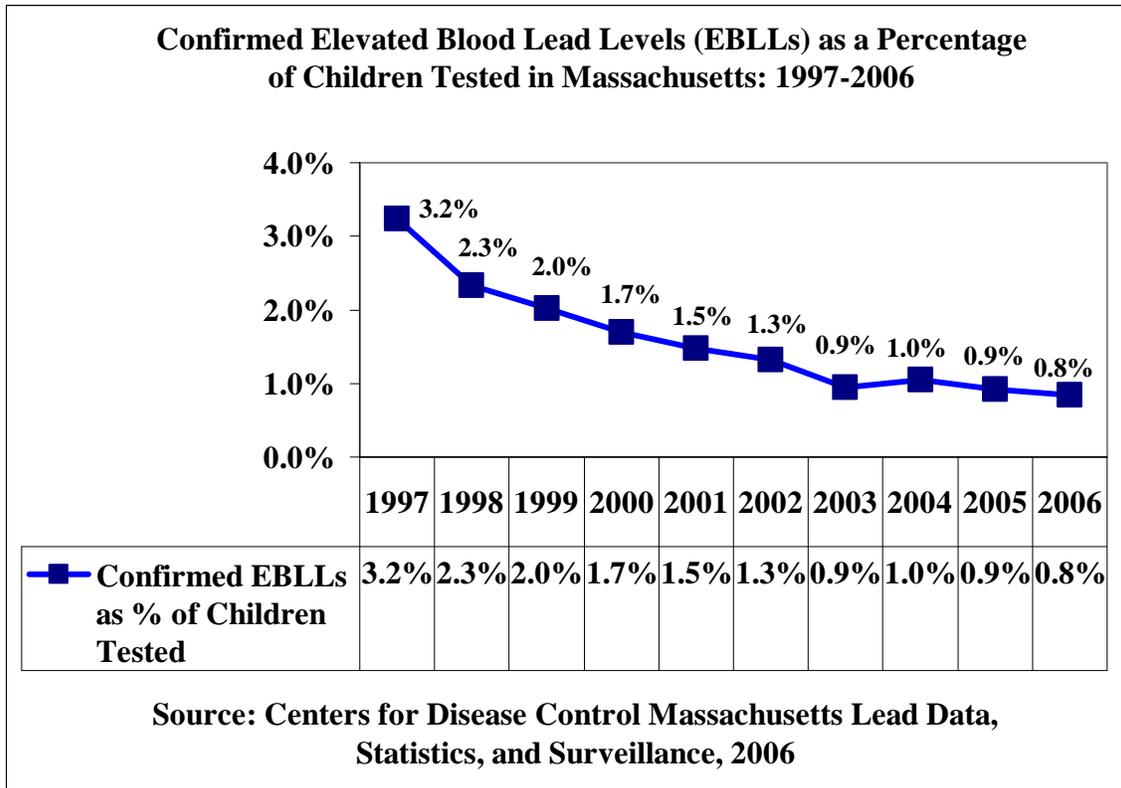


Figure 3D-13

- The 5-year average rate of confirmed EBLLs as a percentage of children tested for the period of 2002-2006 was 1.01⁴⁵
- A disproportionate share of all cases of lead poisoning and elevated lead levels continues to occur in certain counties (Berkshire, Essex, Hampden, and Suffolk), as well as certain cities (Chelsea, Lynn, New Bedford, and Springfield)⁴⁶

3D.5 Disparities for CYSHCN

Documented disparities in health outcomes and socio-economic status between youth and young adults with and without disabilities are substantial. BRFSS data indicate that young adults with disabilities in Massachusetts are significantly less educated, less

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likely to be employed, and more likely to have lower average household incomes than those without disabilities⁴⁷.

Young adults with disabilities were also less likely to report exercise and more likely to smoke, be obese, report poor quality of life, and physical and mental health than peers without disabilities. Disparities by disability status hold across race and ethnic groups nationally, but among Massachusetts residents with disabilities, non-Hispanic Blacks and Hispanics report significantly lower levels of education, lower incomes, more health risks, less adequate insurance, and worse health status than Whites⁴⁸.

The 2009 MYHS showed elevated smoking, risky weight loss strategies, and certain other behavioral risks (such as alcohol and marijuana use) among in-school youth with chronic illnesses and disabilities compared to their peers⁴⁹. Furthermore, young adults with disabilities aged 18-24 years were significantly more likely to report 15 or more days as being sad, blue, or depressed in the past month, 15 or more days of being worried, tense, and anxious, and 15 or more days of poor mental health as compared to peers without disabilities⁵⁰.

Healthy People 2020 specifically made mental wellness among persons with disabilities a national priority. In Section 6 of *HP2020*, Disability and Secondary Conditions, the following objectives are listed:

- DSC HP2020–2: Reduce the proportion of children and adolescents with disabilities who are reported to be sad, unhappy, or depressed
- DSC HP2020–3: Increase the proportion of adults with disabilities reporting sufficient emotional support

In addition to improving the mental wellness of persons with disabilities, *HP2020* also aims to reduce disparities as they relate to youth with disabilities and their health care transitioning. One such objective in *HP2020*, in the Disability and Secondary Conditions section, aims to do this by increasing the proportion of parents or other caregivers of youth with disabilities aged 12-17 years who report engaging in transition planning from pediatric to adult health care.

According to a 2010 report based on analysis of the 2007 NSCH, which compared measures of health and health care services among children with and without special health care needs, CYSHCN are especially vulnerable to weaknesses in the health care system. NSCH data indicate that CYSHCN experienced a wide range of disparities in physical, dental, emotional, and mental health status in accessing health care and quality of care, and in family health and activities as compared to children without SHCN. The following table specifically illustrates some of those findings⁵¹:

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NSCH Children with SHCN versus Children without SHCN: Selected Child Health Indicators	Overall	Children with SHCN	Children without SHCN
	% (95% CI) Pop. Est.	% (95% CI) Pop. Est.	% (95% CI) Pop. Est.
Physical and Dental Health			
Children aged 0-17 years whose overall health status is excellent or very good	88.3 (86.0 - 90.7) 1,264,383	70.6 (63.7 - 77.4) 230,051	93.6 (91.5 - 95.6) 1,034,332
Children aged 1-17 years whose teeth are in excellent or very good condition	79.5 (76.7 - 82.3) 1,072,260	67.0 (60.2 - 73.9) 214,611	83.4 (80.5 - 86.3) 857,650
Children aged 1-17 years who had two or more oral health problems (toothache, decay, etc.) in the past six months	4.6 (3.2 - 5.9) 61,515	7.1 (3.5 - 10.6) 22,711	3.8 (2.4 - 5.1) 38,804
Children aged 10-17 years who are overweight or obese (Body Mass Index at or above 85th percentile)	30.0 (25.4 - 34.6) 199,115	33.0 (23.7 - 42.3) 62,314	28.8 (23.6 - 34.1) 136,801
Children aged 6-17 years who missed 11 or more school days due to illness or injury in the past 12 months	7.7 (5.3 - 10.1) 74,665	18.7 (11.9 - 25.5) 50,460	3.5 (1.7 - 5.2) 24,204
Emotional and Mental Health			
Children aged 4 months to 5 years whose physical, behavioral or social development is of concern to their parents	34.5 (29.1 - 40.0) 147,159	63.2 (47.3 - 79.0) 33,159	30.5 (25.0 - 36.1) 114,000
Children aged 6-17 years who often exhibit problematic social behaviors	7.9 (5.4 - 10.5) 77,710	16.4 (9.4 - 23.5) 44,786	4.7 (2.5 - 6.8) 32,924
Health Insurance Coverage			
Children who currently have public health insurance coverage	25.0 (21.8 - 28.3) 355,984	40.5 (32.9 - 48.2) 131,928	20.4 (17.1 - 23.8) 224,056
Children who currently have private health insurance coverage	72.3 (69.0 - 75.6) 1,028,502	58.7 (51.1 - 66.3) 191,080	76.3 (72.8 - 79.9) 837,422
Children whose insurance does NOT usually or always meet their needs, cover needed providers, or have reasonable costs	18.5 (16.1 - 20.9) 257,346	21.0 (15.7 - 26.2) 67,775	17.8 (15.0 - 20.5) 189,571

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	Overall	Children with SHCN	Children without SHCN
Children who are currently uninsured or were uninsured at some time during the previous 12 months	5.7 (3.9 - 7.6) 82,042	3.4 (0.2 - 6.6) 11,179	6.4 (4.3 - 8.6) 70,863
Health Care Access and Quality			
Children who have a Medical Home: continuous, coordinated, comprehensive, family-centered, and compassionate health care services	66.2 (63.0 - 69.4) 921,553	54.8 (47.6 - 62.1) 174,113	69.5 (66.0 - 73.1) 747,440
Among children needing care coordination in the past 12 months, those who received effective care coordination (component of Medical Home measure)	76.1 (72.4 - 79.9) 518,690	65.7 (58.3 - 73.0) 170,160	82.5 (78.6 - 86.5) 348,530
Family Health and Activities			
Among children currently living with their mother, those whose mothers' general health and mental/emotional health are both excellent or very good	65.4 (62.1 - 68.6) 888,911	53.5 (46.1 - 60.9) 163,843	68.8 (65.3 - 72.3) 725,067
Among children currently living with their father, those whose fathers' general health and mental/emotional health are both excellent or very good	68.5 (65.2 - 71.8) 780,947	61.3 (53.2 - 69.4) 145,236	70.4 (66.8 - 74.0) 635,712
Children living in households in which anyone uses cigarettes, cigars, or pipe tobacco	21.7 (18.8 - 24.6) 308,591	28.3 (21.2 - 35.4) 91,536	19.8 (16.7 - 22.9) 217,055
Children whose parents usually or always felt they were hard to care for or bothersome, or were angry with them during the past month	6.8 (5.4 - 8.3) 97,815	11.9 (8.1 - 15.7) 38,760	5.3 (3.8 - 6.9) 59,055
Children age 5 or younger whose parents experienced either or both childcare problems: multiple last minute changes or childcare-related employment issues	38.2 (32.7 - 43.8) 172,571	50.7 (33.7 - 67.7) 26,790	36.6 (30.7 - 42.4) 145,781

Figure 3D-14

(Shaded estimates do not meet the National Center for Health Statistics standard for reliability or precision; the Relative Standard Error (RSE) is greater than 30%)

3D.6 Early and Continuous Screening for Special Health Needs

Massachusetts' goal is to assure children in the state receive early and continuous screening and referral to appropriate comprehensive, coordinated intervention services that are family-centered, community-based, and culturally appropriate. Massachusetts is a leader among states in the provision of universal screening of newborns for hearing and metabolic conditions. Since the inception of these two programs, nearly all infants are

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screened in their first few days of life, giving providers the best opportunity for early intervention.

The MDPH Bureau of Family Health and Nutrition (BFHN) was a major participant in the implementation of the Rosie D. class action suit during 2009. The Rosie D. Decision, issued January 26, 2006, found the Commonwealth violated the Early and Periodic Screening, Diagnosis and Treatment (EPSDT) mandate of the federal Medicaid Act by failing to provide needed and timely services to children. As a result, the implementation of the suit has been integrated into a broader Children's Behavioral Health Initiative (CBHI). The Massachusetts Early Childhood Comprehensive Systems Project (MECCS) continues to support CBHI in its implementation of behavioral health screening. MECCS developed toolkits for clinicians and others about behavioral health screening and disseminated the toolkits to various MECCS networks, such as the Healthy Child Care Consultants. The MECCS Director has participated in discussions with CBHI and MassHealth staff about the use of maternal depression screening tools during the early infant well child visits, as recommended by the Mass Chapter of the AAP's Children's Mental Health Task Force.

Newborn “Dried Blood Spot” Screening

MPDH focuses on newborn screening of “dried blood spots” for metabolic conditions. By state law in 2008, all infants except those whose parents have religious objections were screened for 10 core metabolic conditions and, with parental consent, for cystic fibrosis and 19 additional metabolic conditions. The statewide Newborn Screening Program is administered through the New England Newborn Screening Program (NENSP) at the University of Massachusetts Medical School. Hospitals submit to the NENSP a tiny “dried blood spot” from every newborn:

- In 2008, of the estimated 77,338 Massachusetts newborns, 77,338 were screened for the ten core conditions
- 76,927 were enrolled in screening for cystic fibrosis and 76,941 were screened for 19 additional metabolic conditions, respectively
- A total of 120 infants were diagnosed with one of the core conditions, 15 with cystic fibrosis, and 24 with one of the other metabolic conditions

Specifically, newborn screening for cystic fibrosis has been universally available in Massachusetts since February 1999. In a 2008 study, there was a reported decrease in the number of neonates with cystic fibrosis in Massachusetts who were identified by means of newborn screening for cystic fibrosis during the period from 2003 to 2006. In addition, a significant decrease was seen in the number of infants with the genotype most typically associated with severe cystic fibrosis, $\Delta F508/\Delta F508$ ⁵².

Effective 2009, Massachusetts State Law 105 CMR 270.000 Blood Screening of Newborns for Treatable Diseases and Disorders was amended to mandate screening infants for thirty conditions. Families are offered six additional pilot screenings for their infants, and this provides the benefit of screening for a total of thirty-six conditions in MA. Severe Combined Immunodeficiency is one of the pilot conditions, and the New England Newborn Screening Program developed a new assay to screen for this condition.

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There are also 22 by-product conditions that may be identified for disorders screened in the mandatory panel, and there are 3 additional by-product conditions that may be identified through the pilot study. Carrier status of any of the conditions/by-products may also be identified through screening. The New England Newborn Screening Program is dedicated to ensuring infants are screened, promptly diagnosed, and connected to appropriate follow-up clinical services at diagnosis. In addition, they are also performing long-term follow-up to better understand the conditions that the state is screening for and to ensure infants and children are receiving appropriate services.

Newborn Hearing Screening

Massachusetts State Law, Chapter 243 of the Acts of 1998, An Act Providing for Hearing Screening of Newborns, is one of the most comprehensive newborn hearing screening laws in the nation. Infant hearing screenings have been universally performed since passage of the statute at birthing facilities prior to discharge. The DPH Universal Newborn Hearing Screening Program established guidelines and regulations for the program in collaboration with a multi-representative Advisory Committee that has met regularly for twelve years.

The DPH Universal Newborn Hearing Screening Program is responsible for approving birth facility hearing screening protocols and audiological follow-up centers that serve families with infants referred from newborn hearing screening. Birth facilities are required to communicate the results of the screenings to families and medical homes and make follow-up audiological appointments for all infants that fail the screen at DPH approved centers. In addition, the program seeks to meet/exceed the expectations put forth in the Healthy People 2010 Standard 28-11: (Developmental) Increase the proportion of newborns who are screened for hearing loss by age one month, have audiological evaluation by age three months, and are enrolled in appropriate intervention by six months.

Massachusetts submitted 2008 newborn hearing screening data to CDC indicating that 99.5% of the >77,500 infants born in Massachusetts were screened for hearing loss, with 1,405 (1.8%) failing the screening and requiring follow-up audiological testing. Systems are established, including outreach to identified families and parent-to-parent support, to ensure infants and their families receive appropriate services. The program focuses on guaranteeing infants and their families do not become “lost to follow-up”. Massachusetts documented in 2008 that 95.8% of infants that failed a hearing screening received appropriate audiological services. Additional information included:

- Of the 1,405 infants who failed the screen, 1,055 (75.1%) had normal hearing and 202 (14.4%) were diagnosed with permanent hearing loss
- 148 (10.6%) infants that did not have a confirmed diagnosis, 56 (4%) had audiological testing and final diagnosis was pending, 8 (0.6%) died, 10 (0.7%) parents declined, 15 (1.1%) were out of jurisdiction, and 59 (4.2%) were lost to follow-up
- Of the 202 infants with permanent hearing loss, 155 (76.7%) were enrolled in the state EI Program

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- Of the 47 (23.3%) infants that did not receive services through EI, 2 (1.0%) died, 4 (2.0%) parents declined services, 1 (0.5%) was out of jurisdiction, and 40 (19.8%) were lost to follow-up.

Program staff also participated in numerous national workgroups, including a National Initiative for Children's Healthcare Quality Learning Collaborative sponsored by MCHB. Massachusetts focused on high risk infants that were at greater risk of missing a hearing screening. Staff, working in concert with medical providers, learned and used "small tests of change theory" to reduce the number of missed hearing screens for infants that were transferred to another facility (including infants who were in a neonatal intensive care unit). Summary findings included: 1) infants in the NICU who were generally not medically eligible for hearing screening were screened later, and 2) infants were often screened and documentation of the screen was missing.

From 2007-2008, quality improvement was also demonstrated through data collected in the Massachusetts Childhood Hearing Data System; the number of missed hearing screens in the NICU/transfer population was reduced from 648 to 380, which represents a decrease in missed hearing screens in this population by 41.4%. Finally, staff presented pertinent data at national conferences, conducted studies, and published articles on family satisfaction⁵³, lost to follow-up⁵⁴, and developing a strong Early Hearing Detection and Intervention Program⁵⁵.

The Pregnancy to Early Life Longitudinal (PELL) Linkage and Early Intervention (EI) Referral

The PELL data system has linked birth certificates, fetal death reports, birth-related hospital discharge data and other data on both mothers and infants in Massachusetts starting in 1998. To evaluate referral of children to EI, the population-based PELL data and EI program data have been linked.

Using the most up-to-date 2008 PELL population-based data, Massachusetts infants born weighing <1,200 grams were analyzed to identify maternal and birth characteristics that predicted EI referral and evaluation⁵⁶:

- EI referral and evaluation were more likely among:
 - Infants of white mothers
 - Multiple-birth infants
 - Infants whose mothers had private insurance
 - Infants of mothers who were college educated
 - Infants of mothers who spoke English and were native-born
 - Pre-term infants
- Conversely, EI referral and evaluation were less likely among:
 - Infants of black non-Hispanic mothers
 - Infants of mothers who didn't graduate from high school
 - Infants of mothers who weren't married
 - Infants of mothers without private insurance

In Massachusetts, most infants born <1,200 grams are referred to EI, but disparities clearly exist. Analysis of linked population-based health and developmental

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services can inform programs to reduce disparities and improve access for all high-risk infants.

To gain insight into the preterm birth-associated cost of EI services by gestational age and plurality, a 2007 Massachusetts study used the PELL data system to link birth certificates for infants who were born in Massachusetts between July 1999 and June 2000 with EI claims through 2003⁵⁷. Total program costs, in 2003 dollars, of EI services and mean cost per surviving infant by gestational age were then determined:

- Overall, 14,033 of 76,901 surviving infants received EI services
- Program costs totaled \$66 million, with a mean cost per surviving infant of \$857
- Mean cost per infant was highest for children who were 24 to 31 weeks gestational age (\$5,393), and over twice as high for those born at 32 to 36 weeks (\$1,578), when compared with those who were born at term (\$725)
- Among children in EI, the mean cost per child was higher for preterm infants than for term infants
- At each gestational age, the mean cost per surviving infant was higher for multiples than for singletons

Compared with their term counterparts, preterm infants incurred higher EI costs. This information, along with data on birth trends, has been used to inform budget forecasting for EI programs. Costs that are associated with early childhood developmental services must be included when considering the long-term costs of prematurity.

3D.7 Family Partnership & Satisfaction

Parent/professional partnership based on mutual trust, respect and cooperation is important for progress on all six MCHB outcomes. Systems of care for CYSHCN and their families are most effective when characterized by collaboration and cultural competence. Research and anecdotal information confirm that empowering families to participate as decision-makers at all levels – about their own children's care, at the service delivery level, at the planning and policy making levels, and in evaluation – enriches systems of care.

Partnership about Own Child's Services

More than half (57.1%) of Massachusetts parents reported on the 2005-2006 NS-CSHCN that they partner in decision-making about their own child's health care and were satisfied with the services received (compared with the national average of 57.4%). However, for MassHealth recipients, the figure drops to 55.6%. The percentage was lowest (38%) for families who were uninsured, as the following table illustrates⁵⁸:

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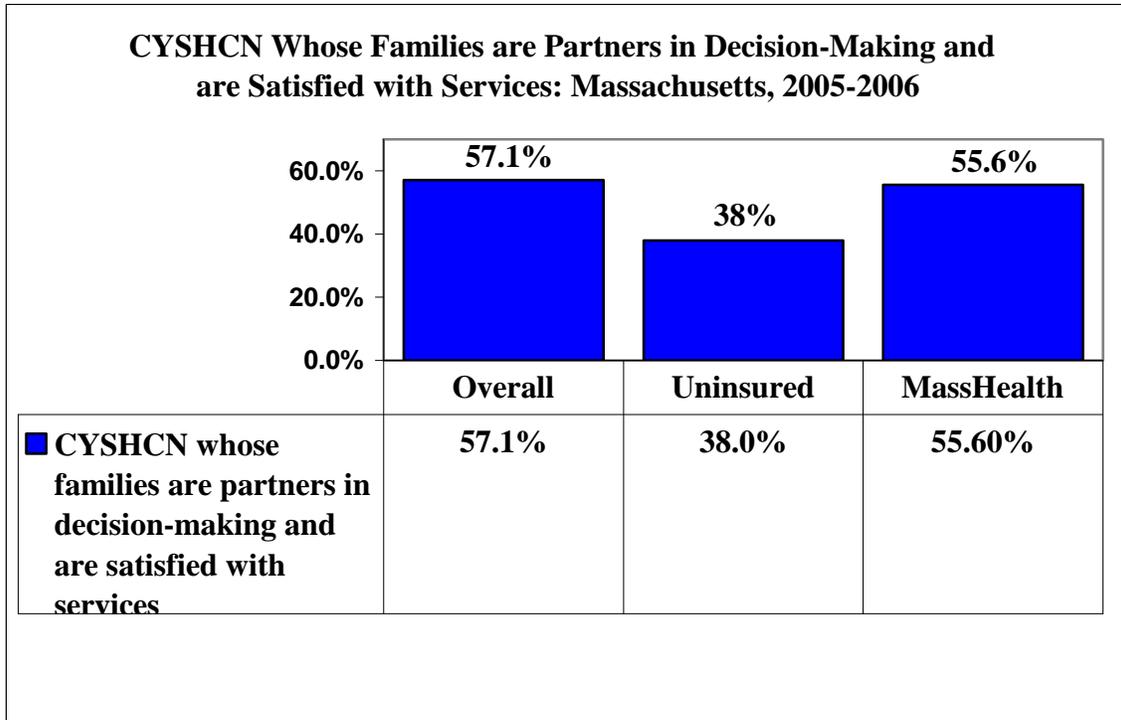


Figure 3D-15

Among the 500-plus families with CYSHCN surveyed in the 2005-2006 MassHealth Managed Care Member Survey⁵⁹, 76% reported that their child’s health providers always explained and showed respect for what they said. In addition, 73% reported that their child’s health providers always listened carefully to their concerns. However, only 58% reported that they felt that their child’s providers spent enough time with them. The survey also demonstrated that Massachusetts families with CYSHCN, as compared to families without CYSHCN, were slightly less likely to report that:

- Health providers always listened carefully to families’ concerns (73% for families with CYSHCN as compared to 78% for families without CYSHCN)
- Health providers always showed respect for what families say (76% for families with CYSHCN as compared to 78% for families without CYSHCN)
- Health providers always explained things to the child (67% for families with CYSHCN as compared to 70% for families without CYSHCN)
- They had no problem getting a personal doctor or nurse (84% for families with CYSHCN as compared to 89% for families without CYSHCN)
- They had no problem seeing a specialist (68% for families with CYSHCN as compared to 70% for families without CYSHCN)
- They had no problem getting care, tests, and treatment (72% for families with CYSHCN as compared to 79% for families without CYSHCN)

A 2009 national study aimed to identify factors associated with family–provider partnership and to determine the association between partnership and other outcome

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measures for CYSHCN⁶⁰. Using data from the 2005-2006 NS-CSHCN, the researchers of this study found that parents of children who were White, non-Hispanic, aged < 12 years, residing in households with incomes above 400% of the federal poverty level, and with a usual source of care, were more likely to report feeling they were a part of a family-provider partnership.

The study also found that family-provider partnership was significantly associated with adequate insurance, early and continual screening, organized health care services, and transition preparedness. Finally, family-provider partnership was also shown to be associated with 20% fewer emergency department visits and 9% fewer school days missed, which could have had spillover effects, such as reduced ED costs and increasing educational outcomes. This study suggests that policies aimed at promoting family-provider partnership could increase health outcomes for CYSHCN, especially in the area of a family's readiness for transition.

Two of the focus groups conducted by MDPH as part of the needs assessment process explored issues and needs related to being the parent of a CYSHCN. In these focus groups, some parents described issues regarding their relationship with their primary care provider (PCP). Families discussed incidents during which they felt their PCP had discounted their concerns or were not able to answer their questions. This was particularly true for pediatricians and family practitioners who had never or seldom encountered the child's relatively rare disorder in their practices. According to the parents, some physicians were uncomfortable informing the parents of the diagnoses, and had little to offer in response to questions regarding a diagnosis or community-based services for such a condition. Parents thought physicians needed substantial training in delivering such information, better communication and listening skills, and expanded learning on how to partner with parents when the physicians were not themselves "experts."

On the other hand, parents reported that some physicians fully extended themselves to learn about the condition and welcomed information parents collected from parent support groups, from specialists to whom they were referred, or by searching the Internet. With these physicians, families felt as though they had an expert partner in their search to understand how to manage their child's condition.

In addition to the focus groups, MDPH's BFHN also created a survey for families of CYSHCN aged birth through 24 years living in Massachusetts. The purpose of the survey was to solicit advice from these families to improve services and supports for CYSHCN and their families. (Note – please see 3D. 14 Stakeholder Involvement for more information about the survey).

The majority of families of CYSHCN (69%) felt that the services their child received from their PCP usually or always met their child's/family's specific needs. But, of 20 families of CYSHCN whose PCP did not speak their native language, 55% of those families said that interpreter services were never available. It is important to note, however, that the survey did not ask if interpreter services were *needed*; parents could have been bilingual, and in turn didn't feel the need to ask for such services.

Partnership at Systems and Policy Levels

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In December 2008, MDPH and the Massachusetts Consortium of CYSHCN co-hosted an invitational meeting to solicit ideas and guidance about priorities regarding CYSHCN and their families, and about where DPH and the Massachusetts Consortium for CYSHCN could most effectively focus their efforts⁶¹. The meeting included approximately two dozen stakeholders in leadership positions across various systems of care. One of the specific priorities mentioned regarding CYSHCN and their families was family support programs, such as respite care. Stakeholders commented that the need for such programs and care was vast and growing for a number of reasons:

1. Families are primary providers of care. In times of economic crisis, much more responsibility will be shifted to families
2. There is a need to improve the health literacy of families (provide education on policy, financing, programs, etc.)
3. Family support has to be a priority, not just in terms of families' roles, but in that families define the needs
4. Families are looking for coordination between health care and educational settings
5. There is an urgent need for flexible family supports. Some families are approved for home nursing but can't find nurses. This is not only a respite issue but an issue of infrastructure, and this issue blocks some children from going into long-term care

3D.8 Medical Home

A medical home is defined by the American Academy of Pediatrics (AAP) as a system of care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective. It is an approach to providing health care services where families and physicians work together to identify and access all of the medical and non-medical services needed to help children and their families reach their maximum potential. The medical home is also where families are recognized as the principal caregivers and the center of strength and support for their children. The Massachusetts Medical Society, the Massachusetts Chapter of the AAP, and the Massachusetts Academy of Family Physicians have formally endorsed the principles of the Medical Home Policy Statements of the AAP.

According to the 2007 National Survey of Children's Health (NSCH), the prevalence of ALL Massachusetts children ages 0-17 who have a medical home in Massachusetts is 66.2%, compared to 57.5% nationally⁶². In addition, it appears that the prevalence of having a medical home in Massachusetts is dependant on CSHCN status, as CSHCN have a lower rate of having a medical home as compared to children without special health care needs (54.8% as compared to 69.5%).

Several important aspects of the medical home arise in the NS-CSHCN:

- The prevalence of systems of care meeting the criteria for being a medical home can still be improved, since only 47.1% do so nationally and 45.7% do so in Massachusetts
- In Massachusetts, most families report that their child has a usual source for both sick and well care (94.4%) and a personal doctor or nurse (96.4%)

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- 86.1% have “no problem” with referrals (including 92.2% of publicly-insured recipients)
- 68.8% received family-centered care (62.9% of publicly-insured received family-centered care)
- Of all children who needed care coordination, only 55% received coordinated care (compared with the national average of 59.2% and publicly-insured recipients’ children in Massachusetts, 60.9%)
- The prevalence of a medical home differed by race/ethnicity of the child, as children who were Hispanic or Black, non-Hispanic were less likely to have a medical home than those children who were White, non-Hispanic

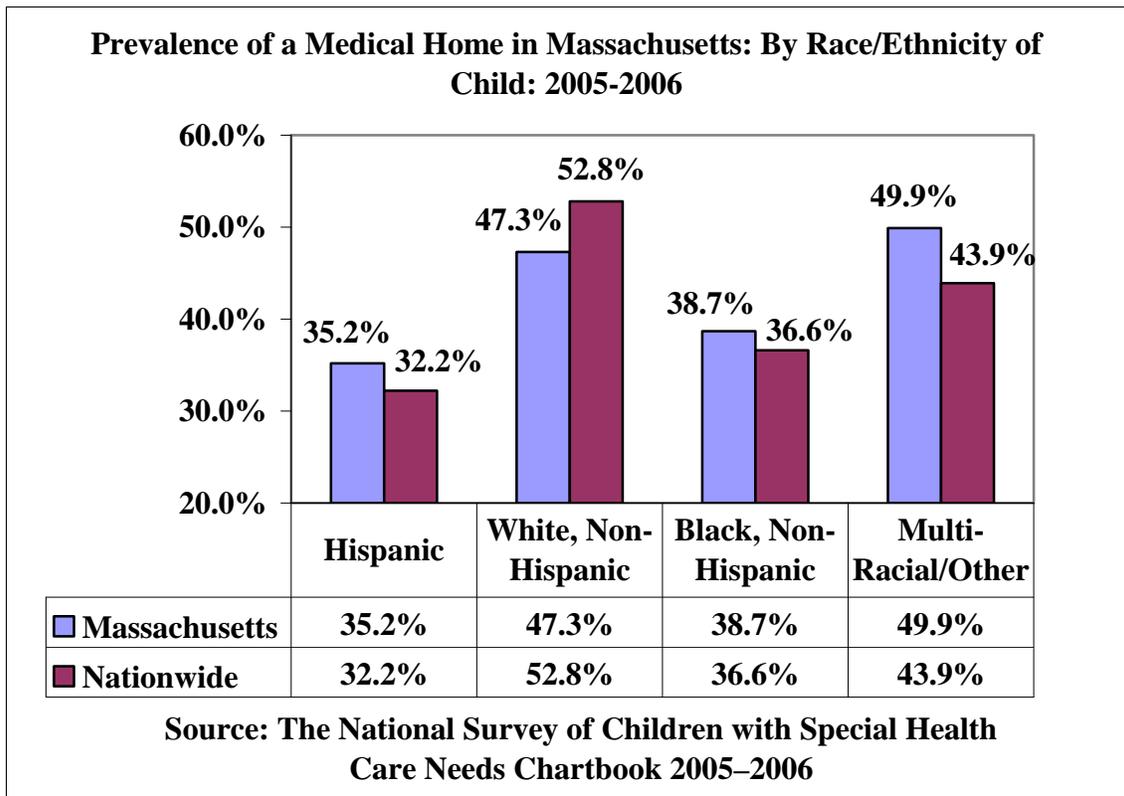


Figure 3D-16

MDPH’s BFHN also created a survey for families of CYSHCN aged birth through 24 years living in Massachusetts. Almost two-thirds of respondents were not familiar with the medical home concept. After reading the definition of medical home, 50% of respondents felt that their child did not receive care that met this definition. Only about half of respondents felt that their child’s PCP assisted them with health-related school issues. Finally, only about half of respondents felt that their child’s PCP and specialists communicated and coordinated with each other regarding their child’s care.

3D.9 Adequate Insurance

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Based on the 2005-2006 NS-CSHCN, 63.1% of families of Massachusetts CYSHCN have adequate private and/or public insurance to pay for the services they need, compared to 62% nationally. In addition:

- All but about 1.2% of Massachusetts CYSHCN have insurance, with about 21.6% of CYSHCN publicly-insured, and 7.6% of CYSHCN on some combination of public and private insurance
- 5.2% of Massachusetts CYSHCN reported being uninsured at some point in the previous year (compared to 8.8% nationally), and 1.2% of Massachusetts CYSHCN reported being uninsured at the time of the survey (compared to 3.5% nationally)
- Because insurance is not always adequate, this objective was met for only 67.3% of respondents
- About 90.7% of respondents reported their children's coverage allows for care by the needed providers (86.7% for publicly-insured children)
- 87.4% of respondents said the coverage usually or always met their needs (87.3% for publicly-insured)
- 69.9% believed costs not covered were reasonable (68.9% for publicly-insured)

Applications to the state's Catastrophic Illness in Children Relief Fund (CICRF) also suggest that, while most CYSHCN are insured, coverage does not meet many families' needs. The CICRF was established by the state legislature in July 2000 to assist families facing extraordinary medical and medically-related expenses that are not covered by any private or public insurer or other funding source. From the Fund's inception through FY 2008⁶³, it has provided \$9.9 million in reimbursements to the families of 766 children with catastrophic illnesses, from a variety of backgrounds. Massachusetts families with children aged < 22 years, whose medical and related expenses for one child exceed 10% of the first \$100,000 plus 15% thereafter of the family's annual income, are eligible to apply for assistance from the CICRF.

During FY 2006-2008, 456 families received a total of \$4.3 million in reimbursements: 187 families received a total of \$1.4 million in reimbursements in FY06; 139 families, \$1.2 million in FY07; and 211 families, \$1.7 million in FY08.

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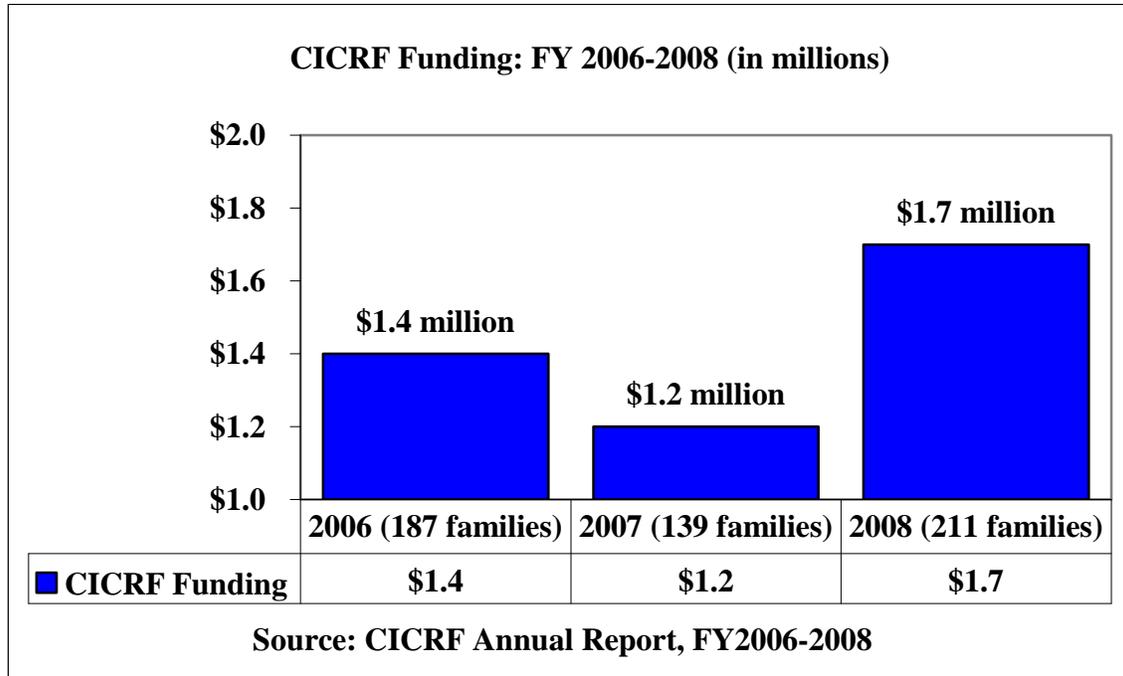


Figure 3D-17

The number of applications to the Fund has grown substantially each year, with 187 applications submitted in FY06, 242 in FY07, and 330 in FY08. The children who have been assisted by the CICRF have a variety of different diagnoses, typically come from low-income families, and almost all have some form of health insurance coverage. Most notably, during FY06-08, approximately 60% of the families who received assistance had annual incomes of less than 200% of the federal poverty level (\$42,000 for a family of 4 in 2008), and approximately 43% of the children who were helped were aged < 5 years.

The CICRF supports a wide variety of services, including medical equipment, medical services, hospital/physician services, medications, family support, and home/vehicle modifications that enable children to remain at home and be a part of their communities. In addition to providing financial assistance to families, the Fund provides families with information, referrals and technical assistance related to accessing additional financial or other supports.

In February 2006, a celebration of the first 5 years of the Fund was held at the State House. A number of families assisted by the Fund attended the event and attested to the benefits. Beginning in FY07, legislation expanded age eligibility for the Fund from 18 to 21 years. Finally, in FY08, the Fund underwent an independent state audit, which found Fund expenditures to be appropriate, reasonable and in compliance with applicable laws, rules and regulations.

3D.10 Community Services Organized for Ease of Use

One of the many difficulties that families of CYSHCN sometimes face is navigating the health care system to find the services their children need. Oftentimes

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services are fragmented and funded through a diverse set of programs, each with its own eligibility rules, or services may just simply be unknown to families. Recognizing these challenges, one of the MCHB core outcomes for CYSHCN relates to the ease of use of community services. Community services can be described as a "...system of services for CYSHCN (which are) a family-centered coordinated network of community-based services designed to promote the healthy development and well-being of children and their families⁶⁴."

According to the 2005-2006 NS-CSHCN, 87.6% of Massachusetts families found community services organized for ease of use; families of publicly-insured children reported the same percentage. Although this is a relatively high percentage, it's lower than the national percentage (89.1%). Despite a high percentage of families reporting that community services are organized for ease of use, CYSHCN and their families in focus groups noted several areas where community services could be improved.

During focus groups, families stated that their PCP does not always provide them with enough information about community services. This could be for a number of reasons: PCP's lack of available time with patients, a lack of knowledge about what community-based services are in the community, or families neglecting to ask their PCP about what services actually exist for their child in the community.

Additionally, families were surprised to hear of the availability of resources they were not familiar with that were used by other families. Families also noted that some of the most important information they had gathered came through friends, neighbors, other families with CYSHCN, on the Internet or television. Furthermore, many considered it hard to find information they needed. A few also said that there was typically little coordination between agencies regarding their child's care. Finally, transportation was often voiced as a concern.

Results from the BFHN's survey for families of CYSHCN aged birth through 24 years living in Massachusetts reinforced many of these points:

- Families of CYSHCN got information about community-based services from a variety of different resources, but mostly received info about community-based services from other families, friends, and family members (65.5%); case managers/case workers (33.6%); and the media (33.3%)
- Slightly over 50% of families of CYSHCN found it not easy or very difficult to access community-based services for their child, as compared to only about 15% who found it easy or very easy
- Families of CYSHCN cited the following as the three biggest obstacles to accessing community-based services: lack of knowledge about what services are available (39%); cost (32.7%); and the lack of appropriate services in their community (32.4%)
- The lack of knowledge among families of CYSHCN about community-based services may stem in part from their PCP's lack of providing information about community-based services; almost 70% of families stated their child's PCP rarely or never offered information regarding community-based services

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- However, about 70% of families felt that the services their child receives from their PCP usually or always met their child's/family's specific needs
- Although 10-15% of families received DPH services from the EI and/or Family TIES programs in the past 12 months, the majority of families (62.7%) did not receive any DPH services in the last 12 months
 - Those that did receive DPH services mostly learned about them from other families, friends, and family members (17%); health care providers (13.5%); and a combination of other agencies/programs (16.7%)

Given that almost two-thirds of families of CYSHCN did not receive any DPH services in the last 12 months, it is evident that MDPH must do more to promote their programs and services within all communities.

The Family TIES program provides a toll-free line for families to obtain information about community-based services. Over 2,000 individual calls are received yearly. Among the most frequent issues are requests for information about Early Intervention; what to expect and where to go to access services; connections to parent support groups; ways to build community and make community resources more accessible and welcoming; information about navigating the health care system to ensure that children receive the services and supports they require; and information about opportunities to serve in advisory capacities on task forces or other committees as a way to have input into how services are developed and implemented.

MDPH's BFHN offers a number of programs providing services to individuals with disabilities and their families. Following the passage of state law (Chapter 171) to provide support to individuals with disabilities and their families, BFHN actively examined existing programs to assess their level of meaningful family involvement. Family/consumer input was sought to identify ideas about how programs and services could become more responsive and provide more flexible supports.

When talking with families to help inform Chapter 171 Family Support Plans, families reported struggling to get the most current information about supports and resources. Families were frustrated by the many different eligibility criteria from agencies and organizations. Families repeatedly discussed the need for more collaborative work among departments and organizations across the state to figure out a single point of entry for families into state services, and to improve community access. Families stated that they wanted access to core public health services and programs that are available to children and/or families who do not have special health needs, such as nutrition, physical activity, healthy sexuality, etc. Finally, families stressed the critical need for support around transitions, as well as significant life and health events.

The following table provides a concise summary of needs, expressed by families with CYSHCN, regarding community services⁶⁵:

MDPH CYSHCN Annual Family Support Plan, 2010

Needs expressed by families for which DPH has primary responsibility	Needs expressed by families outside DPH jurisdiction & resources	Needs expressed by families for which multiple agencies are responsible
Strategies to facilitate communication between primary and specialty health care providers	Behavior supports including ABA and biomedical therapies for children aged > 3 years	Respite care
Access to information and short-term care coordination when needed	Speech, occupational and physical therapies for children on the autism spectrum beyond that provided by health insurance and schools	Education for health care providers about low incidence disabilities and other health issues of CYSHCN
Info for PCPs about DPH resources specific to CYSHCN	Funding for and connection to educational advocates	Independent living skills, health care self-management
Inclusion of the needs of CYSHCN into core public health programs	Expanded mental health resources	Support for transition from pediatric to adult health care system
Support for the purchase of hearing aids and cochlear implants	MCAS support	Support for alternative and complementary therapies such as massage therapy
Oral health resources for CYSHCN	Therapeutic after-school programming	Easier access to/funding for Durable Medical Equipment
	Community recreational opportunities	Planning for long-term care needs of CYSHCN
	Food stamps and housing support	Expanded insurance coverage for specialized services
	Family Counseling	Turning 22 supports for youth with complex medical needs
	Availability of PCAs	

Figure 3D-18

3D.11 Oral Health

Oral health care continues to be a critical need and access problem for the special needs population due to a lack of dental providers with expertise to treat them, the effect of medications on their oral health, and physical and behavioral issues that affect their home care and/or dental treatment. According to the NS-CSHCN, accessing routine preventive dental care was the number one unmet health need of this child population.

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Massachusetts is unique in that it has eight specialized dental clinics located throughout the state providing comprehensive dental care to residents across the lifespan who have an intellectual disability and/or who are developmentally disabled⁶⁶.

The Tufts Dental Facilities Serving Persons with Special Needs (TDF) has been providing these services since 1976 as part of a class action suit that sought to improve the medical and dental services for special needs residents who lived in state facilities. More than 21,000 dental patient visits were provided to the most vulnerable residents in Massachusetts in FY 2008 by TDF⁶⁷.

MDPH has 4 public health hospital dental clinics which provide comprehensive dental care to both chronically ill inpatient and outpatient high-risk residents. A 2007 oral health assessment of child inpatients at the 4 hospitals showed that⁶⁸:

- 71% of the children screened had a functional disability
- 66% of the children had dental sealants on their six-year molars and 48% had sealants on their twelve-year molars
- 61% of the children had a history of dental decay

3D.12 Pediatric End of Life Care

Currently MDPH contracts with 11 hospice organizations with specific expertise in pediatric end of life care to participate in its Pediatric Palliative Care Network (PPCN). While staffing and financial barriers continue to impede efforts to further the skills of hospice providers to meet the needs of dying children, Massachusetts has made additional efforts to address the end-of-life needs of children.

Catastrophic Illness in Children Relief Fund (CICRF) is a key resource for providing limited financial assistance to families with children who have medical needs beyond what is covered by their health insurance plan. Specifically, the CICRF plays an important role in providing financial assistance for a range of services that could reduce suffering and improve the quality of a child's and family's life [See 3D.8: Adequate Insurance for more information]⁶⁹.

3D.13 Youth Transition

The 2008 Massachusetts BRFSS estimates that 16.6% of Massachusetts adults aged 18-24 years have a disability, which is a weighted frequency of 91,454 Massachusetts adults aged 18-24 years that have a disability⁷⁰.

Compared with other NS-CSHCN-measured outcomes, youth transition stands out as a deficit, and it has been chosen as an MCH priority need in Massachusetts. Successful transition is also related to each of the other MCH outcomes. For example, adequate public and/or private health insurance as CYSHCN get older and enter adulthood may become an issue.

At 8%, rates of un-insurance by age are highest among Massachusetts young adults aged 19 to 25 years, with and without SHCN. Training, information and referral are needed for 18 year-olds to apply to SSI. SSI Work Incentives help SSI recipients obtain or retain public health insurance coverage while working, yet they are not widely known or understood. Furthermore, many young adults have difficulty transitioning from pediatric to adult health care.

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To positively impact transitioning to adulthood, health professionals can help YSHCN understand how their health conditions or disabilities affect employment or post-secondary education, identify accommodations, and facilitate development of communication skills needed to obtain accommodations. They can also teach primary and secondary prevention strategies to promote optimal health and social participation. These health professionals can encourage discussion with YSHCN about their future transition from pediatric to adult health care providers.

According to the NS-CSHCN, there were deficits in meeting the core performance outcome for transition, and disparities in achieving other transition outcomes. Specifically, of Massachusetts CYSHCN⁷¹:

- Most (80.2%) respondents said that providers usually or always encourage their child to take responsibility for his or her health (compared to 78% nationally)
- 46.6% met the core performance outcome for transition (compared to 41.2% nationally)
- 33.3% needed but had not talked to their provider about maintaining insurance coverage as he/she enters adulthood (compared to 42% nationally)
- 20.2% needed but had not talked to their provider about his or her health care needs as he/she becomes an adult (compared to 28.2% nationally)
- 16.2% needed but had not discussed with their health provider about shifting care to an adult health provider (compared to 16.6% nationally)
- Disparities by race/ethnicity, income, and language persist; being of non-Hispanic, Black or Hispanic race/ethnicity, having a lower income level, not speaking English, and not having a medical home reduced the odds of meeting the transition core outcome

The insufficiency and fragmentation of transition-related initiatives has been noted by experts and families alike. Even when provided federal entitlements, not all families receive the help needed. In Massachusetts, for young persons with severe disabilities still in need of services, Chapter 688 - often referred to as the state's "Turning 22 Law" - serves as a bridge from educational services to adult human services programs.

The Turning 22 Law provides a two-year transitional process for those young adults who will lose their entitlement to special education upon graduation or are reaching the age of 22 years. The law creates a single point of entry into the adult human services system through an Individual Transition Plan (ITP) developed for every person with a severe disability who is found eligible. Services are, however, subject to appropriation. Many families report difficulties because of lack of funding and also with determination of the responsible lead agency. Many YSHCN have needs that, while significant, do not meet the criteria for a state agency. Youth transition needs vary by individual. Substantial challenges exist for youth with extremely complex conditions. Young adults who require fewer or periodic supports to maximize their autonomy are much less likely to receive state agency supports. As a result, each youth requires an individual assessment and plan.

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Massachusetts Consortium of CYSHCN

In the Consortium's final report, a specific priority mentioned regarding CYSHCN and their families was support for transitions to adulthood. Stakeholders recommended that MDPH⁷²:

1. Increase community-based adult health care provider capacity to deliver appropriate primary care to young adults with special health care needs
2. Strengthen the capacity of care coordinators, case managers, and other family support personnel in public and community-based agencies, hospitals, doctors' offices, insurance plans, and schools to counsel and support youth and families during the transition into the adult service system
3. Strengthen the capacity of school systems to respond to the transition needs of youth with special health care needs
4. Provide counseling to families and youth on identifying and accessing transition resources and supports available across the system of care for youth with special health care needs.

MDPH incorporated recommendations from the Consortium's final report in its decision-making process. Their final report, as well as other meetings of the Consortium, brainstorming with internal staff, and discussions with external stakeholders, led to transitions being a CYSHCN specific priority (which is further discussed in section 5). This is in addition to the cross-population and general child and adolescent priorities, which are inclusive of CYSHCN.

3D.14 Stakeholder Involvement

During 2009-2010, MDPH conducted a number of internal key informant interviews with experts at MDPH, as well as external interviews with stakeholders in the community, to inform the Needs Assessment and help support decision making. These key informant interviews helped to assess the needs of target populations - such as CYSHCN - through the use of data and broad input from stakeholders, and also helped to examine Massachusetts' strengths and capacity to address identified needs. Input came from parents, families, individuals, local service providers, medical providers, state-level agencies, academics, insurers, advocacy groups and other professionals.

Also, during late 2009 into early 2010, three focus groups were conducted – two with parents of CYSHCN and one with YSHCN – to better inform MDPH's priorities and goals for CYSHCN over the next five years. Finally, MDPH's BFHN created a survey for families of CYSHCN ages birth through 24 living in Massachusetts. This survey was created, developed, tested, and analyzed specifically for the Needs Assessment.

Key Informant Interviews

Internal interviews with MDPH staff regarding priorities for CYSHCN resulted in a number of perspectives. Staff commented that one priority across all populations, but

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specifically important for CYSHCN, was mental health. It was stated that MDPH needed to be aware of this topic - along with social isolation, nutrition, healthy weight, recreational activities, sexual education, etc. – and had to work with internal and external partners to make sure that CYSHCN were included in planning and program development. They stated this was especially true because disparities between children with and without special health care needs are substantial.

Internal staff commented on the need for MDPH to achieve better coordination and collaboration with other Massachusetts state agencies, so that the agencies and organizations could share data and determine which population groups are utilizing programs. Specifically, data collection was said to be a problem in some of the early childhood programs and within the Department as well. Achieving better coordination, along with better infrastructure for data collection, could improve CYSHCN outcomes.

In conjunction with the need for better coordination and data infrastructure, staff commented that marketing efforts need to be a priority regarding this population, as there are people who are not aware of MDPH's programs and activities. Staff suggested that the Department needs to improve outreach regarding the CYSHCN Program and services. Given MDPH's focus on multicultural communities, more effort must be made to meet the geographic, cultural, linguistic and other needs of diverse families and provide them with the information and services they need. Finally, staff commented on the need to take advantage of new technology - such as Facebook, Twitter, and other social networking sites - to engage with families in the community.

Another specific priority that emerged in the majority of interviews with MDPH staff was youth transition. Staff pointed out the need for the Department to do more to prepare CYSHCN for their lives beyond school, such as gaining employment and housing arrangements. The lack of available adult primary care providers was a concern. Staff commented that the Department needed to do more to help improve self-management and functionality in CYSHCN, whether it was regarding medication adherence or simply knowing their health provider's name and number. Finally, staff commented on the need for MDPH to work more collaboratively with providers and schools in the community regarding transition issues, as gaps still remain in regards to the communication between providers and schools.

External interviews with experts and stakeholders were conducted regarding CYSHCN. Experts mentioned that transition issues will continue to remain a priority in Massachusetts for the next five years. Stakeholders felt that these issues were a result of CYSHCN being inadequately prepared to deal with healthy weight and nutrition, physical activity, healthy sexuality, and other issues. As a result, stakeholders thought that a focus on developing transition teams would help CYSHCN, specifically through care coordinators. In addition, they also felt that preparation for vocational training and other alternatives to college for CYSHCN were needed.

Stakeholders emphasized the need for a holistic, inter-disciplinary, life-course perspective, emphasizing care coordination and collaboration as a means to improve transitional issues and other issues among CYSHCN. Experts specifically felt that care coordination had to be better at certain critical ages: 3, 5, and 22 years. Because families need extensive help to navigate through the health care system, stakeholders stressed the importance of developing and funding non-provider positions like care coordinators and patient navigators. They commented that care coordination should not completely be the

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responsibility of PCPs, NPs, PAs, etc., as evidence suggests this is not the best use of their time. Instead, by developing and paying non-physician providers to help with care coordination, experts stated, the quality gap can be narrowed and efficiency of care can be enhanced.

Stakeholders discussed the importance of funding improvements in data system infrastructure. Specifically, they stated that an information portal would be helpful for families to access, similar to what other states have, as a “one-stop-shop” of resources, given that there is no one single point of entry into the health care system. This would allow users to avoid the bureaucratic maze of web-sites, provide simplicity as families get all the info they need from one web-site, and help families connect with other families. Although families recognized that patient confidentiality was important, they also felt it was a barrier which prevented information transparency and communication. They thought MDPH should become more of a driver of infrastructure related to data systems and information exchange.

The need to fund programs and services aimed at eliminating disparities in the population, especially among CYSHCN, was another priority in the majority of interviews with external experts and stakeholders. This was especially true with outreach or marketing efforts since many families did not hear about available programs and services. MDPH should make a concerted effort to make information and resources available for non-English speaking families. Cultural competency and medical literacy must be addressed if disparities are to improve.

Major issues raised in internal and external interviews were similar. Both MDPH staff and external experts recognized the following priorities for CYSHCN, for the next five years:

- Prepare CYSHCN for life transitions, from pediatric to adult health care, school to work, and living with family to living independently
- Address mental health
- Provide information on healthy weight and nutrition/physical activity
- Provide sex education/healthy sexuality education
- Provide care coordination and collaboration
- Address disparities
- Provide better outreach and marketing (especially in vulnerable populations) of MDPH CYSHCN programs and services
- Improve data systems and infrastructure

Focus Groups

There were three focus groups conducted that were CYSHCN-specific:

1. Springfield → Families of CYSHCN whose preferred language was Spanish (a Spanish translator was present); about 20 people participated
2. Natick → 10 family members of children with special health care needs
3. Springfield → 7 youth/young adults with disabilities or special health needs

Overall, major priorities and issues raised in the three focus groups exploring either being a youth with a special health care need or the parent of a youth with a special

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health care need were similar for the most part. Both YSHCN and parents of YSHCN emphasized the importance of the following topics in regards to setting priorities for CYSHCN over the next five years:

- Better communication, education, and training among providers, programs, schools, employers, and families
- Lack of preparation for future life transitions
- Differential access and knowledge regarding services/lack of appropriate services
- Social isolation and mental health
- Funding for programs which keep CYSHCN in their communities and homes

However, both groups seemed to have different emphases regarding some of those areas of interest. One specific topic that differed in emphasis among the two groups was regarding life transitions. Overall, parents felt that little assistance was available for planning their child's various transitions and that more needed to be done to help families.

On the other hand, the youth felt somewhat differently about transition. For the most part, they did not consider it to be an issue, as long as their needs were met. Most had found a good relationship with a provider (though it had taken some longer than others to find that), and the vast majority said they would be happy to stay with their provider and not age out of their care if they could. However, all agreed that neither their providers nor their insurance companies had talked to them about aging out to adult care or gave them any information regarding the topic. Therefore, although the youth themselves did not consider transition to be a pressing issue, it is evident from their responses that it is an issue.

Another topic in which there was a difference in emphasis among the two groups was regarding social isolation and mental health. In the two focus groups of parents of CYSHCN, social isolation and mental health seemed to be the most prominent issue, a result of feeling helpless to help one's child as well as from a lack of sensitivity from schools, providers, and the public. In contrast, in the focus group of YSHCN, social isolation seemed to be less pronounced. However, when it was there, it seemed to be more a direct result of bullying from their peers in the schools.

Survey of Families of CYSCHN

The survey was for families of CYSHCN ages birth through 24 years living in Massachusetts which was conducted to gain important insights from families. It was a survey created online at SurveyMonkey.com which was also distributed in paper form in English and Spanish versions. There were a total of 459 respondents to the survey.

The following includes some of the most relevant findings from the survey.

Demographics:

- The vast majority of respondents were Mothers of CYSHCN (90.4%)

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- Most identified themselves and their CYSHCN as White, non-Hispanic (85% and 79.3%)
- Almost two-thirds of respondents had a CYSHCN aged 6 – 18 years
- About 25% of respondents to the survey had a total household income before taxes last year <\$39,999; another 25% made between \$40,000 and \$69,999; and about 50% made \$70,000 or more
- CYSHCN had a variety of diagnoses, although the highest percentage of respondents had CYSHCN with: developmental/intellectual/cognitive disabilities (80.5%); emotional/behavioral/mental health conditions (46.8%); and learning disabilities (42.4%)

(Note: Although respondents were not as representative of the CYSHCN population in Massachusetts as much as we would have liked in terms of income and racial demographics, much can still be learned from all the data that was collected).

Source of Routine Health Care:

- The majority of CYSHCN received routine health care from a PCP (85.2%)

Family Partnership & Satisfaction:

- About 70% of families of CYSHCN felt that the services their child receives from their PCP usually or always met their child's/family's specific needs
- Of 24 families of CYSHCN whose PCP didn't speak their native language, 50% of those families said that interpreter services were never available

Medical Home:

- Almost 2/3 of families of CYSHCN were not familiar with the medical home concept
- After reading the definition of medical home, a little more than 50% of families of CYSHCN felt that their child did not receive care that met this definition

Flexible Supports/Community-Based Services:

- Families of CYSHCN mostly received info about community-based services from: other families, friends, and family members (65.7%); the media (32.7%); and case managers/case workers (32.2%)
- A little more than 50% of families of CYSHCN found it not easy or very difficult to access community-based services for their child, as compared to only about 15% who found it easy or very easy

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Health-Related Needs:

- The 6 biggest issues facing CYSHCN, in order of relative importance, were: Social Isolation; Mental Health; Bullying; Physical Activity; Child Abuse; and Healthy Weight & Nutrition
- The 3 biggest unmet needs facing CYSHCN and their families, in order of relative importance, were: Respite Care; Exercise/Physical Activity; and Care Coordination

Emergency Preparedness:

- 45.4% of families of CYSHCN had not done emergency planning of any kind for their CYSHCN

Youth Transition:

- 37.4% of families had a CYSHCN age 14 years or older
- The majority of those families of CYSHCN age 14 years or older (87.5%) stated that no one in their child's PCP office had talked to them or their child about changes in health insurance and other public benefits once their child turned 18

3D.15 Conclusion

In summary, CYSHCN in Massachusetts specifically benefit from the state's access to health insurance, which has led to high rates of early and continuous screening for special health needs as well as other positive health outcomes. However, CYSHCN in Massachusetts would also benefit from: greater access to community-based service systems and medical home services; an expansion of services covered by their insurance provider; an increased role in participating in decision-making with health care providers regarding their child's care; and additional assistance in transitioning their children into various aspects of adult life. Finally, documented disparities in health outcomes and socio-economic status between youth and young adults with and without disabilities are substantial, and must be addressed over the next five years.

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4. MCH Program Capacity by Pyramid Levels

Massachusetts's capacity to assure the availability of direct health care for its MCH population is built on the policies that it has developed and adopted and through the funding that it has historically contributed and continues to provide to MCH health. Massachusetts' history of funding maternal and child health has nurtured a strong network of providers and community resources. The network is critical to providing necessary services to ensure positive health outcomes and to reduce the disparities. In terms of policy, the state passed its landmark health reform legislation and its leadership continues to explore and implement new approaches to improve MCH health outcomes.

Changing policy environment

Health Insurance/Health Reform

Massachusetts health care reform, which served as a model for the national health reform bill, has had a significant impact on services and support for the state's MCH population. In 2007, the Commonwealth embarked upon a substantial overhaul of its health care system to reduce the number of uninsured residents. The state has been very successful in reducing the uninsured rates in the state, but reform has had an uneven impact on some residents, particularly those with moderate or low incomes, and overall health care costs continue to rise.

Healthy Massachusetts Compact

On December 20, 2007, under the leadership of Governor Deval Patrick, nine diverse state entities signed the Healthy Massachusetts Compact (HealthyMass), a cross-agency initiative to build on the successes of health care reform. Specifically, agencies across state government are working collaboratively to advance five goals that reflect the values and principles of the governor:

- ensuring access to care,
- advancing health care quality,
- containing health care costs,
- promoting individual wellness
- promoting healthy communities

HealthyMass participants include the nine state agencies uniquely positioned to develop, implement and align policies to promote quality, affordable health care. They include the Executive Office of Health and Human Services, the Executive Office for Administration and Finance, the Office of the Attorney General, the Commonwealth Health Insurance Connector Authority, the Division of Insurance, the Group Insurance Commission, the Massachusetts Health and Educational Facilities Authority, the Massachusetts Development Finance Agency, and the Department of Correction.

The HealthyMass members identified four initial priorities for their comprehensive, coordinated efforts: adoption of consistent payment policies for serious reportable events; performance measurement alignment; disease management and wellness promotion; and administrative simplification.

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Policy Changes and Pending Legislation Focusing on Social, Emotional, and Physical Health

Medical Home

Massachusetts now has a legislative mandate for MassHealth, the state's Medicaid program, to establish a medical home demonstration project including: a restructured payment system to support primary care practices using a medical home model; support for practices in their transformation; and agreement to work with other Medicaid payers and other stakeholders¹. Under the legislation a Medical Home is "a community-based primary care setting which provides and coordinates high quality, planned, patient and family-centered health promotion, acute illness care, and chronic condition management."

The Massachusetts Patient-Centered Medical Home (PCMH) Initiative Council (PIC) was created to advise EOHHS in its role as convener and overseer of the PCMH Initiative. The Council is tasked to recommend a design, including payment models and practice transformation strategies, to support a large-scale roll-out of public-private multi-payer medical homes across the Commonwealth. Membership on the council includes payors, purchasers, clinicians, and researchers to support all levels of redesign. Redesign includes practice redesign, consumer engagement, and clinical care management and care coordination.

These new initiatives and mandates are directed primarily at the adult population and do not specifically target medical homes for children and adolescents or for those with special health care needs. MDPH and the Title V program are actively participating in their development, with a particular focus on both sharing our extensive experience with medical homes for CYSHCN and assuring that the unique issues and opportunities for pediatric medical homes are addressed and included.

Autism

Fifteen states, including most recently New Jersey and Connecticut, have passed legislation that requires private health insurers to cover evidence-based treatment of Autism Spectrum Disorder, and more than twenty states including Massachusetts are pursuing similar legislation. The Massachusetts act would require health insurers in Massachusetts to provide coverage for the diagnosis and treatment of Autism Spectrum Disorder (ASD). This includes habilitative or rehabilitative care, pharmacy care, psychiatric care, psychological care, and therapeutic care.

The legislation will lower the burden of payment on individual families and the state through reductions in Early Intervention and special education costs. It also seeks to improve the quality of life for those with ASD.

Mental Health Parity

Chapter 256 of the Acts of 2008 represented a historic expansion in access to mental health services. Combined with the federal parity law, and in the context of near-universal coverage in Massachusetts, it will help ensure that all residents of Massachusetts will have full access to mental health and substance abuse treatment. This legislation continues to fight stigma against a vulnerable population and will help Massachusetts remain a national leader in protecting access to mental health and substance abuse treatment.

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Starting July 1, 2009, health plans are required to provide mental health benefits for all residents of Massachusetts and all those with insurance having a principal place of employment in Massachusetts. Health plans must provide mental health benefits on a nondiscriminatory basis for the diagnosis and treatment of biologically-based mental health disorders, as described in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders published by the American Psychiatric Association (“DSM”). “Nondiscriminatory basis” means that copayments, coinsurance, deductibles, unit of service limits (e.g., hospital days, outpatient visits), and/or annual or lifetime maximums are not greater for mental disorders than those required for physical conditions, and office visit copayments are not greater than those required for primary care visits. Coverage now includes important conditions impacting the MCH populations, such as eating disorders, substance abuse disorders, and autism. The new legislation does not change the current requirements for coverage of medically necessary mental health services. Health plans are required to continue to adhere to all provisions of the existing Mental Health Parity Law. This includes provisions for children and adolescents under the age of 19 with non-biologically-based disorders.

Children’s Behavioral Health Initiative

The Children’s Behavioral Health Initiative (CBHI) is an interagency initiative of the Commonwealth’s Executive Office of Health and Human Services that will improve how Massachusetts oversees, provides and coordinates children’s behavioral health services. It will ensure the early identification and screening of behavioral health issues in children. Its stated mission is to strengthen, expand and integrate Massachusetts state services into a comprehensive, community-based system of care, to ensure that families and their children with significant behavioral, emotional and mental health needs obtain the services necessary for success in home, school and community.

In 2002, a class action lawsuit, *Rosie D. v. Romney*, was filed in the federal court on behalf of children with serious psychiatric disorders. In January 2006, the Court ruled the Commonwealth was in violation of the federal Medicaid law by failing to provide home-based services to an estimated 15,000 children with serious emotional disturbance. The Commonwealth set about the task of fashioning a remediation plan to comply with the Court’s decision and the CBHI was formed to improve the behavioral health of all children, not just those on Medicaid.

The vision of CBHI is to place the family and child at the center of the service delivery system and build an integrated system of behavioral health services that meets the individual needs of the child and family. Policies, financing, management and delivery of publicly-funded behavioral health services will be integrated to make it easier for families to find and access appropriate services, and to ensure that families feel welcome, respected and receive services that meet their needs, as defined by the family. The Title V Director and other DPH staff actively participate in the CBHI and the development and implementation of this critical policy initiative.

Asthma

Global payments for high risk pediatric Medicaid patients enrolled in MassHealth is part of pending legislation as a pilot program to reimburse non-billable expenses necessary to manage pediatric asthma, including patient education, environmental assessments, mitigation

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of asthma triggers, and purchase of necessary durable medical equipment. In a global payment system, groups of health care providers - doctors, specialists, home health aides, and others - are provided a predetermined payment to cover an individual patient's care for a year, or another defined time period. Those providers must then seek to work within that budget to cover the entire cost of that patient's care. Supporters of such systems say they prevent unnecessary hospitalizations and tests, and provide enough flexibility to adjust limits should an unexpected injury or illness occur.

Governor's Readiness Project

Massachusetts is in the midst of significant educational reform as part of the governor's Readiness Project to build a comprehensive, child-centric education system. Four broad goals define the Readiness Project agenda: raise the achievement of all students, elevate recognition of teaching and education leaders, increase post-secondary education, and transform the public education system. A significant aspect of the reform is a focus on preschool education through universal pre-kindergarten and ensuring that all children start school ready to learn. The reforms build upon local school endeavors, such as Boston's Thrive in Five, to prepare students for the future.

Post-Partum Depression Bill

The Maternal and Infant Mental Health Advisory Committee met with state legislators to develop recommendations for a bill that would legislatively mandate screening for postpartum depression in multiple settings during pregnancy and the first year postpartum. House Bill No. 3897: An Act Relative to Postpartum Depression is being petitioned by 21 House Representatives and was filed in January 2009. In January 2010, hearings were held on the bill, but it has not yet been acted on. In addition to screening for postpartum depression, the bill also calls for the expansion of statewide trainings, public awareness, and home and group based services.

Anti-Bullying Legislation

On April 30, 2010, the Massachusetts state legislature passed new anti-bullying legislation in part as a reaction to the suicide death of a fifteen year old. The comprehensive measure employs new strategies for adults, new supports for students and better communications among state agencies to prevent, report and effectively address issues related to bullying.

The new law increases efforts to educate students about bullying including regulations on student handbooks and classroom instruction. It institutes new rules and expectations for reporting incidents of bullying; provides new opportunities for training for all adults in schools on how to identify, prevent and manage incidents of bullying; and enhances efforts across state and local education, health and law enforcement agencies to build more collaboration to ensure the new efforts are effective.

The new law includes a definition of bullying as "the severe or repeated use by one or more students of a written, verbal, or electronic expression, or a physical act or gesture, or any combination thereof, directed at another student that has the effect of: (i) causing physical or emotional harm to the other student or damage to the other student's property; (ii) placing the other student in reasonable fear of harm to himself or of damage to his property; (iii) creating a hostile environment at school for the other student; (iv) infringing on the

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rights of the other student at school; or (v) materially and substantially disrupting the education process or the orderly operation of a school.”

The law includes new reporting requirements for all school staff to fully and swiftly detail any instance of bullying or retaliation to the appropriate school official. Additionally, the measure directs the Board of Elementary and Secondary Education (ESE) to establish statewide academic standards that include instruction in bullying prevention and requires schools statewide to provide age-appropriate instruction on bullying prevention.

Both public and private schools are now required to develop detailed bullying prevention, intervention and notification plans and to publish those plans in student handbooks. Each school district is required to provide targeted professional development to build the skills of all staff members in schools (including teachers, administrators, custodians, athletic coaches, bus drivers and others) to prevent, identify and respond appropriately to bullying incidents. ESE must provide school districts with a no-cost method for fulfilling this requirement.

Finally, the law extends beyond the classroom to include incidents that occur in the community and online bringing a new focus on so-called cyber-bullying and extending rules and penalties to apply to electronic and other communications.

Building Understanding and Practice

Public health interventions focus increasingly on policy change and environmental strategies to influence factors contributing to improve health, promote wellness and prevent poor health outcomes and health status. These changes influence MDPH priorities.

Highlights include:

Life course perspective²

The work of Michael Lu has influenced the strategic design of MCH programs. Two key components of the life course model include understanding the pathways and trajectories that lead to a multitude of health outcomes and a focus on the impact of early programming or exposure to risk that may have long-term health consequences. This new understanding includes the following:

- In addition to individual physical and mental health factors, social determinants of health -- including economic opportunity, community environment, family structure including intergenerational relationships, and social factors -- experienced in early childhood, childhood, adolescence and adulthood impact population health outcomes including mortality, morbidity, life expectancy and quality of life.
- Socioeconomic status, race and racism, built environment, medical care, disease status, stress, nutrition, birth weight, weight status throughout life, and personal behaviors are examples of protective and risk factors.
- The parent’s physical and mental health, practices, and living environment all affect an infant’s health. For instance, stress and depression correlate with poor health outcomes for mother, infant, and family.
- Early-childhood stressors not addressed in formative years can have an impact on the person’s future physical and mental health.

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- Life transition points (e.g. childhood to school, adolescence to adulthood, etc.) are sensitive periods of critical importance because of the factors that influence long-term health such as diet, activities, social network, built environment, and access to health care. In particular, adolescents exhibit a higher overall risk profile and are more likely to engage in multiple high-risk behaviors such as drug use, smoking, unprotected sex, multiple sexual partners, and unsafe driving.
- Life transitions, such as pregnancy and pre-pregnancy, offer critical teachable moments, where individuals confront significant change and are more open to guidance.
- Certain populations will experience disproportionately adverse health outcomes based on compromised access to resources and presence of protective or risk factors that contribute to their health outcomes.

Holistic perspective

Related to the life course perspective, MDPH considers individuals in a holistic manner, and works to consider such factors as financial status, family situation, community ties, and the built environment when identifying needs and building program strategies. The following are some important considerations when viewing the population with a holistic perspective.

- Mental health and oral health have emerged as strong components of overall well-being.
- Stress and depression correlate with poor health outcomes for mother, infant, and family.
- There are cohorts of the population, particularly adolescents, that exhibit a higher overall risk profile and are more likely to engage in multiple high-risk behaviors including drug use, smoking, unprotected sex, multiple sexual partners, and unsafe driving.

Health Equity Perspective

Disparities exist in health outcomes for some populations in the state due to limited economic opportunities, scarce community resources, and social factors. Sufficient economic opportunities include adequate income, jobs, and educational opportunities. Adequate community resources include quality housing, quality schools, access to recreational facilities, access to healthy foods, transportation resources, access to health care, and a clean and safe environment. Social factors include a strong social network and support, leadership, political influence, organizational networks and recognition of diversity. The role of public health is to establish public policy to achieve health equity and promote population based strategies which include:

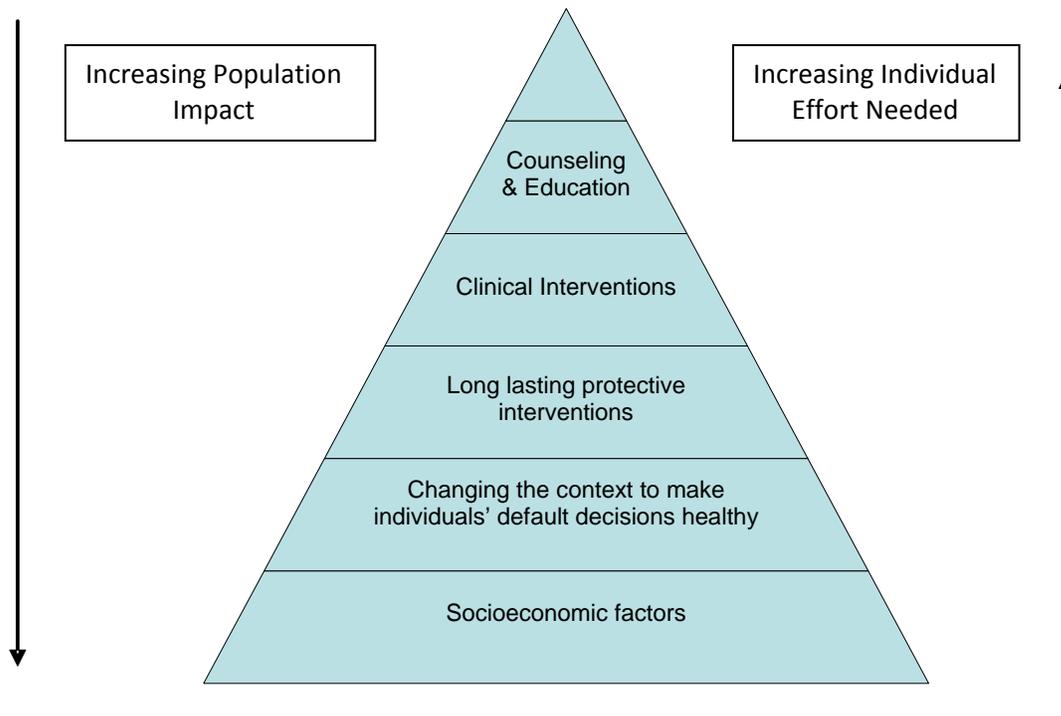
- Advocating for and defining public policy
- Coordinating interagency efforts
- Creating supportive environments to enable change
- Collecting data, monitoring programs and conducting surveillance
- Promoting population based interventions to address individual factors
- Engaging with communities to build social capital and local capacity

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Tiers of Intervention

MDPH has built upon the MCH Capacity Pyramid to further define interventions within each level of the pyramid by building upon the Thomas Frieden's framework for public health intervention. Frieden developed a framework for public health action based on a 5-tiered pyramid that describes different types of public health intervention. Public health interventions can be divided into a five-tiered pyramid (Figure 4-1).

The Health Impact Pyramid



Source: Frieden, T. R. "A Framework for Public Health Action: the health impact pyramid." February 18, 2010, American Journal of Public Health.

Figure 4-1

While interventions targeted at the base of the pyramid have a greater impact, a comprehensive public health system needs to develop interventions for each tier. MDPH is assessing the relevance of this new framework for program development and monitoring.

Communication

Advances in computing and electronic social media over the past several years have increased the opportunity to engage individuals and groups. MDPH has begun to take advantage of new media to remain a leader in influencing health. Areas of special importance are:

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- Targeted marketing with emotional appeal is crucial to changing high-risk behaviors. It is not enough to make people aware and provide education. Most people, for instance, know that they should lose weight and exercise more.
- Social networking – The Internet, especially social networking approaches, provides new avenues of public health outreach and engagement. In Massachusetts, 58% of women use the Internet regularly.³ The fastest growing age groups using social networking sites, such as Facebook, are those older than adolescents (largely because so many adolescents are already on it). Some MDPH programs have already seen success leveraging blogs and social networking sites.
- Essential Allies – MDPH connects to many people but certain individuals or groups have a disproportionate influence on the actions and policy decisions of others. Strategies need to include connecting with these groups and people to communicate messages and engage stakeholders. (Interviews with essential allies were an invaluable component of community outreach as part of the needs assessment process.)

Shift focus to population and infrastructure building

MDPH has continually developed services to have the largest possible impact and ensure systems are available to meet the growing needs in the state. MDPH has maintained direct and enabling services where necessary to fill gaps in services and be a complement to other community resources such as community health centers, local hospitals, and efforts by local boards of health. Massachusetts Maternal and Child Health Programs assess capacity to meet the needs of the MCH population on these three levels:

1. *Direct and enabling services*, which include one-on-one patient care, medical services, and services such as insurance, outreach and other supports that help people access and utilize available care
2. *Population-based services*, which are preventive and personal health services developed for a whole population, such as screenings of all newborns and educational materials for the general public
3. *Infrastructure-building services*, which are the foundation for MCH activities such as the state legislative and regulatory framework for MCH, partnerships to improve comprehensive systems of care, and information systems. Massachusetts capacity in each of these areas is described below.

4.A&B. Direct and Enabling Services

The Massachusetts Maternal and Child Health program is actively engaged on the state, regional, and local community levels to assure access and availability of direct and enabling health care services for the MCH population. Health care and insurance reform have improved rates of uninsured and MDPH's Bureau of Family Health and Nutrition has ensured that the unique needs of the MCH population are included. Massachusetts also has a wide array of Title V and collaborating programs across the Massachusetts Department of

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Public Health, other state agencies, and community-based organizations that support the MCH population.

4.AB1 Financial access

Insurance Coverage

Due to health care reform, the numbers of insured have increased dramatically and the child uninsured rate correspondingly has fallen sharply.

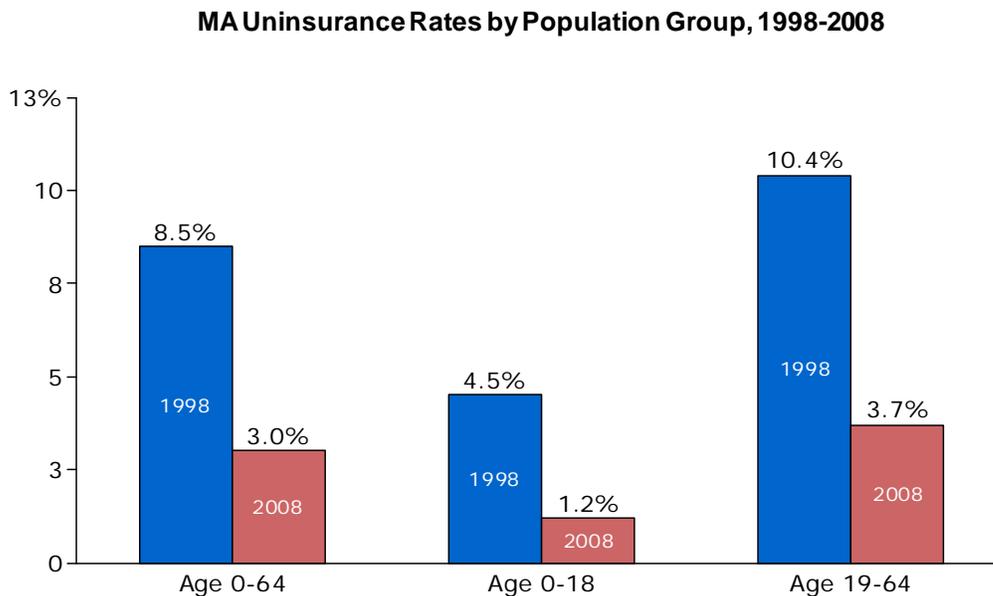


Figure 4-2

Prior to reform, an estimated 8.5% of the state's population aged 65 years and under was uninsured.⁴ By 2009, the Commonwealth decreased the proportion of the uninsured population to 3% and the rate continues to decline. Among children aged 18 years and under, only 1.2% are uninsured.⁵ In terms of people, pre-reform uninsured estimates ranged around 600,000 in 2006, compared to only 170,000 by 2009.

- Massachusetts is one of five states with statistically significant improvement in health care coverage between 2005-2006 and 2007-2008
- Massachusetts is 1 of 34 states (including DC) with insurance rates better than national uninsurance rate of 15.4%

The state accomplished these changes through a mix of personal and employer incentives.

*The Health Care Reform Act of 2006 consisted of three major changes:*⁶

- 1) Expansion of public funding of care through increased coverage of Medicaid (MassHealth) to 150% FPL and subsidized insurance for individuals up to 300% FPL.

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- 2) Mandates for employer and individual purchase of coverage. Companies with ≥ 11 FTEs are required to provide plans for employees to purchase insurance on pre-tax basis or pay a penalty and adults with incomes over 300% FPL must purchase private insurance or pay a fine collected through the state income tax.
- 3) Creation of the Health Insurance Connector Authority, an independent state agency, which sets standard for required minimal coverage and affordability and provides the platform for an insurance exchange. The Connector links citizens with new and existing health plans that have varying levels of state subsidies, depending on members' income levels. Over 400,000 Massachusetts residents are newly insured, with 150,000 having joined the newly created Commonwealth Care plans.⁷

Health Care Reform has increased utilization of primary care physicians, especially for the population under 65 years old. Post reform, the state had increases in flu vaccination and colorectal screening. Increases in MassHealth coverage and Commonwealth Care coverage have increased dental care use.⁸

Type of Coverage

Employer sponsored insurance (ESI) coverage continues to be the most common form of insurance followed by public coverage for the under 65 population. Children had a larger percentage covered by public or other non-ESI coverage than non-elderly adults (23% vs. 15%), which aligns with the generally lower income status of children with families and the growing percentage of children in lower income immigrant families. This also reflects the wider public coverage options for children than adults (e.g. expanded Medicaid and SCHIP).

There was a significant drop from 2008 to 2009 in the percentage of children insured through public or other coverage from 29% to 23%, with more children having ESI in 2009. However, for children with fair or poor health or activity limitations due to health problems, the percentage with public or other coverage had a non-significant increase from 43% to 49%. MassHealth covered 680,000 residents in the state as of December 31, 2008. Over 50% of MassHealth enrollees were under the age of 18 and 36% were under 12 years of age.

Access and Affordability

While health insurance coverage is improving, access to care and affordability have not experienced the same level of improvement. Many families seeking insurance must still cover a high out of pocket cost which strains their budgets and for many the only insurance available comes with high deductibles and co-payments. If they are able to afford care, families may have difficulty finding an available physician or one who agrees to take their insurance.

According to the Massachusetts Health Insurance Survey¹, despite relatively high use of health care services among residents, more than one-fifth (22%) reported having problems obtaining health care in the past 12 months in 2009. Non-elderly adults were more likely to

¹ Long, Sharon K. and Lokendra Phadera. Access to Health Care in Massachusetts: Results from the 2008 and 2009 Massachusetts Health Insurance Survey. November 2009

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report problems obtaining health care (27%) than either children (14%) or elderly adults (15%).

In 2009, 30% of children with a disability or in fair or poor health reported problems obtaining health care in the past 12 months, compared with 13% of healthy, non-disabled children. Similarly, 38% of non-elderly adults in fair or poor health reported difficulties, compared with 26% of other non-elderly adults.

The high cost of health care and lack of availability of physicians results in segments of the population not selecting insurance or having limited access to care. More than one-fifth (21%) of residents did not get the care they needed due to cost in the 12 months prior to the 2009 survey, with the level higher for non-elderly adults (27%) than children (9%) or elderly adults (15%).² The geographic clusters of those still uninsured coincide with areas that have significant low income populations.

- Uninsured rates are higher in counties with large low income populations, with the highest being Suffolk County (including Boston) at >7% uninsured. Western and Southeastern regions have adult uninsured rates of 6-7%.
- Cities with larger numbers of minority adults – including Lawrence, Lowell, and New Bedford – have a significantly higher percentage of uninsured adults compared with the state as a whole, and these disparities have persisted over time.⁹
- Adults living under 300% FPL have uninsured rates that fell to 3.5% versus adults over 300% FPL whose uninsured rate fell to 0.5% by Fall 2008.

Prevalence of Uninsurance at Time of Survey Among Adults 18-64 Years by Poverty Level, Massachusetts: 2006-2008

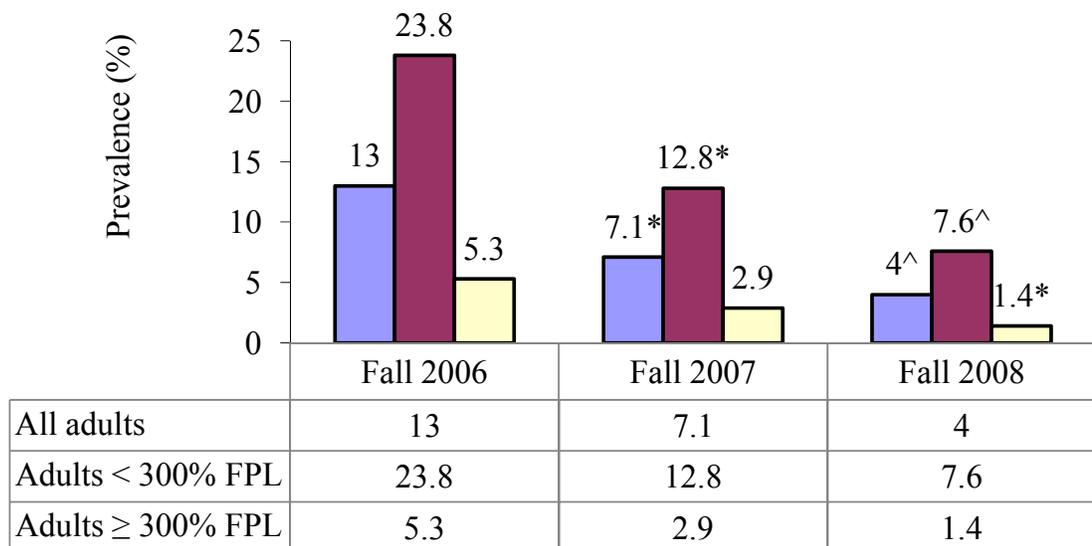
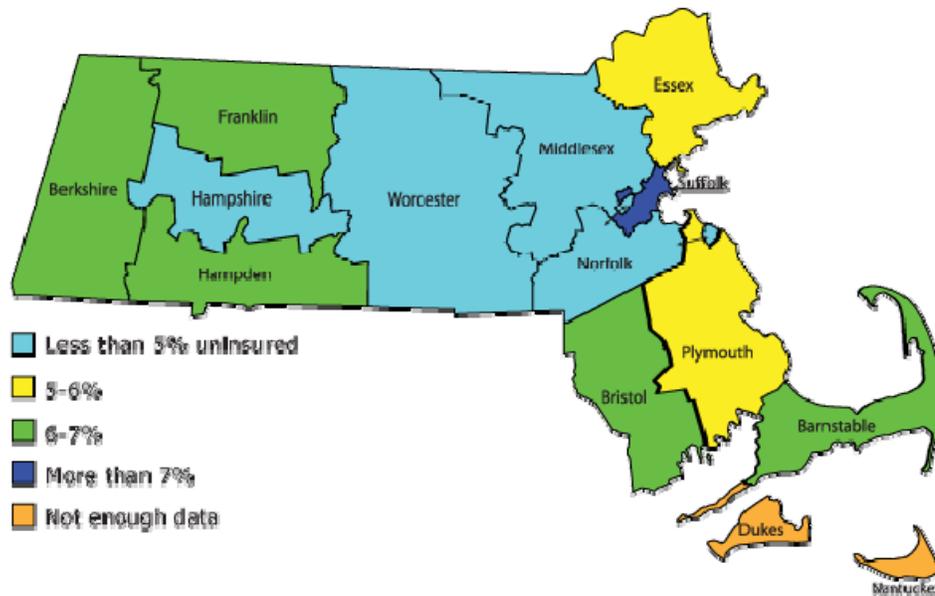


Figure 4-3

² Long, Sharon K. and Lokendra Phadera. Access to Health Care in Massachusetts: Results from the 2008 and 2009 Massachusetts Health Insurance Survey. November 2009

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- Hispanics have higher uninsurance rates across age groups: 8% of Hispanics versus <3.5% for non-Hispanics ages 0-65
- Unemployed average 6.4% uninsured versus 2.5% among employed
- Fair to poor health status versus those with good and better health status (6.1% vs. 3.2% among adults ages 0-64)



County-level Uninsurance Rates in 2008 for MA Adults 18-64 years old

Figure 4-4

Health insurance reform has not resolved access to care for many with insurance. Overall utilization of services has increased. Increasingly, those who can afford care, after paying premiums, wait longer than six months for a physician appointment.¹⁰ In certain regions of the state, the number of primary care providers (PCPs) is insufficient to care for the population adequately, and many PCPs are not accepting new patients.¹¹ There are also substantial regional disparities in access to specialty care (e.g., Ob/GYN in western Massachusetts) and widespread problems with access to culturally competent care, especially for non-English speakers.

- Some individuals living at < 200% FPL previously eligible for completely free care and prescriptions now have copays for office visits and prescriptions, leaving them unable to afford basic care
- Near-poor face increased co-pays and enrollee contributions (deductibles) to decrease the state's cost burden
- Middle income families may still have substantial coverage gaps including high deductibles, co-pays and co-insurance
- Employees in small firms and those who are unemployed may face increased premiums and out-of-pocket costs

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- Low income individuals seeking safety-net provider care may now be asked for co-pay before seeing doctor
- Low income individuals who previously received deductible-free care now face co-pays, premiums and deductibles which may discourage them from seeking care¹²

Access to physicians will remain an issue through the next five years with the number of new members seeking primary care exceeding the availability of primary care providers. In some cases, this lack of primary care physicians has led to reduced access for those that had a primary care provider before reform.

- Western Massachusetts has a lower supply versus demand than the rest of the state
- Follow-up care further increases the demand for primary care for those newly insured
- Some providers are not accepting some new insurance types including new Commonwealth Care plans, just as some providers were not accepting Medicaid plans pre-reform.

Policy changes being considered will not decrease the burden on individuals as the state is now in a fiscal crisis due to the overall drop in the economy which coincided with the implementation of health care reform. A \$307 million shortfall in the MassHealth budget will likely be resolved through increasing costs to participants. For instance, Aliens with Special Status (AWSS) previously covered under CommCare were notified of discontinuation of coverage due to changes in MA law regarding coverage for legal immigrants that left 31,000 AWSS without coverage.

The decrease in uninsured in the state is a clear sign that the initial goal of reform has been successful. Universal coverage is the first of many steps to improve the health of the Commonwealth and it sets the stage to reduce health disparities and improve access, including access to medical homes, especially for those with special health care needs.

The impact of national health care reform through the passage of the Patient Protection and Access to Care Act (PPACA) will offer additional benefits and its other consequences will be monitored closely.

Healthy Start

The Healthy Start Program is a component of MassHealth and provides health insurance to low-income, uninsured pregnant women to improve access to early, comprehensive, and continuous prenatal care to improve the health of newborns and their mothers. The Healthy Start Program provides coverage for the following pregnancy-related services:

- pregnancy-related primary and specialty visits
- outpatient behavioral health visits
- prescriptions
- pregnancy-related radiology and laboratory services
- amniocentesis
- prescribed durable medical equipment, up to \$300 per pregnancy

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- home nursing postpartum visits (limited to two visits for pregnancies without complications or five visits for pregnancies with complications or C-sections)
- office visits, including family planning
- postpartum obstetric and gynecological care
- newborn hospital and outpatient care including one postpartum pediatric ambulatory visit

Individuals enrolled in Healthy Start are also eligible for MassHealth Limited, which covers emergency services including inpatient labor and delivery and emergency transportation. In addition, Healthy Start members are eligible for the Health Safety Net (HSN), which covers some other medically necessary services at Massachusetts acute hospitals and community health centers for services not covered by the Healthy Start Program.

SSI/Public Benefits

SSI, or Supplemental Security Income, is a federal program that provides monthly cash payments to people in need including families with CYSHCN who require additional support and are low income with few assets. The SSI/Public Benefits Specialist conducts statewide trainings for parent groups and organizations, state and local agencies serving families with CYSHCN, and health care providers through community settings and hospitals serving CYSHCN. Training and technical assistance is provided to help ensure CYSHCN are aware of benefits available to them and that they have adequate health insurance. The SSI/Public Benefits Specialist also co-trains parents and providers serving “transitional youth” along with Disability Law Center staff on topics related to children, youth and transition to adulthood.

4.AB2 Availability of Care

Healthcare is a major industry in Massachusetts with nationally recognized tertiary medical institutions and several premier specialty hospitals, such as Children’s Hospital and Mass. Eye and Ear Infirmary, located across the state. Preventive and primary care services in Massachusetts are delivered almost exclusively in private practice or organized health care settings (for example, staff model HMOs, community health centers and hospital outpatient departments). Massachusetts has an extensive and strong network of high quality, not for profit hospitals, and a community-based safety net system that provides primary and preventive health care services to MCH populations. Many of the state’s major hospitals fit within integrated health systems providing ease of referral and access to specialty care. Massachusetts also has a wealth of medical education and training programs, with four medical schools and three dental schools.

While access to emergency and tertiary care is generally good, preventive primary care and dental care are not well distributed across the state, affecting availability and utilization of services. Specialty services also are lacking in some areas as physicians prefer to practice near higher income areas with access to community and cultural resources. Massachusetts, like other states, is also facing significant provider shortages and access issues for both mental health (including substance abuse and other behavioral health services) and oral health services, particularly for the high need populations utilizing CHCs.

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Title V and state resources have supported safety net providers at the community level for those unable to afford or otherwise access care. Lack of insurance is decreasing as a barrier to services, but changes with health reform have impacted physician availability. Acceptance of public supported insurance plans continues as a barrier, even for those living in areas of good physician coverage.

Physicians

Massachusetts has a strong medical provider community of over 30,000 registered physicians boosted by the four medical schools in the state. The three medical schools in the Boston area educate many out of state medical students who either leave the state to return home, or prefer to stay in the Boston and Metro West areas. The resulting distribution leaves the state with 1,334 physicians per 100,000 in Boston versus Southeastern and Northeastern regions with physician density of 204 and 199 per 100,000 respectively. Many of these students will continue their training in medical specialties, a trend consistent with the national trend of physicians who become specialists instead of general practitioners, further limiting the availability of primary care. Specialists account for over 60% of the physicians in the Boston area.

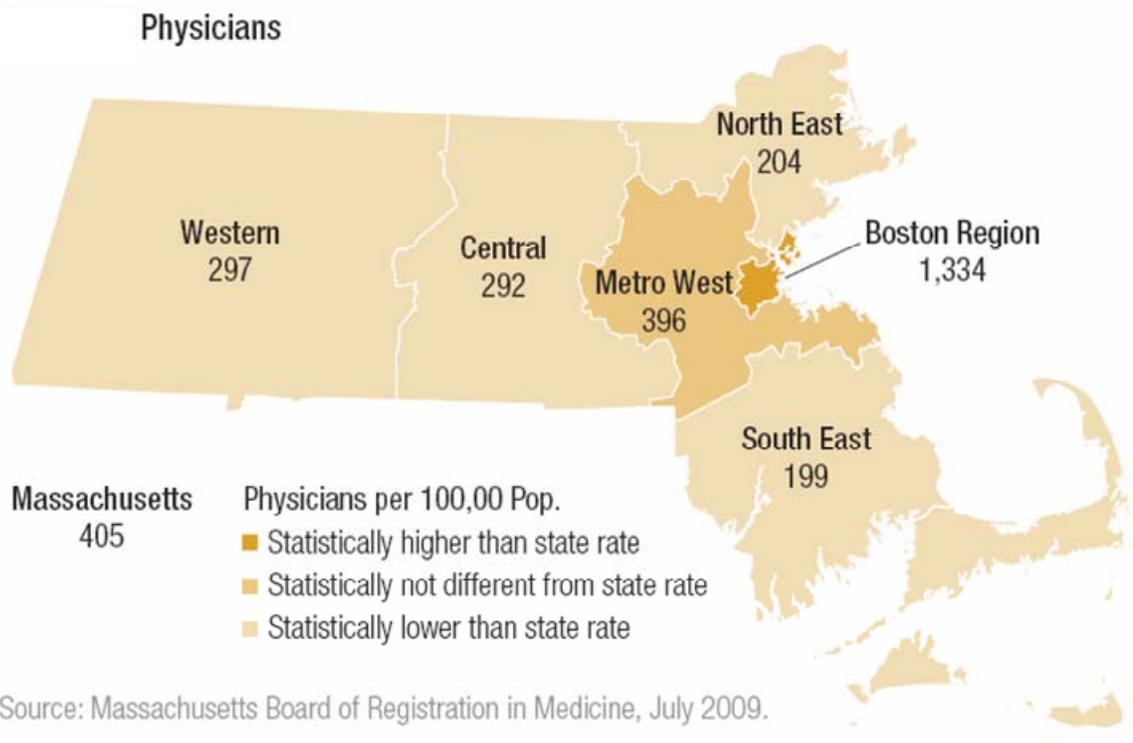


Figure 4-5

Nursing

The nursing shortage of the past decade has eased somewhat with expansions in nursing programs, loan forgiveness, and enhanced recruiting, but there is still a critical need. In 2008, the Massachusetts Board of Registration in Nursing issued over 1,250 new LPN

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licenses and 5,700 new RN licenses. The total number of Massachusetts licensed LPNs and RNs increased almost 10% from 2004 to 2009, with 2004 the lowest year in the past 15 years of tracking. Nursing constitutes a critical part of the health delivery system including hospitals, nursing homes, community health centers, home health agencies and schools. Community-based agencies are still affected by shortages as they are often unable to compete with the salary and benefit packages offered by hospitals and managed care organizations.

Licensed nurses are not equally distributed across the state. The number of nurses per capita is somewhat the inverse of the physician distribution. As of July 2009, there were 1,003 nurses per 100,000 population in the Boston area compared with 1,599, 1,417, and 1,335 nurses per 100,000 population in the Southeastern, Northeastern, and Western regions, respectively. The high number of nurses per capita indicates that the reduced physician density may at least be partially offset by availability of nurses, including nurse practitioners for primary care.

Health Care Infrastructure by Region

	Western	Central	North East	Metro West	South East	Boston Region	MA
Acute Care Hospitals and Community Health Centers (CHC) (Number per 100,000 population)							
Acute Hospitals	1.7	1.2	1.2	1.0	1.0	2.0	1.3
with ER	1.5	1.1	1.1	1.0	1.0	1.4	1.1
Trauma Centers	0.2	0.1	0.4	0.1	†0	0.7	0.2
CHC	2.3	2.9	3.0	†1.7	†1.6	*7.3	2.8
Medical Providers Licensed in Massachusetts (Number per 100,000 population)							
Dentists	†60.1	†52.8	79.2	*124.9	†62.4	*120.1	85.5
Nurses	1,684.6	*1888.9	1,739.8	*1760.7	*1991.8	†1003.4	1,718.7
RN	†1335.4	*1536.3	1,416.6	*1573.5	*1598.6	†873.6	1,429.1
LNP	*349.2	*352.6	*323.2	†187.2	*393.2	†129.8	289.5
Physicians‡	†296.7	†292.4	†204	395.5	†199.3	*1334.4	405.3
Primary Care//	†134	†139.9	†100.7	156.0	†85.5	*481.1	165.2
General Practice	2.6	†0.8	1.7	2.4	2.6	3.4	2.2
Family Medicine	19.4	*31.3	24.0	†14.4	†17.3	22.9	20.7
Pediatrics	†27.3	†24.3	†20	33.9	†15.8	*109.3	34.5
Internal Medicine	†73.3	†73.2	†45.4	90.6	†42	*311.9	94.1
OB/GYN	11.5	†10.4	†9.5	14.7	†7.8	*33.6	13.6
Other Specialties	†162.7	†152.4	†103.4	239.4	†113.8	*853.3	240.1

Source: Office of Emergency Services, MA DPH, July 2009. Massachusetts League of Community Health Centers, MassGIS, April 2006. Division of Health Professions Licensure, MA DPH, July 2009. Massachusetts Board of Registration in Medicine, July 2009.

* Statistically higher than state rate ($p < 0.05$). † Statistically lower than state rate ($p < 0.05$).

‡ All full and active licensed physicians with Massachusetts business address; those without MA town were excluded.

// Primary care physicians include: General Practice, Family Medicine, Pediatrics, Internal Medicine, and OB/GYN specialties.

Figure 4-6

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Oral Health Providers³

Dentists

There are 5,522 fully licensed dentists with a Massachusetts address and 367 limited license dentists to serve about 6,449,755 residents, for a dentist-to-population ratio of 1 to 1,095, compared to a 1 to 1,700 dentist-to-population ratio nationally. Though these ratios suggest convenient access to dental care for every resident, the distribution of dentists is uneven, with a significantly higher concentration of dentists in the eastern third of the state. Massachusetts has 24 Dental Health Professional Shortage Area (DHPSA) designations that cover 53 communities and approximately 1.3 million residents.

In Fiscal Year 2009 there were 2,006 dentists who were MassHealth (Medicaid) providers, including 166 providers representing individual dentists who deliver care in clinics, hospitals and community health centers. This is a 12% increase in the number of MassHealth dentists from FY 2008. In a 2008 statewide survey of licensed dentists, 97% of respondents reported not accepting MassHealth patients, and only 6% of those were interested in becoming a MassHealth provider. The number of private practitioners who treat rural and special populations who are low income, underserved or on MassHealth is quite limited. Five counties in the state with a total population of 470,523 had fewer than 30 MassHealth dentists, with two counties having just four MassHealth dentists between them. These communities are predominantly in the western and central parts of the state. Many of these communities also are without community water fluoridation.

In addition to geographic constraints in accessing dental care, some residents have difficulty in accessing care due to age, income, insurance status and type (specifically Medicaid), ethnicity, chronic illness and/or developmental disability. Dentists in the state are notably increasing in age. On average, dentists practicing in Massachusetts are 50.6 years of age. Families with CYSHCN report it being very difficult to find a pediatric dentist outside of Boston and suburbs. If one can be found, many are uncomfortable caring for children with physical, emotional or behavioral special health needs.

The majority of dentists practicing in Massachusetts are engaged in the practice of general dentistry (72%), according to a survey of dentists conducted in 2008. Of those dentists who have completed specialty training, most are in the area of Orthodontics, followed by Oral Surgery, Periodontics and Pedodontics, Endodontics, Prosthodontics, Oral Pathology, Public Health, and Oral Radiology. The same survey found that just over half (53%) of practicing dentists work in a solo practice; 40% in group practices; 4% work in an academic setting; 2% practice in a community health center; and 1% practice in a hospital-based setting.

Dental Hygienists

Currently, the state has 5,161 licensed dental hygienists with a Massachusetts address. In January 2009, the Massachusetts Legislature passed Chapter 530 which allows:

- Licensed dental hygienists with three years of full-time clinical experience to provide preventive dental services including, but not limited to a dental hygiene examination, sealants, and fluoride without a dentist's supervision, but with a collaborative agreement with a licensed dentist.

³ Massachusetts Department of Public Health, Office of Oral Health. *The Status of Oral Disease in Massachusetts: A Great Unmet Need 2009*. Boston, Massachusetts Department of Public Health, 2009.

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- Dental hygienists to become MassHealth providers in public health settings, increasing access to preventive services for low income residents, the elderly, and the chronically ill living in dental health professional shortage and underserved areas.

This law brings Massachusetts in line with twenty-eight other states that allow dental hygienists to provide preventive services to residents who would not receive it otherwise. This legislation also opens the door for the expansion of school prevention (sealant) programs that previously required a supervising dentist to exam patients before sealants could be placed.

In 2007, a survey of dental hygienists in the Commonwealth determined the status, practices, and potential utilization of the dental hygiene workforce. Of the 70% of dental hygienists who responded to the survey, 71% (3,182) were working as hygienists in Massachusetts. The majority of Massachusetts dental hygienists surveyed were over 40 years of age with over 15 years of practice. The older distribution of hygienists and greater years of experience indicate a population that is gradually aging out of the workforce.

Health Professional Shortage Areas (HPSA)

Based on HPSA designation, MA does better overall than the nation for percentage of the population living within an HPSA. Based on the September 2008 comparison, Massachusetts had 7.1% of the population living in a primary care health professional shortage area compared with 11.8% for the nation.⁴ Dental health was comparably worse than primary care but still better than the national average (8.4% vs. 10.4%). Mental Health is significantly better than the national rate (0.7% vs. 18.7%). This difference can also be seen in the overall number of HPSAs designated for the state. (See Appendix 1: Underserved Geographical Areas)

Estimated Underserved Population Living in Health Professional Shortage Areas (HPSAs), as of September, 2008 ⁵				
	MA #	MA %	US #	US %
Dental Health Estimated Underserved Population	544,464	8.4%	31,531,717	10.4%
Mental Health Estimated Underserved Population	47,972	0.7%	56,793,556	18.7%
Primary Care Estimated Underserved Population	463,790	7.1%	35,817,861	11.8%

Figure 4-7

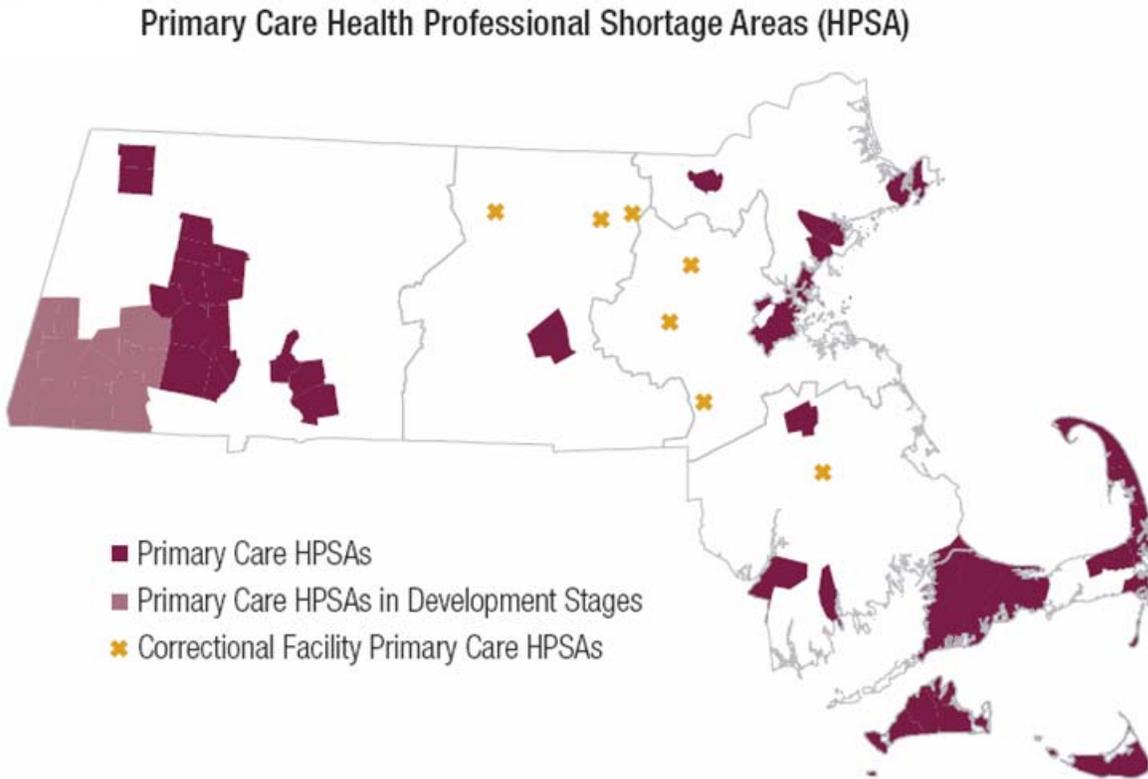
In the Western region of the state, the geographic distances covered and natural barriers between communities results in limited access to services. Rural and small town culture, a lack of resources such as transportation, and family and work-life needs are such that it is difficult for many rural residents to travel to cities to receive services on a regular basis. For instance, many communities in the Berkshires must cross a mountain range to visit the nearest secondary or tertiary care center or community health center. Similar to the

⁴ Office of Shortage Designation, Bureau of Health Professions, Health Resources and Services Administration (HRSA), Special Data Request, April 2009

⁵ Office of Shortage Designation, Bureau of Health Professions, Health Resources and Services Administration (HRSA), Special Data Request, April 2009.

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Western region, the islands of Nantucket and Martha's Vineyard have populations too small to support major medical facilities and the year round community often has restricted access to mainland services in winter due to weather conditions and reduced ferry service.



Source: MDPH Division of Primary Care and Health Access, September 2009.

Figure 4-8

As of September 2009, Massachusetts had designated 44 HPSAs across the state with an additional 108 auto designated HPSAs (36 in each of primary care, mental health, and dental care). These exclude 19 correctional HPSAs.

- 23 Primary Care (8 correctional)
- 19 Dental (6 correctional)
- 2 Mental Health (5 correctional)
- Auto HPSA - Federally Qualified Health Centers (FQHCs) and those Rural Health Clinics (RHCs) that meet the requirement of providing access to care regardless of ability to pay
 - 36 Primary Care
 - 36 Dental
 - 36 Mental Health

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The Primary Care Office (PCO) applied for and received approval for 14 federal HPSA designations, increasing access to benefit programs. Our HPSA applications in this reporting period included: 6 Correctional HPSAs; 4 Dental HPSAs; and 4 MH-HPSAs, for a total of 14 new HPSAs in MA. New designation applications pending SDB review/approval include: 2 Correctional HPSAs; 1 Primary Care HPSA, 1 Mental Health-HPSAs, for a total of 4 pending reviews.

Mental Health Providers

Several behavioral health policy changes are designed to improve the provision of screening and treatment services. These include the Children's Behavioral Health Initiative (CBHI) and the Mental Health Parity Act mentioned earlier. However, while these initiatives focus on the identification and screening of individuals, gaps persist in the availability of mental health treatment, especially for state funded services.

The Massachusetts Department of Mental Health (MDMH) estimated the prevalence of mental illness throughout the Commonwealth based on the 2000 Census. Prevalence was based on three separate categories:

- Adults with a serious mental illness – 271,524 (5.7%)
- Adults with serious and persistent mental illness – 123,853 (2.6%)
- Adults with serious & persistent mental illness and severe dysfunction – 46,683 (.98%)

The last group has been identified by MDMH as its target population, but as MDMH currently serves 26,000 clients annually, they are unable to meet the needs of even the most high risk group in Massachusetts. MDMH estimates for serious emotional disturbances (SED) for children aged 9 – 18 report that 7% have extreme dysfunction, 11% have substantial functional impairment, and 2.5% are in need of mental health services. A 2004 MDMH report on psychiatric hospitalizations found that Massachusetts has a rate of admission to state psychiatric facilities of 47.7 admissions per 100,000 adults. This is lower than the average of peer states (58.7). However, Massachusetts has a higher daily census (21.6 per 100,000) when compared to peer states (18.1 per 100,000).

In-Home Providers of Nursing and Personal Care Attendant Services for Children and Youth with Special Health Care Needs

In programs for Children and Youth with Special Health Care Needs (CYSHCN), families, care coordinators and other providers report that shortages of in-home providers of nursing and personal care attendant services result in uncovered hours. Families of CYSHCN cannot always receive the level of supports and services needed to care for their child. Family caregivers of CYSHCN continue to need resources for respite. Care is often a 24-hour job, but opportunities for respite can be difficult to identify and too expensive in addition to on-going special health needs costs that often accompany the loss of family income. Many families caring for CYSHCN, particularly single parents, have inadequate supports to care for their child at home once the child reaches preadolescence, as the child becomes more physically difficult to care for due to his/her size. Although many families are approved for nursing hours, there are shortages of nurses to fill the hours.

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Medical Home

The primary issues affecting families with CYSHCN are the need for access to comprehensive medical homes and transition services into adulthood. MCH Title V programs fill some of the gaps in the medical home through care coordination and other programs. Often, families are able to access or replicate pieces of the medical home model but miss critical parts such as partnering with their provider. In the 2007 National Survey of Children's Health Medical Home performance profile for Massachusetts, 76.9% of families with children receiving two or more services reported being very satisfied with communication between doctors when needed; but only 23% reported receiving help arranging or coordinating care.⁶ In response to a question in our 2010 MA needs assessment survey of families with CYSHCN that combined both aspects communication and coordination, just under half (49.8%) of families indicated that primary and specialty care providers communicated with each other **and** helped to coordinate care.

Specialty Services Personnel for Early Intervention and Other CSHCN

Early Intervention (EI) services in Massachusetts have experienced significant growth for more than a decade. In recent years, growth in utilization of EI services in Massachusetts has outpaced available financial resources. As a result, in January 2009, EI eligibility criteria were changed so that a child must show a higher level of delay. Also, the number of conditions that qualify a child for EI services was reduced. With additional cuts in state resources anticipated, the criteria for eligibility may be revisited once again in the coming year. Potential system changes to address program growth will have a significant impact on staffing at the program level. Their impact on shortages is unknown.

- The lack of specialty service personnel (professionals trained and/or credentialed in working with children with low incidence conditions) continues to be a challenge for the Massachusetts EI system, as does the general need for additional therapeutic and nursing personnel.
- School systems and health care settings compete with EI providers for nursing and therapeutic personnel.
- Newborn hearing screening referral services have identified the shortage of Speech and Language Pathologists. Audiological providers have expressed difficulties in identifying appropriate clinical follow-up in disciplines such as pediatric otolaryngology, ophthalmology, and genetics.

Additional Needs

The distribution of subspecialties and other providers -- such as nutritionists, dieticians, visiting nurses, social workers, occupational therapists, physical therapists, and speech & language therapists -- follows the similar trends of other providers mentioned above. Generally, providers in any specialty are easier to recruit and locate in the Boston area and the more affluent surrounding suburbs. Highly specialized treatment is either difficult to locate or commands a salary that is most often supported through a relationship with a

⁶ Child and Adolescent Health Measurement Initiative. 2007 National Survey of Children's Health Medical Home State Profile. Data Resource Center for Child and Adolescent Health website.

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tertiary medical center, and therefore limits community based access. However, these trends are based largely on anecdotal evidence from discussions with families, providers, and advocacy groups.

The Office of Primary Care with the Board of Registration in Medicine and the Division of Health Professions Licensure Boards of Registration surveys providers at the time of licensure renewal to capture their location, status, patient mix, fluency, and other factors. The surveys are intended to “provide valuable information about supply and various other characteristics such as demographic variables and education [and] are a targeted approach to the legislative charge of monitoring trends in access to primary care providers.”⁷ As the survey is rolled out to further specialties, greatly improved quantitative data on the availability of physicians will be available.

Reducing Shortages

To help place health care professionals in areas where shortages exist, the Primary Care Office coordinates three programs: National Health Service Corps (NHSC), Massachusetts State Loan Repayment Program (MSLRP), and the J-1 Visa Waiver Program. The J-1 Visa Waiver program helps place physicians with a variety of specialties in HPSAs. The MSLRP and National Health Service Corps support a wide range of primary care providers in HPSAs. These programs are important recruitment and retention tools for communities and health facilities located in shortage areas. The Primary Care Office also identifies populations to be prioritized for State Loan Repayment Program applications. Existing federally designated HPSAs that will be targeted include western MA; southeast MA including Brockton, Fall River and New Bedford and areas of the Cape/Islands; and Lowell in the northeast. These areas have large racial/ethnic and/or linguistic (REL) communities that include Cape Verdean, Cambodian, Lao, a range of Latino/Hispanic, Portuguese and Vietnamese, northern European, African and Middle Eastern populations. In addition to designated HPSAs in target areas, the target communities for the program include some with HPSAs currently being reviewed at HRSA Shortage Designation Branch (SDB), including six Mental Health HPSA designation applications, two dental applications, and three correctional facility applications which will impact the communities noted above.

Massachusetts State Office of Rural Health

The State Office of Rural Health (SORH) provides leadership for improving rural health by assessing needs, building partnerships, assisting with accessing resources, and coordinating projects to strengthen rural health care delivery systems and develop long-term solutions to improve access to quality, comprehensive healthcare for rural communities. The staff works closely with a statewide network of rural healthcare organizations and providers, community groups, local officials, state staff, and statewide organizations. Key activities include the disseminating information and networking, coordinating projects and resources to address rural health needs, providing technical assistance, promoting rural health workforce recruitment and retention, and strengthening local, state, and federal partnerships.

The Massachusetts SORH staffs the MDPH Rural Health Advisory Council, the group of over 50 rural providers and community leaders including a broad range of members

⁷ Status Report for the Massachusetts Health Care Workforce Center, March 1, 2010

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from all rural areas of the state. Staff from multiple state programs/agencies and other statewide organizations also participate. The SORH manages communication tools such as the Rural Health Listserv, multiple websites, and wikis to foster information sharing and communication among networks of rural health colleagues statewide. The SORH Assistant Director administers Massachusetts' participation in the National Rural Recruitment and Retention Network and provides coordination for rural health professional recruitment initiatives targeting physicians, nurses, dentists, dental hygienists, mental health professionals, specialty OT/PT/SLP therapists, etc. The MA SORH is one of four MDPH offices that comprise the MA Health Care Workforce Center. The MA SORH provides substantial technical assistance and support to the New England Rural Health RoundTable, our rural health association for all the New England states, to foster its further development and ensure active participation of MA rural health care organizations. MA SORH provides rural focused leadership and coordination for initiatives in healthcare workforce, EMS, oral health, healthcare access and expanding and strengthening safety net models of care, maternal and child health, children with special health needs, injury prevention, wellness and chronic disease prevention, health information technology, etc. In addition to the SORH Program, the staff manages the HRSA-funded Small Rural Hospital Improvement and Rural Hospital Flexibility Grant Programs.

The MA SORH has an extensive collaboration and partnership network that includes many other programs across the MDPH, other EOHHS agencies, U. Mass Medical School's Office of Community Programs, AHEC Program, Rural Scholars Program and the Department of Community and Family Medicine, health professional and provider organizations, Mass. League of Community Health Centers, Mass. Association of Health Officers and Health Boards, and many others.

4.AB3 Select Direct and Enabling Programs

The Massachusetts Title V agency and its partners and collaborators provide an array of services for the MCH population. These programs address disparities in access to care and provide resources that lead to better health outcomes for the program's target population and improve health outcomes for the state overall. The following programs reduce some of the greatest areas of need. Whenever possible they focus on prevention and intervene where most effective following a life course perspective.

Please see Appendix 2 for a complete listing and brief descriptions of Title V and related programs. The list is also available as the Attachment to Section III.B. (Agency Capacity) of our FY11/FY09 Application and Annual Report – where it will be updated annually.

Women, Infants, and Children (WIC)

Massachusetts WIC Nutrition Program is designed to influence lifetime nutrition and health behaviors. WIC provides dietary assessments, nutrition education and counseling, checks for specific nutritious foods prescribed for the individual by a nutritionist, and referrals to other health and social services. WIC also provides immunization screening and distributes coupons for fresh produce redeemable at Farmers' Markets. WIC children enter school 'ready to learn' and have better cognitive performance.

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Massachusetts WIC has 35 local programs with over 135 sites throughout the state in community health centers, hospitals and social service agencies. In FY2009, Massachusetts WIC served almost 218,000 persons: 39,755 pregnant women, 63,176 infants, 90,306 other children (under age 22), and 24,574 post-partum and breastfeeding women (all ages). Program participation reflects WIC's emphasis on services to high-risk and minority populations: 31% of participants are Hispanic, 19% Black, 6% Asian/Pacific, and <1% Native American; 44% are White. To be eligible, applicants must be a pregnant, breastfeeding or postpartum woman, an infant or child under five, a Massachusetts resident, and at nutritional risk, as well as have a total gross household income of less than 185% of the federal poverty level. If an individual is receiving MassHealth, TANF or Food Stamps, they are automatically income eligible for WIC.

WIC food checks are redeemed at over 1,000 participating grocery stores or pharmacies for specific foods listed on the checks, including fresh fruits and vegetables, whole grain cereals and breads, brown rice, soft corn and whole wheat tortillas, soy-beverages, tofu, milk, cheese, eggs, 100% fruit juice, iron-fortified cereal, peanut butter, dried beans, canned beans, baby foods, infant formula and infant cereal. Promotion and support for breastfeeding as the optional choice for infant feeding is critical to WIC nutrition education and counseling.

School Health Services

The School Health Unit provides consultation on a daily basis to schools (3,000 buildings) in the Commonwealth's 351 cities and towns, at times reaching 100 calls per day (clinical, regulatory, and administrative). The Unit also:

- Communicates with all school nurses. It compiles a weekly e-mail with updates from other MDPH programs, CDC, local hospitals and educational institutions to ensure that school nurses, who often practice in isolated settings, have updated information.
- Collaborates with the Massachusetts School Nurse Research Network (Boston College, the School Health Unit, and the Massachusetts School Nurse Research network) to implement research projects specific to school health.
- Collaborates with the University of Massachusetts Medical School to implement a study on school nursing interventions to assist students to stop smoking.
- Oversees the MDPH-funded Essential School Health Services (ESHS) programs, originally 80 grants (re-bid in 2008) with 146 mentored schools but cut to 67 grants in 2009 (9C cuts). These grants are designed to (a) strengthen the school nursing infrastructure, (b) implement tobacco control, (c) implement data systems, (d) promote linkages with primary care providers, dental providers and health insurances, (e) provide specific services to private schools within the communities, (f) implement performance improvement and (g) provide for mentoring of other school districts. School nurses perform direct and enabling services. They are also responsible for implementing at the local level many of the Department's programs: (a) body/mass indexes (BMIs) measurements, (b) wellness programs, (c) infection and H1N1 control, (d) homeless liaisons, etc. School nurses act as a safety net and provide entry into

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the health care system as needed. In 2008, 1,249 school nurses in the 102 funded ESHS districts (now 67) reported serving 527,492 students (422 on average per nurse) during the 2007-2008 school year, with an average 414 encounters per month--or a total of 5,290,168 encounters per year. More than a third of the encounters were illness assessments (37%), about 22% first aid, 14% medicine administration, and 10.8% medical procedures. A goal of the ESHS program is to support the educational process, and 90.6% of students were returned to their studies after visits to the school nurse.

- Establishes data systems in the ESHS programs: data include encounters, surveillance on 18 chronic health conditions, specific medical procedures, trends in care, case management, linkages to PCPs and health insurance, screening results, etc.
- Implements performance improvement in the ESHS programs including (a) utilization of the school nursing services: benchmarks currently indicate that 80% of the student populations use the health room with an average of 6 visits a year, (b) vision screening follow up, (c) diabetes management and (d) asthma trigger management.¹³

School Based Health Centers (SBHCs)

MDPH supports 37 school-based health centers (SBHCs) across the state, often operated by community health centers. (Prior to recent cuts in the state budget, there were 49 SBHCs.) SBHCs operate in communities selected based on at-risk populations and limited access to primary care. SBHCs are staffed by experienced nurse practitioners, mental health professionals, and physician's assistants who work in close partnership with school nurses, guidance counselors, teachers, school administrators and community social service agencies to coordinate care. Students seen in SBHCs can be diagnosed, treated for illness, receive health risk assessments including mental health and obesity screenings, without interrupting class time or requiring parents to miss work. A new focus of the program has been an emphasis on mental health screening and treatment, as well as more attention placed on the problem of obesity/physical activity. All practitioners have received extensive training on best practices in these two areas. SBHCs benefit from the direct involvement of the medical staff from their sponsoring agencies including pediatric and adolescent psychiatrists who consult with SBHC staff on complex cases pertaining to mental health.

All the programs serve youth regardless of their ability to pay. According to the SBHC providers, services provided to uninsured children are not reimbursable and the complex nature of case management and care coordination does not lend itself to "billable coding," with the result that few centers are self-sustainable. The SBHC model may become more financially viable when prevention efforts become reimburseable by insurance as the value of this model of care becomes better understood.

Family Planning

The long-term goal of the MDPH Family Planning Program is to prevent unintended pregnancies and sexually transmitted diseases (STDs) in highest-risk populations: low-income women, men, adolescents, new and emerging populations, the uninsured, and communities of color. The program also seeks to:

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- Prevent the early initiation of sexual activity
- Improve reproductive health, with reductions in the rates of sexually transmitted diseases, cervical cancer and HIV infection
- Improve the health status of infants, and reduce infant mortality through planned pregnancies and increased spacing of births
- Reduce repeat pregnancies in adolescents
- Reduce the need for abortions

To address these goals, MDPH funds 12 qualified vendors to provide comprehensive family planning services in over 75 clinic sites statewide. In FY2009, the MDPH Family Planning funding provided services to 11,314 adolescents (under age 20) and 22,731 adults (both male and female). The vendors provide comprehensive, voluntary, and confidential family planning services as defined in the MDPH Family Planning Program Standards. These services include, but are not limited to:

- Clinical and preventive services to maintain reproductive health based on current clinical standards: medical exams, pregnancy testing and options counseling, screening and treatment for STDs, HIV counseling and testing, screening for cervical cancer, and appropriate referrals to primary care and other health care services
- Timely and accessible initiation and management of all FDA approved methods of contraception, including emergency contraception
- Individual, client-based reproductive health education and counseling
- Community education and outreach on family planning and sexual health services
- Community collaborations that support program goals and benefit the target populations/communities

In addition, since January 2009, MDPH has funded a statewide sexual health hotline and website, <http://www.mariatalks.com/>, providing medically accurate sexual health information and referrals for adolescents.

For many low-income women, men and adolescents, family planning programs are their only access to primary care and the health care system. In addition to comprehensive family planning services (as described above), family planning clinics provide many routine preventive health maintenance services. At medical visits, individuals receive routine screenings such as Pap tests, STD/HIV testing, blood pressures, heights and weights, and blood and urine tests as clinically indicated. Referrals for follow-up care are also made to primary care practices when needed.

All preventive screenings are provided based on state and nationally recommended guidelines and protocols. Women receive cervical cancer screening as indicated by current nationally recommended protocols such as American College of Obstetrics and Gynecology (ACOG), American Cancer Society (ACS), or the US Preventive Services Task Force (USPSTF) and STD screening is provided per established CDC guidelines. Adolescents receive appropriate screenings and anticipatory guidance based on national protocols from the American Academy of Pediatrics and MassHealth EPSDT guidelines.

The Federal Title X Family Planning program is the only federal grant program dedicated solely to providing individuals with comprehensive family planning and related preventive health services. Title X is designed to provide access to contraceptive services, supplies and information to all who want and need them. In Massachusetts, unlike many

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other states, Title X funding does not pass through the health department but goes directly to five community-based organizations. All five of these organizations are also supported by the state-funded Family Planning Program. These five directly-funded organizations also pass indirect Title X funding to four delegate agencies, which are also supported directly by the state Family Planning Program. Finally, the state Family Planning Program supports two organizations that do not receive Title X funds, for a total of 11 organizations funded by the Family Planning Program.

Title X provides grant funding and supports infrastructure needs. Title X clients (referred to as “family planning users” by Title X) are female and male clients who have at least one visit at a Title X service site for family planning and related preventive health services to avoid unintended pregnancies or achieve intended pregnancies. The same individual may be counted as a family planning user only once during a reporting period; however, Title X family planning users may also be counted among MDPH Family Planning Program clients. In calendar year 2007 (the most recent year for which Title X data are available), the Massachusetts Title X grantees collectively served 18,284 adolescent (<20) family planning users and 50,528 adult (20+) family planning users.

The impact of Massachusetts health care reform on family planning services is a critical issue for the MDPH Family Planning Program. To assess this impact, Ibis Reproductive Health and the MDPH Family Planning Program recently completed a research project on the effects of health care reform in MA on low-income women’s access to contraception. The research project conducted a systematic review of the government-subsidized insurance plans available to low-income Massachusetts residents through surveys and in-depth interviews with family planning providers around the Commonwealth, and English- and Spanish-language focus group discussions with low-income women.

Women and providers agreed that reform has increased access to both health insurance and services. Women in the study identified other positive effects, such as the ability to seek preventive care once they have insurance. However, some new challenges have resulted: both women and providers have difficulties finding information about insurance coverage of services, women struggle to maintain and prove eligibility for subsidized insurance plans, and family planning providers have taken on increased administrative and fiscal responsibilities.

Health care reform has introduced a new set of barriers to access contraception, even though most women who participated in the study reported that they continue to have relatively easy access. Limits to the amount of contraception dispensed at once, high co-pays, inconvenient pharmacy locations, pharmacists’ lack of knowledge about what prescriptions are covered by the new subsidized plans, and even women’s unfamiliarity with how to use prescriptions were named as new challenges to contraceptive access for previously uninsured women accustomed to accessing services from clinics and community health centers. Finally, health care reform has left out some populations of women, including immigrants, young women, those with unstable employment or income, and those experiencing common life changes such as moving or pregnancy.

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Oral Health⁸

Oral health is a state priority for the MCH population. In 2007, 48% of Massachusetts third graders had a history of dental disease, 17% had untreated dental decay, and 5% had urgent dental needs. Of the low income third graders, 10% had urgent needs compared to 3% with higher incomes. A 2004 statewide survey of Head Start children found that 37% had cavities and/or fillings, 29% had untreated disease, and 8% had urgent dental needs.

Like medical primary care services, dental services for the maternal and child health population are provided largely at private dental offices and safety net providers such as CHCs and hospital outpatient departments. The Office of Oral Health (OOH), which administers public oral health programs for the Commonwealth, provides direct preventive (sealants and fluoride) services using portable dental equipment in more than 50 schools. It also funds a program to provide dental care for developmentally disabled children and adults at eight sites across the state through the Tufts Dental Facilities.

Both consumer and professional groups who met as part of the MCH needs assessment highlighted oral health as an area of need, particularly for low income families and CYSHCN. Community health workers, including those working with Early Intervention Partnership Program (EIPP) program, cite referrals for dental care as particularly difficult.

A number of initiatives to increase access to dental screening and care have moved forward since the last needs assessment:

- The dental safety-net continues to grow. Public and private funds have supported the expansion. There are currently 68 safety-net dental clinics in Massachusetts located in community health centers, hospitals, schools, dental and dental hygiene schools and other community locations. All are MassHealth dental providers and have a sliding fee scale, and some provide free care.
- The OOH has partnered with School Health Services to strengthen the ability of school systems to increase access to sealants for schoolchildren. A new requirement for the schools receiving DPH funds for Essential School Health Services (ESHS) is that they include an oral health component. The OOH has provided training and technical assistance to school nurses on various issues related to oral health services and education. Dental sealant and fluoride varnish programs have been implemented in several ESHS sites.
- The OOH is also expanding its fluoride mouth rinse (FMR) program in non-fluoridated communities through partnership with the ESHS school systems. Presently over 52,000 students in 271 schools participate in the FMR program.
- The OOH conducted its bi-annual statewide survey of community health center dental providers who had the resources, skills, and interests to serve special population groups. A directory is being developed which will include information on disability access and equipment, services provided in languages other than English, and sliding fee scales, etc.
- The OOH released the BLOCK Oral Disease Toolkit and Training in 2009; the materials address integrating oral health into the medical home.

⁸ Massachusetts Department of Public Health, Office of Oral Health. The Status of Oral Disease in Massachusetts 2009: A Great Unmet Need. Boston, Massachusetts Department of Public Health, 2009.

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- The OOH provided dental sealants and fluoride to more than 2,000 students in both elementary school and middle school in school year 2008-2009 and the program continues to expand.

The OOH, in November 2009, released an oral health burden document, “*The Status of Oral Disease in Massachusetts 2009: A Great Unmet Need,*” which documents the oral health of Massachusetts residents through the lifespan. The document is the first of its kind to be released since 2000 and it includes information on prevention programs and the dental workforce. It is available on the Office of Oral Health website, along with other OOH reports and information. (<http://www.mass.gov/dph/oralhealth>).

The MassHealth dental program provides comprehensive dental care for children and persons with disabilities as well as for adults. MassHealth’s dental program is the insurer for almost 15% of the Massachusetts population. The program provides dental care through provider agreements with community dentists and with safety net providers. MassHealth reimburses for dental care on a fee-for-service basis and allows dentists to limit the number of MassHealth members who request care. While the MassHealth fee schedule for adults is low, the EPSDT reimbursement schedule has received many increases over the last two years, the latest in January 2009. Currently, about 2,000 dentists are enrolled MassHealth providers, although in FY2009, just 930 of these providers billed more than \$10,000. In January 2009, a new law was passed allowing dental hygienists who practice in a public health setting to become MassHealth providers. It became effective August 20, 2010.

The Office of Oral Health currently maintains a data base of private and safety net dental providers who have disability access, serve substantial numbers of disabled patients, offer a sliding fee scale, and offer services in languages other than English. Data on the number of physicians applying dental varnish as part of primary care are not yet available, but usage will be reported to MDPH by providers (e.g. CHCs).

Dental Services for CYSHCN

CYSHCN experience difficulty obtaining preventive and restorative dental services. In FY 2004, the Office of Oral Health created the Children with Special Health Care Needs Oral Health Initiative. As a result, in January 2009, the Office of Oral Health released a training module and toolkit for medical providers on oral health and the application of fluoride varnish in the medical setting. To date, the more than 300 medical providers have either participated in an office training or online training. The Massachusetts Special Legislative Commission on Oral Health has fostered strong collaboration among diverse stakeholders in dental health that has provided the impetus for these positive developments.

Early Intervention

Early Intervention (EI) is a comprehensive, community-based program of integrated developmental services which uses a family-centered approach to facilitate the developmental progress of children between the ages of birth and three years whose developmental patterns are atypical, or are at serious risk to become atypical through the influence of certain biological or environmental factors. EI services are focused on the family unit and the child's natural environments. The program recognizes the crucial influence of the child's daily environment on his or her growth and development. Therefore, EI staff work in

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partnership with those individuals present in the child's natural environment, which may include locations both in the child's home or other settings, such as child care. The program seeks to support and encourage the caregiver's growth in planning for the child's continuing and changing needs.

The Massachusetts EI system, administered by the MDPH, is highly regarded at the national level for its commitment to serve children at risk for developmental delays and disabilities. Prior to January 2009, Massachusetts children were eligible for EI services if they met one of the following criteria: 1) established condition – diagnosis of a disabling physical or mental condition referenced by one of 368 ICD-9 codes; 2) established delay – 25% delay in one of seven areas of development (gross motor, fine motor, cognitive, receptive language, expressive language, social/emotional, adaptive functioning); 3) at risk of delay – presence of 4 or more of 18 defined biological and environmental risk factors associated with delay; or 4) clinical judgment – determination of eligibility by a multidisciplinary team. Due to fiscal constraints, children are now required to have a 30 % delay or 1.5 Standard Deviation in one or more developmental domain to be eligible for services. Massachusetts is one of five states that continues to serve the at-risk population and has consistently led the country in the percentage of infants and toddlers served. In 2007, Massachusetts served 6.72% of the birth to three population as compared to the national average of 2.53%. In recent years, growth in utilization of EI services has outpaced available resources. Over the past several years the cumulative number of children served has continued to increase, from 27,891 in FY 2003 to 32,306 in FY 2009. 14 With continued cuts in state resources anticipated, there may be further changes to eligibility criteria and cost-sharing by families.

Regional Consultation Programs

DPH contracts with six agencies across the state that serve as Regional Consultation Programs (RCPs). The RCPs, in collaboration with Early Intervention (EI) staff, other community providers, and families, work together to meet the developmental needs of young children with complex care requirements, multiple disabilities and/or extensive medical health care needs. RCPs:

- Provide consultation and support to individual children and families enrolled in EI and in need of specialized expertise because of the child's complex medical issues
- Provide training in conjunction with the statewide network of Child Care Resource and Referral Agencies, aimed at enhancing the ability of child care providers to serve young children with disabilities and developmental delays
- Provide Family Support, including family events, support groups, sibling activities, workshops and training

Massachusetts Maternal, Infant and Early Childhood Home Visiting Programs

Home visiting programs have grown consistently over the past decade and Massachusetts has kept pace with this national trend. Home visiting programs are adaptable, allowing for multiple types of interventions and variation with respect to their focus, target participants, service area, program activities and service providers¹⁵. Although variation in

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program design and delivery is crucial, home visiting programs share some common components.

Massachusetts home visiting programs offer continual voluntary services to individuals predominately in a home setting, although many offer group services as well. Services are delivered from trained home visiting professionals or paraprofessionals with the goal of addressing specific issues based upon the individual's eligibility for the program¹⁶. Home visits are structured to ensure consistency that allows for evaluations to link program components with intended outcomes.

Massachusetts' home visiting capacity for at-risk maternal, infant, and early childhood populations is met through a wide variety of community-based and statewide initiatives and programs. Massachusetts currently has:

- 14 home visiting programs
- 5 national home visiting models
- 3 national evidence-based home visiting programs
- 3 program that provides services to one specific community (2 in Boston & 1 Springfield)
- 3 programs that provide services statewide (on an as needed basis)

Annually these programs:

- Serve approximately 47,716 families, with an average of 2,982 families served and the median of 406 families served per program (min = 20 and max = 33, 346)
- The average cost per family is \$2,761 with the median cost per family of \$2,829 per family (min = \$781 and max = \$10,000)

Program Name	Number of Families Served	Programmatic Cost per Family
A Helping Hand: Mother to Mother	72	\$3,800
Boston Healthy Start Initiative	1,792	\$781
Boston Home Visiting Collaborative	38	Unknown
Early Connections	83	\$1,300
Early Head Start	474	\$10,000
Early Intervention	33,346	\$3,000
Early Intervention Partnership Program	669	\$1,397
F.O.R.Families	3,196	Unknown
FRESH Start	52	\$3,200
Good Start	338	\$1,700
Healthy Baby Healthy Child	1,414	\$2,829
Healthy Families Massachusetts	3,131	\$3,300
Parent Child Home Program	1,500	\$2,750

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Program Name	Number of Families Served	Programmatic Cost per Family
Parenting Works	20	Unknown
Parents as Teachers	279	Unknown
Visiting Moms	190	Unknown
TOTAL/ AVERAGE COST	Total 47,716 Average number served – 2,982	Average Cost \$2,761
MEDIAN	Median 406	Median \$2,829

Figure 4-9

Four of these programs - A Helping Hand: Mother to Mother (AHH), Early Intervention Partnership Programs (EIPP), F.O.R. Families and FRESH Start are housed within the Bureau of Family Health and Nutrition (BFHN). AHH and FRESH Start, both pilot projects and not yet replicated, serve substance exposed newborns and their families. A fifth program, Early Intervention operates statewide providing home-based services for children up to age 3 who have a diagnosed medical or disabling condition; a 30% delay in specific development areas; or who are at-risk for delay.

A Helping Hand Program

A Helping Hand (AHH) Program is a home visiting program federally funded by the Administration for Children (ACF) through CAPTA legislation. AHH serves mothers who have given birth to substance exposed newborns (SEN), their babies, and their families in the immediate post-partum period that have been referred by DCF.

The program's goals are to give SEN the opportunity to achieve their full health and development potential by supporting parents in nurturing environment. AHH home visitors provide a comprehensive, coordinated system of care for SEN, their mothers and families, using peers – mothers in recovery – known as Family Support Specialists (FSS) to intervene in the immediate post-partum period to support, engage and advocate for parents of SEN and to link them with community services. This program, developed as a national evidence-based model, builds on community health worker (CHW) research that has demonstrated the effectiveness of connecting with and providing effective services in multiple health care and public health settings¹⁷⁻¹⁹.

AHH serves mothers of SEN, their babies and their families in shelters and motels in Cambridge and Leominster, Springfield and Fitchburg. Clients remain in the program up to 12 months postpartum, depending on their needs. In FY09, AHH served 74 mothers. This pilot demonstration project will be ending in October, 2010. Finally, lessons learned throughout program implementation and project evaluation will be applied to other programs serving SEN and their families.

Early Intervention Partnership Program (EIPP)

The Early Intervention Partnership Program (EIPP) is a perinatal home visiting program run by MDPH and funded through a combination of third party coverage and the

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federal Maternal and Child Health (MCH) block grant. EIPP reaches out to high-risk pregnant and postpartum women and their infants up until the age of 1 and seeks to reduce infant and maternal mortality and morbidity, build healthy dyadic relationships, and promote overall optimal health and wellness for women and their infants along the life course. Eligibility for EIPP includes a number of risk factors, such as young maternal age with two or more children, previous high risk birth, inadequate prenatal care, homelessness, domestic violence, substance abuse, and others. Although most first time teen mothers receive services through Healthy Families Massachusetts, EIPP will enroll those who are on the Healthy Families waitlist. EIPP provides home visiting and group-based services to pregnant and postpartum women, including maternal and newborn screenings, assessments and services, and referrals to address the physical, emotional, and environmental health needs of women and their infants. EIPP provides:

- Resources designed to address the complex physical, emotional, and environmental needs of pregnant and postpartum women
- High-risk maternal and newborn screening, assessment and service system, connecting vulnerable families to basic support services & health care.
- Early identification of maternal and infant risk and linkage to services to prevent poor health and developmental outcomes.
- Services to pregnant and postpartum women in communities with some of the highest rates of infant morbidity and mortality in Massachusetts. Services include:
 - Maternal & infant health assessment and monitoring
 - Health education and guidance
 - Screening and appropriate referrals for pre-term labor risks, maternal depression, substance and tobacco use, and domestic violence
 - Assistance with breastfeeding
 - Support & guidance with parenting skills
 - Linkage with WIC and other resources

During state fiscal years 04-07 (July 2003 –June 2007), EIPP served 1801 Massachusetts women, three fourths of whom were pregnant and one fourth postpartum at enrollment. In FY09, EIPP served 669 women and their infants through the use of an MCH home visiting team. The MCH team is comprised of nurses, social workers, and community health workers. It costs approximately \$1,397 per family. EIPP does not have a waitlist but program administrator's voice concerns over the program's limited geographic reach. Due to fiscal constraints, EIPP is only able to operate in 8 communities statewide and is unable to meet the perinatal needs of other high-risk communities.

F.O.R. Families

The F.O.R. (Follow-up, Outreach, and Referral) Families program, run by MDPH, is a home visiting program for homeless families receiving Emergency Assistance shelter benefits from the Department of Housing and Community Development (DHCD). F.O.R. Families receives full funding and referrals from DHCD. The program assists families with the transition from homelessness (families residing in hotels) to permanent stable housing, through case management and routine family assessments, on-going family support and education, and referral services.

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Home Visitors are experienced human service professionals with extensive public health, community health and child welfare experience. Most home visitors are social workers, but the program also includes nurses and community service workers. Home visitors conduct comprehensive assessments and make referrals based upon the family's assessment. Barriers to stable housing are a high priority for referrals. Home Visitors coordinate services with an array of community-based programs. Service coordination and referrals to mainstream services include WIC, Early Intervention, primary health care, domestic violence services and substance abuse treatment. Home visitors work closely with families to help prioritize their needs and offer support. F.O.R. Families collaborates with Housing Assistance Programs and sister state agencies including the Department of Transitional Assistance, Department of Children and Families and Department of Mental Health to coordinate care. They identify local volunteer groups and faith-based organizations to provide the families with transportation, activities for children, meal programs and other necessities. Currently, 17 home visitors serve over 1,000 families at any one point in time.

In FY09, F.O.R. Families served 3,196 families statewide. While the program does not have a waitlist, program staff do note several program limitations. The first is that the program is only able to serve families who are eligible for Emergency Assistance, thus limiting the program's scope of service. Home visitors are only able to work with families while they are residing in hotels, and services end once a family is placed into permanent housing. Continuity of care, in particular, suffers as families struggle to find support systems during this vulnerable transition period.

FRESH Start

FRESH (Family, Recovery, Engagement, and Support of Hampden County) Start is a home visiting program federally funded by ACF directed at pregnant women and new mothers of children under 6 months of age – as well as their partners and babies – with substance use disorders.

The program's goals are to provide recovery, engagement and parenting support for pregnant women and new parents with substance use disorders, as well as to link SEN to developmental services through Early Intervention (EI) programs. Home visitors include a master's level substance abuse/mental health clinician and three Community Health Workers, known as Family Support Specialists (FSS), who are themselves mothers in recovery. Typically, caseload varies from 10-12 families per home visitor.

As of March 30, 2010, 51 families, 35 young children, and 50 infants were served. In addition, 387 people have participated in trainings sponsored by FRESH Start. Clients are overwhelmingly of a low educational and low income level, primarily single parents, and racially/ethnically consistent with Springfield and Holyoke populations.

FRESH Start's program model is based on the use of recovery coaches for child welfare-involved families, and includes the Nurturing Program curriculum and the Active Parenting curriculum, both of which have been validated. Finally, Brandeis University is currently doing an evidence-based evaluation of the program.

Women's Health Network (WHN) and Men's Health Partnership (MHP)

The Women's Health Network (WHN) and Men's Health Partnership (MHP) have designed a new program to support the implementation of healthcare reform in

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Massachusetts. The Women's Health Network/Men's Health Partnership Care Coordination Model is designed to emphasize the importance of a consumer-centered healthcare system that focuses on comprehensive, accessible, culturally competent and high quality care for the most vulnerable populations. With an emphasis on prevention and specifically the increased utilization of prevention services, this model will support the use of evidence based strategies to ensure a sustainable system of primary care and medical home management.

Population based prevention of chronic disease will decrease overall healthcare costs as well as increase the health of the residents of the Commonwealth. In addition, low income and uninsured individuals are the most likely to lack access to these preventative services therefore increasing their likelihood of unnecessary or premature morbidity and mortality.

In order to best meet the needs of this population, components of the model include:

- Assuring preventative screenings as defined by the Massachusetts Health Quality Partners (MHQP)
- Connection to primary care providers
- Appropriate and timely access to screening and diagnostic services
- Care Coordination
- Access to free or low cost treatment (when needed)
- Patient education to manage chronic disease

The focus of the Care Coordination model includes support services that help reduce barriers to service and increase compliance with the recommended plan of care. The program supports patient navigation, case management, risk reduction education, chronic disease self management, and lifestyle intervention services.

While the program will focus on low income, uninsured and under-insured adults age 40 to 64¹, both men and women under age 40 and over age 64 may be eligible for enrollment. Enrollment in 2010 was 20,000 participants across 17 sites statewide.

HIV Services

The Office of HIV/AIDS (OHA) is part of the Department's Bureau of Infectious Disease Prevention, Response, and Services. The Office funds and manages a variety of services throughout the Commonwealth of Massachusetts. These services range from HIV prevention and education, targeted and routine HIV screening, client support services and treatment support services including the HIV Drug Assistance Program (HDAP). The Office of HIV/AIDS provides full access to services for persons most at risk for HIV infection, and those living with HIV/AIDS. Through partnerships with community-based agencies, that emphasize commitment to the importance of multicultural health, the Office is able to maximize access to services that significantly improve the quality of life for people with HIV and AIDS, and their families. The Office operates three programmatic units, two support units, and supports numerous collaborative partnerships.

Substance Abuse Services

The Bureau of Substance Abuse Services (BSAS) oversees the substance abuse and gambling prevention and treatment services in the Commonwealth. Responsibilities include:

- Licensing programs and counselors
- Funding and monitoring prevention and treatment services

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- Providing access to treatment for the indigent and uninsured
- Developing and implementing policies and programs
- Tracking substance abuse trends in the state

BSAS Prevention Programs

The Bureau of Substance Abuse Services, through Federal Block Grant funding, from the Substance Abuse Mental Health Services Administration (SAMHSA), funds 31 community-based prevention programs. All programs, utilizing SAMHSA's Strategic Prevention Framework, implement evidence-based programs/strategies to prevent alcohol, marijuana, and other drug abuse with a particular focus on the under 21 population. Each program focuses on a specific municipality or neighborhood and is carried out by a coalition comprised of organized community members that have interest in helping their community prevent substance abuse.

The goals and strategies of these programs include:

- Preventing substance abuse, with a particular focus on the under 21 population.
- Implementing evidence-based programs/strategies shown to produce positive changes in rates of abuse, utilizing SAMHSA's Strategic Prevention Framework,
- Viewing youth as resources in their communities; incorporating meaningful youth involvement in program planning, implementation, and evaluation; and focusing on positive outcomes for youth.
- Utilizing environmental prevention approaches which seek to change the overall context within which substance abuse occurs. Environmental prevention efforts focus on availability, norms, and regulations.
- Monitoring and evaluating the performance of the programs as they progress.

Youth Intervention Programs

BSAS funds three Youth Intervention Programs that address the needs of individuals, families, and communities in the early stages of substance abuse problems. The programs focus on youth/young adults who have actively begun to experiment with drug use and/or who are in a very high-risk environment or situation due to some form of individual or family drug/alcohol involvement.

MassCALL II (an initiative to reduce opioid overdoses)

The Bureau of Substance Abuse Services (BSAS) received a federal grant from the Substance Abuse Mental Health Services Administration, Center for Substance Abuse Prevention to identify the most significant consequences of substance use and to reduce the incidence in the state. After a thorough review of the data, fatal and non-fatal opioid related overdose was selected as the consequence of focus and among substance abuse issues of greatest concern in the Commonwealth.

With funds from MassCALL II, BSAS has awarded grants to 15 high-incidence communities in Massachusetts to conduct community needs assessments on the opioid overdose problem in their area, and to implement evidence-based strategies to address the problem. The goal is to reduce the incidence of fatal and non-fatal opioid overdoses in each funded community.

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Violence Prevention and Intervention Services

Violence Prevention and Intervention Services (VPIS) includes programs that provide direct service to victims of violence and/or support the provision of direct services through community-based providers. Most programs also involve capacity and standards development, specific service development to address disparities, prevention activities at multiple service levels, and policy development.

Sexual Assault Prevention and Survivor Services (SAPSS) Program

The Sexual Assault Prevention and Survivor Services Program supports a network of 17 rape crisis centers, some with multiple sites, across the Commonwealth to provide comprehensive services to adolescent and adult victims of sexual violence as well as to the friends and loved ones of victims. These programs serve every city and town in the state. Services provided by each of the 17 rape crisis centers include: a 24 hour sexual assault crisis intervention, information, and referral hotline; accessible short-term individual sexual assault crisis counseling for adult and adolescent survivors and their friends, partners, and family members; support groups for survivors; accompaniment, support, and advocacy throughout the medical, legal, and police processes; and information about and referrals for health concerns, such as HIV, pregnancy, substance abuse, and Post-Traumatic Stress Disorder, as well for legal, economic, safety planning, and other needs. Rape crisis program services are available in multiple languages, and all programs maintain access to telephonic interpreter services and TTY phone lines. In FY08, 2,496 incidents of sexual assault were reported to DPH-funded rape crisis centers. In the same year, the centers responded to 12,528 hotline calls (including calls to the 17 local hotlines and the statewide Spanish language hotline), and provided individual counseling and advocacy services to 2,569 clients. Medical/hospital accompaniment of survivors by rape crisis counselors increased from 550 cases in SFY 06 to over 1,000 cases in SFY09 after the addition of state Sexual Assault Nurse Examiner funds beginning in SFY 06. Note: Due to budget cuts during FY10, the requirements for group counseling and outreach have been suspended until further notice and medical accompaniment services have been suspended as a requirement beginning in January 2010.

Spanish Language Sexual Assault Hotline

In FY 1995, through a combination of state and federal funding, the MDPH and the network of rape crisis centers developed a statewide Spanish-language hotline; by FY 2002, survivors accessing services at rape crisis centers that identified as Hispanic increased from 8% to 15%. With limited funding and capacity in subsequent years, this hotline needed to cut its hours to a part-time helpline 35 hours per week and the number of Hispanic survivors accessing rape crisis center declined to 9.6% in FY 2004. DPH conducted a needs assessment, developed a new service model, and in July 2009, awarded a new vendor \$20,000 to pilot the model. In the first six months, with the efficient provision of a 24 hour hotline answered live by a Spanish-speaking counselor, the number of calls doubled, compared to the previous service model. The current hotline continues to provide 24/7 crisis intervention and supported referrals/linkage to local services for Spanish-speaking adults and adolescent survivors of sexual assault, as well as support for professionals and family members to help Latino sexual abuse survivors of all ages.

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SANE Program

Through the Sexual Assault Nurse Examiner (SANE) Program, MDPH in collaboration with Massachusetts Office for Victim Assistance provides compassionate and coordinated medical care and forensic evidence collection to victims age 12 and over who enter designated hospital emergency departments within five days of a sexual assault. The SANE program currently has more than 120 nurses responding 24 hours/day through a regionally based on call system to 27 designated hospital sites across the Commonwealth. Also, the Pediatric SANE program was developed three years ago and provides medical evaluation, case management and care coordination for children under age 12 who have been sexually assaulted, as well as their non-perpetrating family members. Care is provided at seven Child Advocacy Centers across the Commonwealth and 24/7 emergency response is provided at Lawrence General Hospital. SANE representatives provide testimony, participate in trials and act as fact and expert witnesses across the state.

RISE

The Department of Public Health partially supports 18 local domestic and sexual violence programs in diverse, under-served immigrant and refugee communities and a state-wide legal advocacy program for immigrant victims of domestic violence as part of its Refugee and Immigrant Safety and Empowerment (RISE) Program. Due to linguistic, institutional, and cultural barriers, immigrant and refugee communities are frequently isolated from information about their rights, and unable to access mainstream interventions, such as police and courts. The RISE programs provided intensive linguistically and culturally-specific services in 15 languages. In FY 2009, RISE programs provided 1,139 immigrant victims of sexual and domestic violence with crisis intervention; victim support and advocacy with police, courts and social services; education and outreach to isolated immigrant communities about rights and services; education and cross-training of bilingual/bicultural staff and mainstream providers; assistance with immigration and family court cases; and data collection.

Massachusetts Rural Domestic and Sexual Violence Project

The Massachusetts Rural Domestic and Sexual Violence Project is a federally funded collaborative partnership between the Massachusetts Department of Public Health and five community-based domestic and sexual violence programs in rural Massachusetts. Rural survivors of domestic and sexual violence face unique challenges due to geographic and social isolation; lack of public transportation, housing, childcare, and employment opportunities; lack of anonymity and confidentiality that can jeopardize a victim's safety; and the overall lack of accessible services.

The Project provides comprehensive counseling and advocacy to children exposed to domestic violence and their non-offending parents as well as adult and adolescent survivors of domestic and dating violence. It also provides extensive domestic and sexual violence education, community engagement and outreach to the public in 91 rural jurisdictions in Berkshire, Franklin, Dukes, Hampshire, Hampden and Worcester Counties.

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Youth Violence Prevention

The DPH Youth Violence Prevention Program provides funding to community-based initiatives across the state working to prevent youth violence, including gang violence and bullying. Community-based programs focus on elementary, middle, and high school aged youth and some include young adults up to age 24. The service population includes both in-school and out-of-school youth (including youth who are suspended, expelled, or who have dropped out of school).

The programs implement evidence-based strategies focusing on the integration of youth development approaches with comprehensive youth violence prevention strategies. These creative approaches include, but are not limited to mentoring, afterschool/out-of-school, drop out prevention, employment readiness, financial literacy, youth leadership development, conflict resolution, street/youth worker outreach, case management, civic engagement, and parent/family engagement.

In FY10 there is \$2,000,000 budgeted for the Department's Youth Violence Prevention efforts, down from \$3.5M the previous year. This program was level funded in the Governor's proposed FY11 budget, but will probably be reduced again in the final state FY11 budget.

- The program funds 28 community-based coalitions across the Commonwealth as well as minimal infrastructure support for 8 programs that focus on GLBT youth.
- The program utilizes *evidence-based* youth development strategies.
- The program focuses on high risk communities across the Commonwealth – high risk can be defined geographically, by racial/ethnic minority status, sexual orientation or other characteristics as some populations are at far greater risk of violent victimization. For example, Latinos ages 15-24 have a rate over 12 times higher than whites of homicide (increased from 8 times higher in 2006); the rate of homicide for Black non-Hispanic youth is an astounding 35 times higher than for white youth (2007 death data). Young men who identify as gay or bisexual report three times the rate of threats and injury at schools as do those who identify as straight (2007 YRBS). [Tracking the ratio of the combined Black, non-Hispanic and Hispanic rate to that for White, non-Hispanic males in this age group is being added as a State Outcome Measure in our Application; the baseline ratio for 2007 is 22.1.]
- The MDPH grant program is designed to complement the EOPSS' Shannon Grant program by focusing on primary and secondary forms of prevention and through the inclusion of youth in all aspects of program development. The Shannon grants focus more on tertiary prevention or intervention strategies from a criminal justice perspective. The MDPH grant program only funds 501(c)3 organizations or non-profit municipal entities. In contrast, the Shannon Grants fund local police departments or municipal governments.
- In FY10, MDPH also began funding programs through a Youth at Risk Grant Program. Thirty-six new programs are being developed to provide a range of youth development programming for high risk youth that will complement the Youth Violence Prevention Program.

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Shaken Baby

Responding to a recent state statute, MDPH provides leadership for a multi-agency, multi-disciplinary advisory group that guides statewide Shaken Baby Prevention efforts. The program conducts surveillance of shaken baby syndrome, has developed prevention strategies for many high risk groups, and created educational materials for maternity hospitals to use in fulfilling the legislative mandate to educate all new parents in shaken baby syndrome prevention.

Infant crying is often the trigger for a caretaker losing control and assaulting an infant, and about two thirds of perpetrators are fathers. The Shaken Baby Prevention program now offers a hands on, interactive education program for parents of infants, aimed especially at fathers but useful to any parent, which teaches practical evidence-based skills for comforting a crying baby, and also teaches parents about infant development and realistic expectations of infants in the first year of life. This education is being offered in a wide variety of agencies and institutions throughout the state by experienced parent educators specially trained by The Shaken Baby Syndrome Prevention Initiative and also certified in the method of calming a crying infant discovered by pediatrician Dr. Harvey Karp.

Sadly, with the passage of the state FY11 budget, funding for this initiative has been eliminated. DPH is currently in the process of terminating most of the programmatic activities and will no longer be providing direct education to either hospital staff or parents. However, developed materials will continue to be available for download to all birthing hospitals for use in their new parent education initiatives.

Safe Spaces

Safe Spaces for Gay, Lesbian, Bisexual, Transgender and Questioning (GLBTQ) Youth funds youth development drop-in center programs which provide social supports for youth and affirms their GLBTQ identities. The program has been developed in response to data from the YRBS that demonstrates that GLBTQ youth are over four times more likely to have attempted suicide in the past year, over three times more likely to have skipped school because of feeling unsafe, and four times more likely to have been injured or threatened with a weapon at school as compared to their straight-identifying peers (Massachusetts YRBS, 2007). In addition to supporting community based programs that create safe space for GLBTQ youth, the program supports a capacity development and training program to assist school personnel and community service providers with technical support to address the needs of GLBTQ youth including training to prevent anti-GLBTQ bullying. The Department collaborates with the Massachusetts Commission on GLBTQ Youth to serve the diverse public health needs of GLBTQ youth.

In FY09, The relationship between DPH and the Department of Elementary and Secondary Education (DESE) was bolstered through an Interdepartmental Service Agreement (ISA) that extended the scope of service provided by the GLBT Youth Support Project at Health Imperatives. This enabled Safe Spaces to host additional GLBTQ Regional Youth Leadership Conferences in new and underserved regions of the state (total of 5), and funded 16 in-service school trainings for administrators in 12 school districts. Over 750 school personnel were trained in issues affecting GLBTQ youth and an assessment was completed on how to make their school safer for GLBTQ youth.

The DPH Office of Adolescent and Youth Development (OAYHD) and Safe Spaces for GLBTQ Youth share training ideas about strengthening collaborations to reduce teen

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pregnancy in GLBTQ populations (where YRBS data indicates the rates are higher than for youth who identify as straight). OAYHD is working with teen pregnancy prevention providers around the state and linking them with GLBT trainers to assure GLBT cultural competency. The GLBT Youth Support Project conducted the first training, a GLBT 101 for providers. In the second training, with APA curricula, teen pregnancy prevention providers will be offered GLBTQ training on preventing health risks and promoting health outcomes.

Services for Children and Youth with Special Health Care Needs (CYSHCN)

The Children and Youth with Special Health Care Needs Program has completed a Futures Initiative that began in 2008, with the goal of creating a single program that could better provide leadership for a comprehensive service system for CYSHCN. Leadership across the program created action teams to create and better use technology, integrate programs to support the continuum of care, reduce health disparities, and engage external partners. Massachusetts CYSHCN programs support a diverse set of needs within the community and the lifecycle of CYSHCN.

MassCARE (Massachusetts Community AIDS Resource Enhancement)

MassCARE is a statewide program for women, infants, children, youth and families living with HIV. MassCARE clinics provide care at seven community sites across the state and in three regional perinatal centers. Care is provided jointly by clinic staff and staff from major medical centers in Massachusetts. Services include access to HIV-related medical care and support services, pediatric HIV specialty care, HIV counseling and testing, case management, access to clinical trials and research, a Family Advisory Network, a Teen Advisory Network and support groups. The Family Advisory Network's consumer activities include an annual conference, an annual family networking day, regional and statewide meetings, a quarterly newsletter and a statewide parent-to-parent network. MassCARE is federally funded under Part D of the Ryan White Care Act.

Care Coordination Program for CSHCN

Care Coordinators assist families in accessing care and services and provide consultation to parents, educators and medical and social service providers with a focus on children and youth with complex medical conditions. Services include assessment, coordination, education and referral. Care Coordinators can help a family coordinate medical, social and educational systems; access referral information about specific programs and services; become a more effective advocate for their child; identify community resources; understand the full range of available public benefits; and plan for transition. Care Coordinators are located in selected pediatric primary care settings and in all regional DPH offices.

Community Support Line for CSHCN

This toll-free statewide Community Support Line offers information, technical assistance and referral for families with children and youth with special health care needs. Experienced Community Resource Specialists are available to assist families Monday through Friday from 9:00 am to 5:00 pm. Families and providers are welcome to call the Community Support Line. Resource Specialists provide information about and referral to a

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broad range of programs including Public benefits information and eligibility, the Catastrophic Illness in Children Relief Fund, Care Coordination services, family-to-family supports and other programs within DPH, other state agencies, and community-based programs that may be able to provide additional assistance.

MASSTART (Massachusetts Technology Assistance Resource Team)

MASSTART is a free collaborative service that helps families and schools plan for the health care and safety of children and adolescents with special health needs, especially those assisted by medical technology. By ensuring safety in school for children with complex needs, MASSTART supports the educational goal of placement in the least restrictive setting. Consultants in each region of the state have been chosen for their extensive experience providing health care services for children and adolescents with a wide range of complex health conditions and technology needs. MASSTART providers work collaboratively with families and school personnel, and provide training and consultation for individual children as well as general training.

Family TIES

Family TIES of Massachusetts is a statewide information, referral and support network run by and for families of children with special health care needs. Family TIES regional parent coordinators can assist families and providers to find resources and services within their region and provide general support to families of children with special health care needs. The Parent-to-Parent Coordinator facilitates parent-to-parent matches with other families who experience similar situations and oversees the Parent Advisor Program. Family TIES also maintains the Central Directory of Early Intervention services and produces an annual Directory of Resources for Families of Children and Youth with Special Needs. Family TIES is a project of the Federation for Children with Special Needs, with funding and in collaboration with the Massachusetts Department of Public Health, Division for Perinatal, Early Childhood & Special Health Needs. Family TIES parent coordinators are located in each of the DPH regional offices across the state.

Universal Newborn Hearing Screening Program (UNHSP)

Massachusetts law requires that each of the approximately 77,000 infants born in the Commonwealth receive a hearing screening prior to discharge from a birth facility, and includes an insurance mandate for screening and follow-up diagnostic testing. A broadly representative Advisory Committee has been actively meeting for almost eleven years. The state's Universal Newborn Hearing Screening Program (UNHSP) established hospital licensure regulations and guidelines for newborn hearing screening to ensure protocols are carried out uniformly across the state. Birth facilities are required to screen all newborns, make follow-up appointments for infants that fail the screen, relay results to parents in a culturally competent manner, ensure the medical home is informed of the results, and report screening results to (DPH). DPH reviews and approves protocols for birth facilities and audiological diagnostic centers.

UNHSP systematically tracks hearing screenings and closely follows each family to ensure the goals of screening by one month, diagnosis by three months, and intervention by six months occur. Population of the Childhood Hearing Data System (CHDS) begins with the electronic birth certificate system and includes information obtained from parents through

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outreach calls and Early Intervention enrollment information. Approximately 1,450 infants fail their newborn hearing screening annually (<2%) and 220 infants are diagnosed with hearing loss. Staff follow-up on screening results and diagnostic information through outreach calls and approximately 2,700 calls are made per year to parents and providers. A parent of a child with hearing loss provides parent support after diagnosis and encourages families to access Early Intervention (EI).

The program has a grant through the Maternal and Child Health Bureau for addressing issues related to “lost to follow-up” or “lost to documentation.” In 2008, that percent had been reduced from 5.6% in 2007 to 4.2%. Families are lost to follow-up when they do not receive screening, diagnosis, or intervention in compliance with the nationally established goals for newborn hearing screening. UNHSP also has a Cooperative Agreement through the Center for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI) Program for data collection activities, including statewide surveillance of early childhood hearing loss, and integration with other early childhood systems/programs. Staff participate on national workgroups including the EHDI Executive Committee and Directors for Speech and Hearing Programs for State Health and Welfare Agencies.

Hearing Aid Program for Children

The Hearing Aid Program provides financial assistance for the purchase of a Hearing Aid Package to families of children and youth under age 21 who meet financial eligibility criteria. Families must submit an application to determine eligibility. Once determined eligible, families must submit a hearing aid recommendation and audiology report from a certified audiologist, a price quotation from a participating hearing aid dispenser; and a medical clearance form signed by a physician. All available sources of funding for hearing aids, including health insurance, must be used prior to billing the Hearing Aid Program. Financial guidelines and eligibility are subject to change based on availability of funds.

Newborn Metabolic Screening

The New England Newborn Screening Program (NENSP) at the University of Massachusetts Medical School administers newborn screening in the state for the Department of Public Health. The Department of Public Health established a Newborn Screening Advisory Committee and the Advisory Committee assisted the Department of Public Health in establishing regulations, 105 CMR 270.000: Blood Screening of Newborns for Treatable Diseases and Disorders. The Advisory Committee reviews and approves disorders for screening, using an established list of Guiding Principles. Effective February 2009, Massachusetts expanded screening to 30 mandatory disorders; screening for these disorders may show information about other disorders. Routine screening disorders can be grouped into metabolic disorders (including amino acid disorders, fatty oxidation defects, organic acidurias, biotinidase deficiency, and galactosemias), endocrine disorders, infectious diseases, hemoglobin disorders, and cystic fibrosis. Families have the option to have their infants screened for pilot conditions at birth. The NENSP provided training to birth facilities in Massachusetts prior to implementation of the new blood screening panel, and this included developing new educational information for parents detailing the mandated and optional screening panels.

The Children and Youth with Special Health Needs Program established a liaison to the NENSP. The liaison supports the Advisory Committee and participates in the NENSP

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Long Term Follow-up Workgroup dedicated to understanding short and long-term outcomes for children identified through newborn screening. In 2009, the NENSP screened 75,900 infants resulting in 149 cases for follow-up. One hundred percent of confirmed metabolic screening tests were followed to assure referral.

Catastrophic Illness in Children Relief Fund

The Catastrophic Illness in Children Relief Fund (CICRF) was established by state legislation in July 2000 to help families bear the excessive financial burdens associated with the care of children with special health care needs and disabilities. CICRF is a payor of last resort. It provides financial assistance for families with children experiencing a medical condition requiring services not covered by a private insurer, federal or state assistance, or any other financial source. To be eligible for CICRF, the child must be under age 22 and a MA resident. The family's out-of-pocket expenses related to their child's medical condition must exceed 10% of the family's annual income up to \$100,000 and 15% of any portion of the annual family income that is above \$100,000, in a given twelve month period. The vast majority of families served are low income, but there is no specific income eligibility requirement (since eligibility is based on total expenses in relation to total income) and we have served families from a variety of income levels.

Families are reimbursed for expenses already incurred. In some cases CICRF may grant prospective approval and may pay a provider directly. Types of expenses covered include full or partial (such as co-pays or deductible) costs associated with medical supplies and equipment; physical, occupational, and speech therapy; hospital and physician services; per diem travel and related expenses during inpatient hospitalizations; some alternative or complementary treatments; accessible vehicles; and home modifications.

The Fund is overseen by a Commission consisting of 11 members (4 state agency ex-officio members and 7 public members), and is staffed by the Department of Public Health. It is financed by quarterly transfers from the state's Medical Security Trust Fund (MSTF), if sufficient funds are available. (The MSTF provides health insurance for some individuals receiving unemployment benefits; it is funded through employers' contributions.)

From its inception through FY2009, CICRF provided \$12.2 million in reimbursements to the families of 947 children with a wide variety of medical conditions. The majority have health insurance (and most have Medicaid or CommonHealth as a primary or secondary insurer) but still had catastrophic expenses despite their coverage. This was generally because the insurance did not cover certain expenses, or because families have significant co-pays or deductibles associated with care. CICRF has proven to be an invaluable resource for families struggling with the need to preserve family life in the face of unbearable financial obligations. The Fund has assisted families from a variety of income levels with a wide range of awards in proportion to their need.

Pediatric Palliative Care

Pediatric Palliative Care is an active and total approach to care, embracing physical, emotional, social and spiritual elements, for children who face a progressive, life-threatening condition and their families. It focuses on quality of life for the child and support for the family. The Pediatric Palliative Care Network (PPCN) program, which began with new state funding in FY2007, is designed to complement existing services to meet the needs of children with life-limiting illnesses and their families or guardians. For the most part, these

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services are provided in the home and are appropriate for children with a wide range of life-limiting illnesses even when cure remains a possibility. The goal of the program is to enhance choice, relieve suffering, and ensure the best quality of life. The PPCN supports the child and family to accomplish these goals in accordance with their values, needs and preferences by providing access to a full range of consultative and direct care palliative services. The services complement those rendered by the child's primary care provider who retains professional responsibility for the child's plan of care. Examples of these services include but are not limited to skilled pain and symptom management, counseling for the child and family, spiritual care, advance care planning, referrals to other community services, short-term respite care, and volunteers who support families in a variety of ways.

Medical Review Team

Under state law, the Medical Review Team (MRT) ensures careful screening of any individual under age 22 for whom placement is sought in a pediatric nursing home or skilled nursing facility. The Department of Public Health, like other state human service agencies, works with families to promote high quality community-based services for children and adolescents with special health care needs. Children are screened for long, short, post hospital care in pediatric nursing facilities and young adults are screened for placement in an adult nursing facility when appropriate. For long and short term placements, children must meet both medical and developmental criteria. Children reviewed for post hospital placement must meet medical criteria and have a clear discharge plan from the facility.

Key Components of the MRT

- A multi-disciplinary interagency team, including consumers and representatives of human service agencies, medical and health providers, and other professionals
- Meetings to review long term request are scheduled twice per month. All other reviews are done as referrals are received.
- Decision-making based on material from medical providers and other professionals
- Participation by parents/family members and staff from referring agencies; Consideration of alternative community-based options before nursing home eligibility is determined
- Certification for pediatric nursing home or skilled nursing facility placement based on medical and developmental criteria are outlined in the application
- When a child or adolescent is not certified for placement, appropriate alternatives to placement are recommended to the referral source and family

The MRT target population is youth between the ages of birth and 22 with multiple disabilities and significant cognitive impairments, who require skilled nursing care and/or intensive therapeutic treatment and habilitative interventions 24 hours per day.

Efforts to Reduce Disparities in Health Access and Improve Cultural Acceptability

Reducing disparities in health access and improving cultural acceptability of services is a core component of all MDPH activities. Reducing disparities is the premise for all priorities for the Title V agency and is a consideration for determining all state performance measures. To ensure programs, staff, and the community have the appropriate resources,

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MDPH has several initiatives and programs specific to improving health equity, highlighted below.

Office of Health Equity

The MDPH created the Office of Health Equity (OHE) in 2007. OHE, located within the Office of the Commissioner, promotes the health and well being of racial, ethnic and linguistic minority populations throughout the Commonwealth by increasing the Department of Public Health's capacity to respond effectively to the critical public health needs of these communities.

Areas of Work

Policy

- Establish health disparity elimination goals
- Consult minority representatives and the scientific and health services communities
- Examine the Commonwealth's research, data, service and prevention programs and recommend necessary changes

Research

- Improve data for determining priorities and designing programs
- Research state-of-the-art interventions in minority communities

Action

- Implement relevant risk reduction and disease prevention programs
- Reduce barriers and promote access to care
- Increase participation of minority professionals and students in the Health Professions

Current OHE Initiatives:

CLAS – Culturally and Linguistically Appropriate Services

The Culturally and Linguistically Appropriate Services (CLAS) standards were developed by the National Office of Minority Health as a means to correct inequities that currently exist in the provision of health services and to make these services more responsive to the individual needs of all patients and consumers. They are especially designed to address the needs of racial, ethnic, and linguistic population groups that experience unequal access to health services.

In 2005, the MDPH Office of Health Equity (OMH at that time) was awarded a federal OMH State Partnership Grant. In collaboration with the Department's Office of Healthy Communities, OHE convened a center-wide working group to develop and implement MDPH standards consistent with the CLAS Standards. OHE, with department-wide support, conducted an internal assessment of CLAS Standards integration within our public health setting; produced an in-depth guidance manual for public health and other health service organizations entitled "Making CLAS Happen: Six Areas for Action" - providing practical approaches to integrating CLAS Standards in various settings (www.mass.gov/dph/healthequity); worked with POS to include Organizational CLAS Self-Assessments in the procurement process for all MDPH vendors; produced an on-line CLAS 101 Training; and produced a Public Service Announcement entitled "You Have the Right to An Interpreter" in nine different languages, which are also available on-line.

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The CLAS Initiative is an element of the Governor's priorities to work towards the elimination of racial and ethnic health disparities. This is indicated by the initiative's alignment with the Massachusetts New American's Agenda and Executive Order #503, and is consistent with the OMH National Plan for Action draft, each of which serve to support the inclusion of culturally, ethnically, racially and linguistically diverse populations on local, state and federal levels.

Community Action/Health Disparities Grants

In November 2007, MDPH released \$1M in grants to support innovative efforts targeting three key areas in health status and outcomes:

- Workforce Development
- Quality Improvement
- Social Determinants

Thirty-five (35) grants were awarded to address the gaps. Grants went to twenty-nine (29) health centers, hospitals, community organizations, neighborhood and faith-based groups, academic settings, and boards of health statewide. Each three year grant allows the agencies to develop or expand services and programs to address the health needs of racial and ethnic groups. Several of the grants, called demonstration grants, allow for planning and research activities.

Language Access/Interpreter Services

The Emergency Room Interpreters Law, Acts of 2000, requires that all acute care hospitals in Massachusetts provide interpreter services to patients seeking care through emergency departments. In collaboration with the Determination of Need Program (DoN) within the MDPH, OHE assesses the interpreter services unit at applicant hospitals. Through this process, OHE establishes conditions for providing competent medical interpretation services for limited English proficient (LEP) patients. OHE's standardized reporting requires that these institutions provide key information regarding Interpreter Services (IS), populations served, and any emerging needs. Regulations require that acute care hospitals conduct an annual language needs assessment (LNA).

In January 2009, OHE released the 1st Annual Hospital Interpreter Services Report highlighting activity within 72 Acute Care Hospitals in Massachusetts related to their interpreter services departments. Within a 12-month period, over 1.2M interpreter sessions were completed. The report captured the top 10 non-English languages most frequently encountered in the hospital setting that required interpreter support.

Starting in May 2009, OHE serves as the convener for an EOHHS working group to develop recommendations for standards, certification and reimbursement of Medical Interpreter Services in Massachusetts.

In 2007, OHE produced the FLNE (First Language Not English) Report working with data provided by the MA Department of Elementary and Secondary Education. The report highlighted the percent of students whose first language was not English and who identified as speaking English "less than very good."

In 2007, OHE developed MDPH-wide standards for collecting data by race, ethnicity and language for surveillance and programs based on the revised OMB 15 directive and including attention to specific Massachusetts populations.

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Unnatural Causes Screenings

Beginning in 2008, using *Unnatural Causes: Is Inequality Making Us Sick?*, (a seven-part PBS documentary series that explores racial and socioeconomic inequalities in health)

MDPH sought to achieve the following:

- Provide a series of targeted screenings within our organization and at the Massachusetts State House to engage cross-cutting dialogue and action around policy and institutional changes to address the root causes of health inequities;
- Engage communities disproportionately impacted by inequities in health by convening neighborhood-based planning committees to prepare for neighborhood screenings and dialogues across the State; and
- Conduct a series of regional screenings and dialogues across the State that will serve as a venue to connect Massachusetts residents and organizations to opportunities that advance health equity including training, funding, and advocacy.

MDPH emphasized the need to engage specific new populations and communities and developed a series of events for students, city and state officials, and those from the business sector. Embedded in each event were a number of activities to provide those attending ample opportunities for service and community empowerment through individual and corporate actions. Internally, the documentary was used as a method to introduce the MDPH community to the complex issues of health disparities while engaging them in a new discourse towards health equity.

Other OHE Efforts:

- In late 2009, DPH surveillance data indicated that the burden of H1N1 disease and its complications was disproportionately borne by minority populations, i.e., Black, Hispanic, and Asian. Disparities existed in prevalence rates, hospitalization, and death. In January 2010, the Department launched a special initiative by dedicating additional funds to agencies with existing health disparities contracts to provide education, outreach, and customized vaccination access to the aforementioned populations. Nine agencies received funds to implement specialized projects including efforts specific to mothers and children.
- In 2009, OHE received federal funding to address Infant Mortality and developed a plan to work with local municipalities with the highest rates.
- OHE participates on the Children's Behavioral Health Initiative's Operation Team, developing mechanisms for collecting R/E/L data to uncover disparities and work to form strategies to address them.
- In FY 2007, recommended by the Legislative Commission to Eliminate Racial and Ethnic Health Disparities and enacted as a result of MA Health Care Reform Law, Chapter 58, the Health Disparities Council was formed. The Council's mission is to identify and recommend policies and actions to eliminate racial and ethnic disparities in health care and health outcomes and to achieve health equity for all Massachusetts residents. Information is available at www.mass.gov/hdc.
- Critical MASS is a statewide public-private effort with a mission of mobilizing communities to take action on health disparities. Critical MASS is

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focused on helping racial and ethnic communities gain the tools and skills to address the root causes of health disparities and not concentrate on diseases. Critical MASS has held regional and statewide planning meetings, developed a listserv to disseminate information specific to health disparity activities, begun to collect information on programs across the state targeting disparity to encourage sharing of information and successful practices, and has a draft of a Health Disparities Reduction toolkit to guide and inform local action. Information is available at www.enddisparities.org.

- Through the efforts of federal Region 1 OMH, the established state offices of Minority Health/Multicultural Health/Health Equity and community based organizations through the New England Regional Minority Health Coalition sponsors biennial conferences focused on eliminating health disparities and developing a health disparities state plan.

Perinatal Disparities Project

The Perinatal Disparities Project collaborates with local partners with local communities to support efforts to eliminate racial disparities in birth outcomes by collecting and analyzing state and local data to inform policy and identify program priorities and to establish a formal communication network between Massachusetts communities. This serves to encourage information sharing, raise public awareness, and increase advocacy for resources to eliminate the differential access to goods, services and opportunities of society by race and institutional racism.

This project is informed both by quantitative data and qualitative data. Quantitative data at the state and community levels continue to underscore disparities in a multitude of health outcomes. In 2008, there were 382 infant deaths in Massachusetts with the Infant Mortality Rate (IMR) of 5.0 deaths per 1,000 live births. The IMR has decreased by 29% since 1990, yet racial disparities persist. In 2008, Blacks, with an IMR of 11.7 and Hispanics, with an IMR of 7.9 had a substantially higher rates than Whites (3.7) and Asians (2.7). Qualitative data was gathered from a series of three focus groups conducted in Springfield with Black and Hispanic women focused on their experience of the health care system at the time that they received prenatal, intrapartum and postpartum care. Women in all three groups reported having experienced racism, classism and ageism with teen mothers feeling unheard and discriminated against. Women's perception of having felt discrimination had a negative impact on both their relationship to their provider and their birth experience. The aim of addressing disparities is to both eliminate disparities in health outcomes and to improve women's experience with the healthcare system.

In the disparities project the MDPH is partnering with Boston Public Health Commission, Worcester Infant Mortality Reduction Task Force, and the Springfield MCH Commission (organized by City Department of Health and Human Services) to strengthen coordination, implement fetal-infant mortality reviews (FIMR) in each of these communities, and share information. FIMR activities are supported by grants given directly to each of the three communities. In addition, the Department is planning to expand FIMR activities statewide through a review of infant deaths that aims to decrease the incidence of preventable deaths among infants in Massachusetts with a particular focus on health disparities. This review of infant deaths is a process that can enhance the MDPH core public health functions,

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identify barriers to care, address racial inequity, and improve policies and services to Massachusetts most vulnerable populations.

4.AB4 Emerging issues

Massachusetts has undergone significant change over the past five years with major policy changes, a diversifying population, and new social concerns especially impacting children and youth. Each of these topics is discussed in more detail within the population strengths and needs and program descriptions focused on these issues. A summary of the major emerging issues informing the priorities and program strategies follows grouped by topic area.

Changing birth demographics

Massachusetts has a growing percentage of diverse communities from over a hundred different cultural, ethnic, and linguistic backgrounds. The challenge for many programs is to ensure that each of these population groups can be served equitably, in their native language and in a culturally appropriate manner. Programs rely on the Office of Health Equity, translation support line, and collaborating with other programs to provide resources appropriate to the populations served.

Obesity

While Massachusetts ranks well among state on rates of child and adult obesity, it still has rising rates of overweight and obesity, especially among middle and high school age youth. Healthy weight has become a major focus of the Title V agency and will continue to be a state priority over the next five years. The Title V agency is developing a strategic plan to reduce obesity. The needs assessment has shown it to be the number one health public health issue today.

Mental Health

Mental health continues as an emerging issue as it is better understood including the need for early identification and treatment. Mental health issues, including violence abuse, affect post-partum women. Teens have high rates of depression and a number of children consider suicide.

Influenza/H1N1

MDPH is the lead state agency handling vaccines for the H1N1 epidemic hitting last winter. There is concern this will also be a major flu season and the state has already begun preparations to handle the coming season.

Autism

Autism and ASD is challenging the developmental health system with the need for providers and access to services to provide services to the increase numbers of children diagnosed with ASD. Autism is one of the major strains on EI, school health and special education services to ensure appropriate early care.

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Asthma

Asthma rates continue to rise and the number of children living with uncontrolled asthma has prompted the Title V agency to create a state performance measure related to disparities in emergency room usage related to asthma.

Health Reform

As discussed above, the changes from health reform have not yet settled with many in the state facing barriers to access and appropriate care. In some cases, health reform has created new barriers, such as access to physicians for those already insured. It has also not yet helped contain significant increases in health care costs in the Commonwealth.

Increased Poverty and Unemployment

The recession hit many Massachusetts communities later than other parts of the nation and while housing prices are showing positive signs, the state still has major unemployment and faces some urban areas hard hit by the foreclosure crisis. The financial strain is increasing the need for state services at a time of declining state revenues.

Public Health Infrastructure

Continued decreases in state funding for programs and major cuts in services over the last two years and again in FY11 are threatening to unwind parts of the public health infrastructure of the state. In the best of times, many providers of public health services struggle financially. Reduced service payments compromise their ability to provide services and force many to shut their doors. The state will need to focus greater attention on restoring the infrastructure of services once funding is again available. A number of the innovative and broad-reaching infrastructure-building programs, as well as direct and enabling services, that the Commonwealth has developed are threatened and may be eliminated entirely, including those described in this document.

4.AB5 Barriers

Major barriers to care in Massachusetts include uneven distribution of services, affordability/cost of services, cultural appropriateness, and increased demand for services. Many of these relate to the distribution of providers, rather than the availability of equipment and facilities. Physicians, nurses, dentists, and other providers follow the trend of other residents in the state who want to earn competitive salaries and have access to the cultural and recreational resources of the state. The end result is a concentration of providers in Boston and surrounding suburbs with the following barriers preventing an easy resolution to this situation:

Salary

Some of the disparities in the distribution of physicians and other health professionals are the result of a critical imbalance in the ability of CHCs and other safety net providers within these underserved areas to recruit and retain physicians. These providers have difficulty in matching competitive salaries and benefits in this marketplace, particularly with those offered by hospitals and affiliated group practices.

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Geography

Localized health professional shortages remain in some urban and rural communities. Non-Boston communities cannot offer the academic and research environment that may attract physicians to the state, so smaller communities compete with other states for physicians who may find higher income or a lower cost of living elsewhere. Some areas of the state are geographically isolated and travel for both providers and patients is difficult.

Culture & Language

Safety net providers struggle to recruit culturally representative and competent providers from all disciplines willing to treat poorer and largely racial/ethnic/linguistic populations with complex physical and behavioral health problems. This trend has also permeated rural Massachusetts where the smaller cities and towns have experienced change in the demographic make-up of their communities. Health agencies in these communities face the daunting task of meeting the demands of their long-term populations and serving growing ethnic and minority populations with significant health status disparities and barriers to care (language, isolation, and transportation unavailability). Efforts to recruit qualified and culturally competent multi-disciplined health care staff in a very competitive state and national environment is costly and often unsuccessful.

Increased Demand following Health Reform

One consequence of Health Care Reform has been a heavy utilization of care, especially primary care, by those who have not accessed the health care system for a long time and have complex medical issues to resolve. Given the relative scarcity of primary care resources in many areas of the state, this new utilization can increase delays for both new and existing patients.

4.AB6 Priority State Concerns:

To summarize, our priority state concerns are:

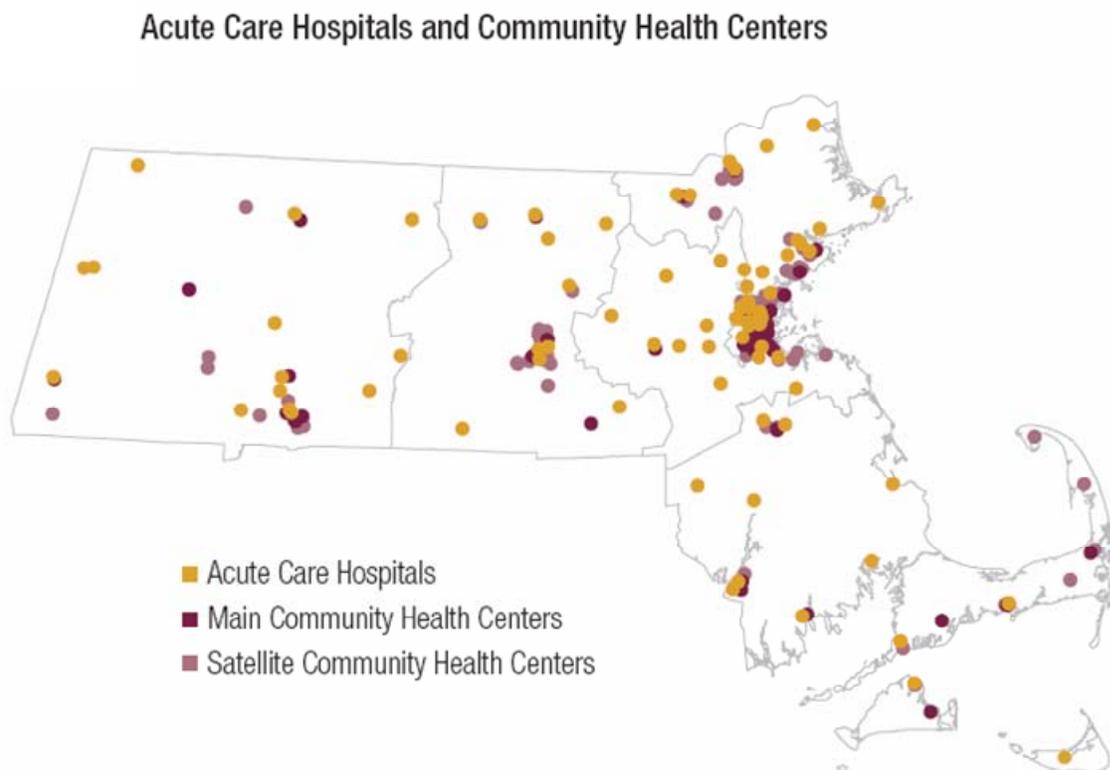
- *Access to care:* In many rural and poor urban areas of the state, the number of specialty providers is insufficient to care for the population adequately, and many PCPs are not accepting new patients. For those not in a professional shortage area, the time to get an appointment with a primary care physician typically is long. The demand for services has increased without an increase in capacity following Health Reform. The availability of care is less for CYSHCN who have complex medical needs in addition to behavioral issues that may require special training.
- *Affordability of care:* Despite Health Care Reform, high premiums and deductibles in addition to co-pays place a cost burden on low income families.
- *Cultural/Linguistic appropriateness of services:* Health provider agencies must ensure that their staff are well trained in medicine and also in the culture and language of the local population in need of services.

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4.AB7 Linkages to Promote Services across Levels of Care

Hospitals

Hospitals and Community Health Centers are concentrated in the Boston area with fewer in rural regions. Several areas in the central west do not have acute care or community health center coverage. Per capita acute care hospital beds in the eastern half of the state are greater and on a larger scale with a broader array of services. The South East region has no trauma center. Overall access to specialty care remains high with most areas of the state within two hours drive of Boston and the majority of residents have access to the best care centers in the region. Based on the National Survey of Children's Health, Massachusetts children are less likely to have problems getting a referral compared to nationally (12.7% vs. 17.7%).⁹ However, focus groups of CYSHCN reveal that access to treatment and transitional services is an important issue for western Massachusetts as western and southeastern areas of the state have a shortage of specialty care physicians.



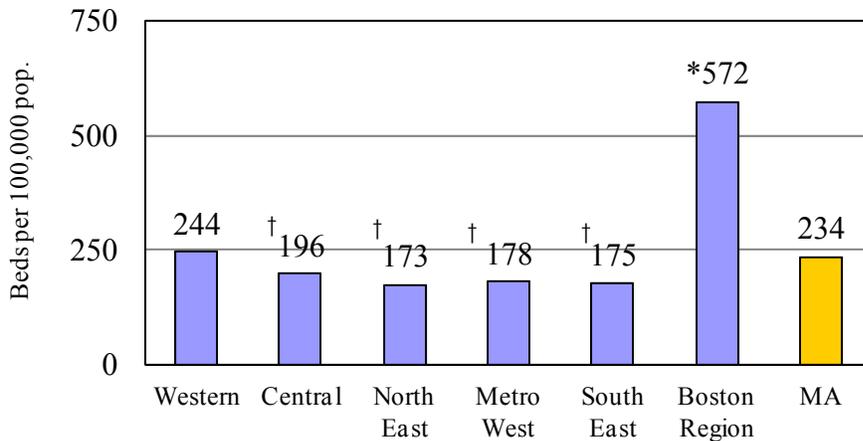
Source: MDPH Office of Emergency Services, July 2009. Massachusetts League of Community Health Centers, MassGIS, April 2006.

Figure 4-10

⁹ Child and Adolescent Health Measurement Initiative. 2007 National Survey of Children's Health Medical Home State Profile. Data Resource Center for Child and Adolescent Health website.

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Acute Care Hospital Beds



Source: Division of Health Care Quality, MA DPH, 2008.

* Statistically higher than state rate ($p < 0.05$).

† Statistically lower than state rate ($p < 0.05$).

Figure 4-11

Community Health Centers

CHCs are safety net providers in the new health reform environment. Health centers play a critical role in helping the state's most at risk and fragile residents obtain insurance and successfully navigate the health care system. MDPH provides a wide range of support to the CHCs. MDPH is involved with:

- Innovative clinical collaborations that target health disparities and improve patient health
- Resources sharing (when able) and continuous support and training for quality improvement
- Expertise in areas related to clinical health policy
- Opportunities for leadership and networking among health center clinicians.

The Centers provide preventive care, health screening, interventions and treatment, as well as many programs supporting the MCH population, including WIC. Community Health Centers (CHCs), along with a few remaining hospital outpatient departments, serve as the state's key safety net providers. Low-income uninsured and underinsured, high-risk Medicaid recipients and other individuals facing barriers are able to access health care through a statewide network of 52 CHCs that serve nearly 800,000 state residents through 285 sites. Ninety percent of community health center patients have incomes below 200%FPL, with 67% belonging to a racial or ethnic minority group.¹⁰

¹⁰ Massachusetts League Of Community Health Centers Facts and Issues Brief, March 2009

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In addition to a licensing role, MDPH works with health centers both individually and in multi-center collaborations to develop and fund a wide range of primary care, prevention and outreach services. Whether it be asthma, diabetes, HIV or the H1N1 influenza, DPH-health center partnerships are the leading edge of the state's efforts to protect and improve the health and well-being of our most vulnerable residents.

4.C Population-Based Services

The Bureau of Family Health and Nutrition (BFHN) as the Title V agency directly manages a number of population-based services, supports other population-based services elsewhere at MDPH and collaborates with a number of other state agencies, universities, providers, and other community-based organizations to provide other, key population-based services statewide. These services are described below.

4.C1 Pregnant Women, Mothers and Infants

Perinatal Depression

Though three HRSA/MCHB funded grants, MDPH has initiated several efforts to improve the understanding, screening, and response to perinatal depression. MDPH:

- Initiates maternal and infant support groups in existing MDPH programs
- Provides statewide training in maternal and infant mental health including grand rounds at several hospitals
- Develops and disseminate resource guides for providers
- Works closely with state representatives to draft legislation that would mandate screening for postpartum depression
- Supports emotional-based public health social marketing campaign targeting health care providers working with new parents, infants and their families in Massachusetts with a focus on populations experiencing poor perinatal outcomes

New Parents Initiative

The goal of the Massachusetts New Parent Initiative (funded initially with a two-year grant from HRSA/MCHB) is to improve the health of new parents, infants and their families across the lifespan through enhancing communication between providers and new parents using emotional-based messaging related to four focus areas of parent and infant mental health, nurturing early care giving, prevention of family violence and promotion of family planning. The program is designed to influence the behavior of parents in several ways:

- improve parent and infant mental health through focusing on the dyadic relationship, improving parent-infant attachment, and increasing access to care
- provide parents with skills to give nurturing care to their infants
- increase awareness of and access to resources for parents and their children experiencing family violence

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- increase the use of family planning among new parents to reduce rates of subsequent pregnancies within 12 months of the birth of their infants

To accomplish its goals, the program has developed emotional-based messages by analyzing results from focus groups of new mothers and providers. These messages are being enhanced by digital stories created by clients to illustrate barriers and challenges women are experiencing and to provide a mechanism for initiating conversations on these sensitive topics in a clinical setting. Through skills-based training and technical assistance, the program will build capacity among providers serving new parents to effectively educate parents and connect them to needed resources. In order to better connect parents and providers to needed information and services, the program is also enhancing web-based systems, incorporating our program emotion-based messaging materials.

Newborn Hearing Screening

The state's Universal Newborn Hearing Screening Program (UNHSP) systematically tracks hearing screenings and closely follows each family to ensure the goals of screening by one month, diagnosis by three months, and intervention by six months occur. (These activities have been described above under Direct and Enabling Services for CYSHCN)

The UNHSP also has a strong outreach/educational component directed towards families, medical homes, audiological community, statewide Early Intervention Program, colleges and universities, and other relevant partners. The UNHSP has published three journal articles in the past few years using program data and has presented posters and presentations at numerous conferences. Jane Stewart, M.D. is the designated MA Chapter of the American Academy of Pediatrics Champion for the MA UNHSP (as part of a national initiative with AAP). She has assisted the program in creating outreach articles and other resources for medical homes in MA serving young children with hearing loss. The Program works in close collaboration with other DPH Programs including the Children and Youth with Special Health Needs, Medical Home Initiative, Family TIES (parent to parent), and Women, Infant and Children (WIC). DPH has signed a Memorandum of Understanding with the Commission for the Deaf and Hard of Hearing to enhance collaboration between the agencies. UNHSP works closely with the Federation for Children with Special Needs. Staff work closely with the state's Medicaid Program (MassHealth), Head Start, and other agencies that serve families with children with hearing loss.

Massachusetts Tobacco Cessation and Prevention Program

The mission of the Massachusetts Tobacco Cessation and Prevention Program is to reduce the health and economic burden of tobacco use by:

- preventing young people from starting to smoke
- helping current smokers quit
- protecting children and adults from secondhand smoke
- identifying and eliminating tobacco-related disparities

The program accomplishes this by a combination of enabling, population-based, and infrastructure building activities:

- Educating the public about the health and economic costs of tobacco use and secondhand smoke

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- Ensuring access to effective cessation treatment for all smokers
- Working to reduce the demand for and restrict the supply of tobacco products
- Monitoring key components of tobacco product design
- Engaging communities affected by tobacco and seeking their guidance
- Developing policies and programs that are culturally and linguistically appropriate
- Funding local and statewide programs
- Working with public and private partnerships
- Using data to plan and evaluate programs and activities

Massachusetts supports the "Massachusetts Smokers' Helpline" that provides free telephone counseling for smokers who wish to quit smoking. All women are screened for pregnancy status at intake. Pregnant women receive a specialized, evidence-based counseling protocol that was developed by the University of California, San Diego. In addition to the Smokers' Helpline, Massachusetts supports a very small pilot project focused on increasing the frequency of brief provider interventions regarding tobacco. This pilot program is located two provider offices in Western Massachusetts, one in Obstetrics/Gynecology and another in Family Practice, and many of the patients reached are pregnant, planning to become pregnant or postpartum. This program was initiated in 2007 and may be stopped with the change in fiscal climate in FY11.

4.C2 Children and Adolescents

School Vision, Hearing, Postural, and Height/Weight Screening

Chapter 71, section 57, of the Massachusetts General Laws requires annual vision screening and hearing screening, postural screening for scoliosis in grades 5-9, and measurements of heights and weights for all school-age children except those for which the MDPH grants a waiver for certain grades. (The majority of the school districts do have a waiver, which allows less frequent but appropriately periodic screening for vision, hearing, and heights/weights.) Under recent state regulations, BMIs must be calculated in grades 1, 4, 7, and 10. Preschool vision screening is also encouraged and supported through state regulations.

The School Health Unit develops and implements regulations on (a) medication administration in schools, (b) physical examinations and screenings (BMIs, physical examinations vision, hearing and postural screening) (105 CMR 200.000), (c) school immunization requirements and (d) others as needed.

Lead Screening

The Massachusetts Childhood Lead Poisoning Prevention Program (CLPPP) provides a range of primary and secondary programs. CLPPP is located within the MDPH Bureau of Environmental Health Assessment (BEHA) and is responsible for administering the statewide population-based lead screening and follow-up services. The goal of the CLPPP is not only to identify lead-poisoned children, but also to ensure that they receive adequate medical and environmental services, and prevent further cases of lead poisoning. The surveillance data is then compiled to allow the CLPPP to monitor the effectiveness of its

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programs and better direct resources to areas of greatest concern. These activities are funded in part from the MCH Block Grant.

The Massachusetts Lead Law requires that all children in the Commonwealth of Massachusetts aged 9 to 36 months be screened annually for lead poisoning and, in high-risk communities, that children be screened at 48 months as well. The Commonwealth is recognized as a national leader in screening young children and working to provide lead-safe housing. Nevertheless, lead poisoning remains one of the greatest environmental health threats to children in the state. Massachusetts communities are identified as high risk when their adjusted 5-year incidence rate for blood lead level (BLL) equal or greater than 20 ug/dL is greater or equal to the state's comparable rate.

Fourteen communities were identified as high risk in 2008. From highest to lowest incidence rate, these communities were: New Bedford, Lawrence, Springfield, Fitchburg, Lynn, Holyoke, Chelsea, Boston, Brockton, Worcester, Lowell, Somerville, Taunton, and Everett. Overall, between 2003 and 2008, 73% of children ages 9 months to 48 months of age were screened; in high-risk communities, the screening rate was 84%.

Office of Youth and Adolescent Development (OAHYD)

The Office coordinates and integrates services and technical assistance related to youth and young adults throughout the Bureau and Department. The OAHYD supports linkages with health care providers, policy and program developers, youth, families, state agencies, and community networks. The Office is also responsible for facilitating the Governor's Adolescent Health Council, established by statute in 1986. The Council is a public private partnership that improves health outcomes for Massachusetts youth. It consists of 7 appointed members and representatives from each of the EOHHS and other youth serving agencies of the Commonwealth, and is staffed by the Department of Public Health. The OAHYD coordinates the planning and execution of the biannual Statewide Youth Summit. It provides advisory and staffing support to the Governor's Statewide Youth Council, which encourages and motivates young people to be involved in their communities and to participate in problem solving through assuming leadership and planning roles. The Council focuses on the Governor's priorities of education, economic development, civic engagement, and community outreach, and advises the Governor as representatives of all Massachusetts young people.

Teen Pregnancy

The OAHYD also hosts the primary teen pregnancy prevention services in targeted communities with high teen birth rates to prevent teen pregnancy, sexually transmitted infections (STIs) including HIV/AIDS, and too-early sexual activity among youth ages 10-19. Programs include 15 science-based direct service teen pregnancy prevention programs in select high-risk communities, with additional services offered to those served by the Department of Children and Families. A total of six science-based curricula are being implemented in various settings including middle and high schools, after-school settings, community-based agencies and in housing developments. The teen pregnancy prevention programs are also contracted to serve as community resources to schools, youth serving organizations, DCF staff and foster parents of adolescents. All programs implement both site-specific and cross-site evaluations to capture qualitative and quantitative measures of

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behavior, knowledge and attitude change regarding teen pregnancy prevention. In FY2009, 12,416 pre-teens and adolescents and 1,347 young adults (ages 20-24) participated in on-going activities through these programs; over 13,000 other teens, parents, and others were reached through one-time events.

4.C3 CYSHCN Population

Community Support Line and Maternal Support Line

A toll-free statewide Community Support Line and Maternal Support Line offer information, technical assistance and referral for families with children and youth with special health care needs, and for new parents. Experienced Community Resource Specialists are available to assist families and providers Monday through Friday from 9:00 am to 5:00 pm.

Birth Defects Research

The Massachusetts Center for Birth Defects Research and Prevention (MCBDRP) is a collaborative effort between the Massachusetts Department of Public Health (MDPH), Boston University's Slone Epidemiology Center (SEC), and Brigham and Women's Hospital Active Malformations Surveillance Program (BWH). The MCBDRP is responsible for the collection of information regarding all newly diagnosed cases of birth defects to Massachusetts residents. Birth defects surveillance is a critical component of public health strategies to reduce the occurrence and impact of birth defects. Through surveillance and related activities, the MCBDRP detects the prevalence of birth defects, monitors trends, investigates potential causes, plans appropriate interventions, and ensures services and appropriate care for children with special health needs.

The Massachusetts Center draws on the experience of and fosters communication among the region's strong network of clinicians and researchers. Slone Epidemiology Center and Brigham and Women's Hospital bring to the Massachusetts Center more than 20 years of combined experience in birth defects research. The Center's areas of expertise include surveillance and methodology; pediatric, reproductive, and social epidemiology; heart defects and drug teratogenicity research; and experience conducting health service needs assessment.

The MCBDRP is a member of the National Birth Defects Network and collaborates with 9 other states in the National Birth Defects Prevention Study. This national study is the largest effort in the U.S. to collect risk factor information about birth defects.

C4 Cross-MCH Populations

Immunization

The Bureau's Maternal and Child Health Immunization Program (MCH-IP) works with community-based systems of care to ensure accessible, affordable and appropriate pediatric immunization services for un- or under-insured children, with a particular focus on those who may be at greater risk due to socio-demographic factors. The program works in partnership with the Massachusetts Immunization Program (MIP) and Massachusetts WIC

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Program. The MCH-IP supports improved infant and child immunization rates through assessment and immunization tracking, and integrates education, outreach, and referral mechanisms within these programs.

Population-based immunization activities including vaccine distribution and surveillance of vaccine-preventable diseases are the responsibility of the Massachusetts Immunization Program (MIP) within the MDPH Bureau of Infectious Disease Prevention, Response and Services (BID). The MIP is funded by the CDC National Immunization Program, with additional state funding for the purchase and distribution of vaccines.

The MIP provides universal distribution of vaccine (free of charge) to all public and private providers for all childhood vaccines and limited distribution of certain adult vaccines. MDPH regulations require the age-appropriate vaccination, as recommended by the Advisory Committee on Immunization Practices (ACIP), for entry into licensed preschool/day care, schools, and post-secondary institutions. Childhood immunization activities include assuring that immunization status is checked and vaccinations delivered at every possible opportunity within the context of primary care.

The MIP conducts vaccine management audits and lot quality assurance (LQA) assessments of childhood immunization levels at public and private pediatric provider offices throughout the state. These present an opportunity for both assessment of immunization coverage and of modifications the practice can make to improve its coverage. The MIP-supported MCH Immunization Program participates in these assessments at federally qualified health centers, and supports practice changes to make improvements.

The MIP funds one position within the Bureau related to training, monitoring, outreach and technical assistance at federally qualified health centers, home visiting, and WIC programs as part of its immunization improvement initiatives. The Bureau of Primary Care and Health Access (BCHAP) has closely collaborated with the MIP in multiple aspects of statewide immunization improvement efforts. Combined primary care contracts were cut as of 7/1/2009, but the MCH IP continues to collaborate with the FQHC-federally qualified health centers for education and immunization improvement, school health, WIC, and home visiting programs. The MCH-IP assures that providers in these sites are provided the most up-to-date immunization protocols and provides technical assistance as needed. An MCH-IP Coordinator serves as a liaison with BCHAP and Division/Bureau programs.

The MIP-funded WIC Immunization Coordinator provides training including continuing education credits, technical assistance and monitoring of all local WIC programs related to immunization. Local WIC program staff performs immunization assessments at all infant and child certification and re-certification visits until a child has completed the primary series of shots.

The MIP funds an immunization program manager position within the Massachusetts Chapter of the AAP. The MIP has been working on the implementation of a statewide immunization registry but due to financial constraints it has been suspended for now. In June of 2008 the MDPH Vaccine Management Unit implemented a new Vaccine Management Business Improvement Project (VMBIP). This program represents the efforts of CDC to improve vaccine management processes at the federal, state, and local level. CDC has contracted with a national distributor, McKesson, to ship all publicly purchased vaccine directly to the provider to consolidate inventories and reduce the number of times vaccine is handled during the delivery process.

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Poison Control Center

The Regional Center for Poison Control and Prevention, Serving Massachusetts and Rhode Island provides consultation in the diagnosis and management of poisoning cases to providers and lay consumers in Massachusetts and Rhode Island. The Poison Center is a toll free telephone hotline which is staffed with trained nurses and pharmacists, 24 hours a day, 365 days a year. By dialing 1-800-222-1222, residents and health care providers are connected with poison experts who are able to provide immediate information and/or referrals related to poisonings. In 2009, the Poison Center received over 51,000 calls, including 49,727 calls from Massachusetts residents and health care providers. Approximately 42,000 of these calls were for suspected poisonous exposures. The Poison Center responded to over 7,400 information calls, when the Poison Specialist typically provides information related to medications and other potentially toxic substances, to prevent a poisoning from occurring. Frequent users of the hotline are parents of small children, hospital emergency department clinicians and pre-hospital emergency care providers. In 2009, the Poison Center helped manage 21,756 poisoning cases in Massachusetts children 5 and under. Over 75% of all poisoning cases can be managed over the phone and do not require additional medical treatment. In 2009, the Poison Center managed 39,636 calls that did not require treatment at a healthcare facility, thus preventing thousands of unnecessary emergency room visits across the state. The PCC maintains a computerized poisoning reference database with accompanying relevant databases, toxicology texts and journals.

Through an Advisory Committee, the PCC has developed innovative strategies and outreach initiatives to reduce unintentional and intentional poisonings and toxic exposures. Underserved populations, particularly mothers and children, have been prioritized, including urban residents and cultural and linguistic minorities. Outreach materials are available in Spanish. The Spanish version of the Poison Center's website is at ([www. MARIpoisoncenter.org](http://www.MARipoisoncenter.org)) where poison prevention information is available for download. Additional Poison Center materials are available in Portuguese.

Domestic Violence Screening and Response Initiative (DVSCRIP)

Preliminary work on the 2000 Massachusetts Title V Needs Assessment revealed that MCH service providers wanted more information to identify and respond to domestic violence. As a result, Massachusetts' Title V agency engaged in an iterative process to respond. This process served as a catalyst for the creation of the Domestic Violence Screening, Care, Referral, and Information Project, which educates MCH staff to identify and help clients who are victims of intimate partner violence.

The Domestic Violence Screening and Response Initiative (DVSCRIP) is a project funded by CDC and designed to improve the quality of care provided to women and children served in DPH-funded maternal and child health programs, specifically by training MCH staff to better recognize and respond to violence against women. MDPH developed a comprehensive curriculum to train MCH providers on issues of intimate partner violence to enhance the overall safety and well being of women and children in MA. The curriculum was developed to help providers incorporate intimate partner violence screening, identification, protocols and referrals into their work with clients in a way that is appropriate and useful.

Although DVSCRIP was developed by the Division of Violence and Injury Prevention, the need for this training extended across many MCH programs. The division

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worked with other MCH programs—including WIC, the Early Intervention Prevention Program, and the Family Planning Program—to train their staff in DVSCRIP.

WIC Domestic Violence Screening

Although WIC is primarily a nutrition assistance program for low-income children as well as women who are pregnant, breastfeeding, or postpartum, it is also a strategic opportunity to intervene in domestic violence. Initially, staff at all 35 WIC programs in Massachusetts received DVSCRIP training. Four of these WIC programs served as pilot sites for the routine domestic violence screening of pregnant, postpartum, and breastfeeding women. As part of the DVSCRIP training, staff from local domestic violence programs and State agencies—such as each of the Domestic Violence Units in the Departments’ of Social Service/Children and Families and Transitional Assistance—were invited to speak at these trainings. This approach helped WIC staff learn about the programs where they can refer victims of domestic violence, and it provided an opportunity for staff to meet the individuals who would accept these referrals. DVSCRIP educates staff to care for their own emotional health, a critical skill for service providers addressing domestic violence issues. The pilot program was later expanded into a statewide effort to train all staff in every WIC program in Massachusetts to routinely screen pregnant, postpartum, and breastfeeding women for domestic violence. The success of DVSCRIP prompted WIC to add a domestic violence section to the State’s WIC Operations Manual. This section includes policies and procedures on screening, staff roles, referrals, and self-care.

All local MA WIC staff has now been trained on a general overview of domestic violence and how to screen for domestic violence, totaling over 600 WIC staff trained in the last 5 years. The WIC staff trainers have incorporated this into their regular trainings and a full day training will be conducted for all new staff trainings/ orientations twice a year. A second series of trainings were conducted for staff (for over 470 WIC staff) to routinely screen on domestic violence. MA WIC programs are now mandated to screen pregnant, postpartum and breastfeeding women, when safe.

Family Planning

Staff from the state Family Planning Program asked the Division for information and training in sexual and domestic violence for their state funded local family planning programs, in the summer of 2006. In 2007, a series of ten trainings were conducted at individual family planning sites across the state. Over 170 staff from twelve family planning agencies (based at a total of 75 sites) attended. The training included data on the connections between lifetime exposure to violence and poor reproductive health, survivor stories, screening “how-to’s” individually tailored by clinical visit type, discussion on how to address disclosures and victimization with patients and as well as among family planning staff, and local community resources. Community partners were invited from rape crisis centers, domestic violence resources, and other intimate partner violence resources (e.g., shelters, sexual assault nurse examiners, etc.) to help educate family planning agencies on community resources and to enhance the referral relationship.

Prior to the individual trainings, each family planning program was asked to complete a program assessment and this baseline data was used to prepare for their individual trainings. Subsequent to the trainings, the Family Planning Program and DVIP created a draft toolkit of materials for use by family planning agencies for implementing scripted sexual and

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domestic violence screening. This toolkit is not a static set of items used to implement screening successfully, but rather an array of prompts that remind providers to discuss sexual and domestic violence with all their clients and offers language that helps providers bring up the topic of violence in a sensitive way. Different tools may work for different providers and different clients in varied clinical contexts. A final training was offered to staff of all the local family planning programs in September 2008.

The response to the trainings by the local family planning staff was very positive. The trainings strengthened local family planning program's relationship with their local rape crisis centers and domestic violence programs. Discussion has begun at the state level and at some of the local programs to pilot data collection on screening and disclosure rates.

An additional component of this work at the state policy level is the revision of the state family planning Program Standards to include screening for lifetime exposure to sexual and domestic violence. Through this process the state family planning staff are developing new systems for contract oversight and creating tools for site visits which include much more focus on violence related issues.

Other DPH DVSCRIP-trained MCH Providers:

- Early Intervention Partnership Programs (EIPP) completed trainings of EIPP staff in November 2003. EIPP has contract requirements that providers are required to screen for domestic violence during home visits and provide necessary referrals and support
- FOR Families – Home visiting program. Most staff completed DVSCRIP training in 2004/2005. Domestic violence is an area that is addressed during their comprehensive assessments.
- Care Coordination for CYSHCN - Brief training on DV 101 and referrals for Care Coordination staff has been carried out. Pediatric offices served by the Care Coordination programs will be looking at their current policies and procedures regarding domestic violence.

Emergency and Disaster Preparedness

Emergency preparedness is an ongoing part of the MDPH core mission and the Department addressed a variety of crises, from local flooding to Katrina victims to H1N1 to children and families left behind after a large immigrant raid. DPH remains prepared to bring resources to bear. It also serves as a reference in times of individual and family crisis.

Emergency Preparedness Bureau

The Emergency Preparedness Bureau (EPB) works to enhance the capacity of public health and health care organizations to prepare for and respond to emergencies that threaten the public's health. The Bureau is responsible for all-hazards planning and program coordination across all MDPH emergency preparedness functions, and coordinates emergency response activities across the department. EPB is working with local public health, health care organizations, emergency management, and public safety to build an integrated emergency response system to protect all residents of the Commonwealth.

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School Health and Emergency Preparedness

Each school facility must have a crises emergency evacuation plan, lockdown plan, as well as pandemic/infectious disease plan in place. In the event of a large-scale emergency, many Massachusetts schools have been chosen as a community emergency dispensing site (EDS) for medications, vaccines and/or as a designated shelter.

School nurses may be the first to identify an infectious agent in the school setting. The MDPH school health program provides disaster preparedness and smallpox certification training to school nurses. Of the 351 cities/towns, 183 or 52% have at least one school nurse educated with the Emergency Dispensing Site (EDS) Overview and Smallpox administration. A total of 1072 or 52% of school nurses have been educated with an EDS overview and smallpox administration training.

School nurse training is mostly provided during the school's professional days, after school or on weekends. MDPH has made disaster training available at the times and days most convenient for school nurses. The School Health Institute has online courses on rash surveillance and smallpox (for recertification to nurses currently certified to administer smallpox vaccine). The combined total of ninety school nurse leaders, regional consultants and MDPH school staff have Health and Homeland Alert Network (HHAN) accounts and 82/80 or 91% recently responded to an unannounced HHAN. Most ESHS nurse leaders are ICS 100 and NIMs 700 certified. The School Health Institute provided numerous training for school nurses across the commonwealth in preparation of the past H1N1 pandemic. This included regional training for school nurses and LBOH on the H1N1 overview. Eleven trainings were provided for school and public health nurses on the administration of Flumist, using retractable syringes and including an H1N1 update.

Children with Special Health Care Needs and Emergency Preparedness

The CYSHCN Program continues to be active in state-wide task force initiatives such as development of an on-line curriculum for families to facilitate emergency planning. Requests for emergency preparedness support have diminished as has funding, but materials continue to be made materials available on line and in response to individual calls. The emergence of H1N1 led to the development of FAQs aimed specifically at families whose children have complex special health care needs. A representative from the Program serves on the Emergency Medical Service for Children (EMSC) Advisory Board to raise awareness of and provide resources to address issues of families whose children have complex special health needs in the event of emergency.

4.D Infrastructure-Building Services

4.D1 State Capacity to Promote Comprehensive Systems of Services and Coordination of Services Efforts

Introduction and Overview

The Massachusetts Title V agency, the Bureau of Family Health and Nutrition (BFHN), reports directly to the Commissioner of Public Health, who reports to the Secretary, Executive Office of Health and Human Services (EOHHS). This level of leadership provides Title V program with the capacity to promote comprehensive systems of service, to

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coordinate initiatives, and to work collaboratively across the full range of relationships necessary for a comprehensive approach to Title V goals. Within the Department of Public Health, the Title V Director and key program staff in BFHN collaborate closely with the Medical Director of the Department, the Bureaus of Community Access and Promotion (which includes school health, primary care, adolescent health, and violence and injury prevention programs, along with chronic disease prevention and health promotion programs), Substance Abuse Services, Emergency Preparedness, Environmental Health, Health Care Safety and Quality, Health Information, Laboratory Sciences, and Infectious Disease Prevention, Response and Services (which includes communicable disease prevention and HIV/AIDS programs), the Office of Health Equity, and the Office of Healthy Communities (which supports the department's efforts to build and support better local and regional public health infrastructure and systems of care).

Within the BFHN itself are departments that are core to MCH services and programs, including the Nutrition Division with WIC, the Division for Perinatal, Early Childhood, and Special Health Needs with EI and the CYSHCN Program, and the Office of Data Translation. Through these programs the Title V agency guides the early developmental needs of children, youth with special health needs, and women near the time of childbirth. Several key collaborative relationships are directly assured by the location of other MCH-serving programs within the BFHN. These include Early Intervention / Part C of the Individuals with Disabilities Act (IDEA), and Ryan White Part D.

BFHN, as the Title V agency, promotes collaboration and coordination across most programs and agencies within EOHHS. Through multiple work and advisory groups, the agency supports the wide breadth of needs of the MCH population. This cross-collaboration is critical to address the needs across the lifespan of the MCH population, including the impact of economic security, the built environment, paternal health and paternal involvement in child development. The key EOHHS sister agency relationships to promote MCH include MassHealth (the Massachusetts Medicaid Program, including SCHIP and EPSDT); the departments of Children and Families, Mental Health, Developmental Services (previously Mental Retardation), Transitional Assistance (the state TANF agency), Youth Services, and Elder Affairs (which oversees long-term care for all ages); Health Care Finance and Policy; Massachusetts Rehabilitation Commission, Mass. Commission for the Blind, Mass. Commission for the Deaf and Hard of Hearing, and the Office of Refugees and Immigrants. These agencies include key services including SSI, vocational rehabilitation, developmental disabilities programs, and autism services for those over age 3. BFHN participates in several Secretariat-wide efforts to assure better and more comprehensive systems of care, including the Children's Behavioral Health Initiative, the Patient-Centered Medical Home Initiative, and two complementary SAMHSA grants (MassLAUNCH at BFHN and MYCHILD at EOHHS).

Beyond EOHHS, Title V has strong linkages with the Executive Office of Education (EOE), including the Department of Elementary and Secondary Education (DESE) and the Department of Early Education and Care, with many collaborative, systems-building efforts underway. Other linkages to promote better systems beyond EOHHS include the Department of Public Safety, the Department of Housing and Community Development, Federal Head Start (and Early Head Start), Region I Federal Title X, and others.

The capacity to work with, influence, and promote comprehensive provider-based service systems continues to include hospitals and community-based providers such as

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community health centers, and private providers, tertiary and specialty hospitals, professional associations such as the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, and the Massachusetts Medical Society, payers and insurers, universities, schools of public health, and many others.

Massachusetts is fortunate to have a large number of MCHB grants in the state in addition to the MCHB and SSDI. Six have been awarded to MDPH and the others, which include MCH Public Health training programs (2), other training grants, multiple research grants, TBI implementation and advocacy, LEND (2), Federal Healthy Start (2), national Children and Adolescents Injury and Violence Prevention Resource Center, Family/Professional Partnership, etc. at over 16 institutions and agencies. We work closely and collaboratively with many of these projects and benefit from their work and knowledge.

In the specific area of CYSHCN, Title V collaborates with state and federally funded agencies and organizations to address the needs of individuals with developmental disabilities. The Director of Family Initiatives (DFI) represents the Department as a council member on the Massachusetts Developmental Disability Council (MDDC). As a Council member, she provides information about MDPH resources, reviews grants and assists families to access Consumer Empowerment Funds. The Director of Family Initiatives sits on the Advisory Board of the Institute for Community Inclusion (ICI), one of Massachusetts' two University Centers for Excellence in Developmental Disabilities. ICI works across the lifespan to develop and disseminate programs and resources. The DFI provides the public health and the family perspective on the need and efficacy of these programs, resources and community based supports for individuals with developmental disabilities. The DFI works with both Massachusetts LEND programs to identify opportunities for collaboration and resource sharing. She participates on an interagency working group of liaisons from all EOHHS agencies working to make state and federally-funded supports for families of CYSHCN more flexible and family directed.

The extensive Massachusetts Title V collaborative relationships and network of resources are further detailed in Appendix 3 to this needs assessment, "Massachusetts Federal-State MCH Partnership: Key MCH-Related Relationships."

Regional Offices and Community Health Network Areas (CHNA)

Work with communities is critical as they design their approach to address specific programs. The six Regional Offices provide both on-going information related to issues, changes, and needs and connections to the key stakeholders within specific communities. The Rural Health Advisory Council assures that services are designed and provided to meet the needs of rural communities and to promote accessibility.

Without county health departments and with few comprehensive city health departments, the Department has developed a network of health and human service providers along with local Boards of Health to create a network of services and infrastructure. Through the Office of Healthy Communities, the Department established the Community Health Network Area (CHNA) effort in 1992. Today this initiative involves all 351 towns and cities through 27 Community Health Networks. A **Community Health Network** is a local coalition of public, non-profit, and private sectors working together to build healthier communities through community-based prevention planning and health promotion.

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Each of the 27 Community Health Networks collaboratively identifies local and regional health priorities, designs community-based prevention plans, and tracks success in achieving healthier communities. CHNAs develop new health improvement projects as projects are completed. While each Community Health Network has a different design and composition, all Networks function as frameworks for partnerships that enhance cooperation in developing a preventive, primary care health model in each community.

The Department makes health indicators and data available for the Community Health Networks as well as for each of the 351 towns and cities through the Massachusetts Community Health Information Profile (MassCHIP), a user-friendly, internet-accessible data dissemination system. (<http://www.mass.gov/dph/masschip>) It was specially designed to provide quick access to community level health statistics and is supported in part by Title V.

The Office of Healthy Communities supports the Massachusetts Regional Center System, a statewide capacity-building system of six Regional Centers for Healthy Communities (RCHCs) in support of healthier communities and to reduce alcohol and substance abuse, with an emphasis on youth development. These local and regional resources and the examples of infrastructure-building collaboration efforts in which Title V has major involvement described below, inform the Title V program's perspective on how local and regional delivery systems meet the MCH population's needs. The collaborations provide information about appropriate standards, how well they are implemented, whether the agencies providing services and the communities and individuals to be served consider them to be working, and whether the available data support these perceptions. The Title V program is actively involved in monitoring the delivery of services and evaluating their efficacy.

Statewide Coalitions and Work Groups

MDPH has a number of collaborative initiatives in place developing statewide community coalitions. MDPH provides staffing and data support, generally with assistance from CDC grants. These coalitions each develop state plans and coordinate with each others' plans, including sharing and contributing to common objectives. They address these interrelated issues across the lifespan, including work with all three MCH populations. The plans promote environmental changes (policy and systems changes) in multiple venues, including health care settings, school, work, and the community. Several of direct relevance to MCH populations include are described below.

Gestational Diabetes Workgroup

The MDPH Gestational Diabetes Workgroup has developed a plan to integrate chronic disease models of care with maternal and child health for effective strategies to address the rising rates of Gestation Diabetes Mellitus (GDM). Three workgroups have been established to achieve a statewide plan: (1) communications—increasing patient and provider awareness of GDM diagnosis, management, and prevention of type 2 diabetes; (2) continuity of care—improving continuity of preconception, prenatal and postpartum care, and (3) surveillance—enhancing surveillance for women with GDM and their children. Recommendations from this workgroups will strengthen the MA healthcare system's response to GDM and diabetes prevention. The Diabetes Prevention and Control Program at the Department of Public Health interviewed providers to learn the barriers to care and follow-up for women diagnosed with GDM. It identified promising practices based on

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discussions with women with a history of GDM and health care providers. It has convened a workgroup to develop the *Massachusetts Guidelines on Gestational Diabetes*, clinical practice guidelines for providers; a GDM module for WIC educators is also in development. As part of this initiative, MDPH works in an advisory capacity with the Brigham and Women's Hospital Obstetrics Department on a CDC funded grant to develop educational resources and services for pregnant and post partum women with GDM in multiple settings including clinics, the community and WIC sites. MDPH coordinates an awareness campaign targeting Latina women with GDM or a history of GDM.

Mass in Motion

Massachusetts launched Mass in Motion in January 2009. Mass in Motion is a comprehensive action initiative to eliminate obesity through policy change and public education. The initiative includes new regulations requiring school-based BMI screenings and reporting, menu labeling of nutritional information in chain restaurants, social marketing campaigns, a website and blog, and grants to municipalities to promote broad-based policy changes to improve opportunities for healthy eating and increased physical activity. Mass in Motion supports the discussion for the legislature to ban junk food in schools and encourages access to healthy snack items.

Mass in Motion promotes wellness and strategies to prevent overweight and obesity in Massachusetts – with a particular focus on the importance of healthy eating and physical activity. This is a priority area of the HealthyMass Compact, announced by Governor Deval Patrick and Secretary JudyAnn Bigby in 2008. Mass in Motion uses a multi-faceted approach, including:

- The release of a Call to Action that documents the extent of the obesity epidemic in Massachusetts, its consequences, and efforts to combat it;
- Support for regulatory changes to promote healthy diet and exercise, including Body Mass Index (BMI) testing of public school students in grades 1, 4, 7 and 10, and menu labeling for chain restaurants operating in Massachusetts.
- An Executive Order by Governor Patrick requiring state agencies responsible for large-scale food purchasing (e.g., DPH and DMH hospitals) to follow healthy nutritional guidelines in their food service operations. State purchases of food by these agencies run into the tens of millions of dollars per year;
- Grants to cities and towns to make wellness initiatives a priority at the community level. Funding for these grants comes from five major health-funding foundations and other leading health organizations in the Commonwealth;
- The expansion of a state-sponsored Workplace Wellness program to help employers create work environments that encourage healthy behaviors and reduce absenteeism and health insurance costs;
- The launch of a state-sponsored Mass in Motion web site that promotes eating better and moving more at home, work, and in the community. The objective of the website is to provide simple, practical, cost-effective ways for Massachusetts residents to:
 - Improve eating habits
 - Increase physical activity

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- Ask experts questions about improving their diet and physical exercise routine
- Get involved in helping to build healthy communities

Massachusetts Wellness Promotion Advisory Board

The MDPH **Massachusetts Wellness Promotion Advisory Board** (WPAB) is made up of representatives from across the Commonwealth who provide guidance and support to the Department in carrying out its commitment to promote wellness through healthy eating and active living to lower the rate of overweight/obesity and chronic disease in individuals and families in communities, work places, schools and healthcare institutions throughout Massachusetts. The WPAB will assist the Department as it strives to reach the national *Healthy People* goal that at least 95 percent of children and 60 percent of adults are at a healthy weight.

Nutrition and Physical Activity Infrastructure

Nutrition and physical activity is critical for all MCH populations. The promotion of healthy weight, prevention of chronic disease, and support for breastfeeding are consistent with efforts to ensure healthy pregnancies, mothers, infants, children and adolescents. A focus on nutrition and physical activity also benefits children with special health care needs. Increasing capacity to promote healthy weight is an MCH priority in Massachusetts, with a revised state-developed measure to monitor progress.

The MA Title V Program's current capacity to address nutrition and physical activity includes:

- The Wellness Promotion Advisory Board, described in the preceding section.
- WIC's broad network of care serves all income-eligible women, infants and children to age 5 across the state. WIC nutrition and breastfeeding service providers come from many cultural and linguistic backgrounds, and materials are available in up to nine languages as needed.
- The Nutrition Division, which houses the WIC program. The Division and WIC have strong coordination for various projects with CHCs, other MCH programs (including, for example, targeted outreach and enrollment for homeless families), the Massachusetts Breastfeeding Coalition (to improve breastfeeding services and rates), and MassHealth (for example, for integrated participant referrals and educational materials for pregnant women).
- The Essential School Health and School Based Health Center programs. Both have provided training in BMI monitoring and healthy weight promotion. They have incorporated nutrition and physical activity initiatives into the guidance that contracted programs follow. School nurses and clinic nurse practitioners screen for healthy weight and make referrals.

Healthy Weight is now the subject of a developmental measure focused on building a comprehensive healthy weight strategy across Title V programs and activities. A concentrated developmental approach is needed because the capacity for nutrition and physical activity and promotion of healthy weight is not universally available across all populations, age groups, and geographic areas. One issue is the lack of consistency of messages between various community-based providers and medical practitioners about

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breastfeeding, feeding recommendations, healthy eating, and physical activity. Another is inconsistently available treatment for overweight and the lack of nationally recognized evidence-based programs, particularly for children. Nutritionists and lactation consultants are not as available at all hospitals and communities as needed.

Asthma Prevention and Control Program

The Asthma Prevention and Control Program (APCP) works to improve the quality of life for all Massachusetts residents with asthma and to reduce disparities in asthma outcomes. Funded by the Center for Disease Control and Prevention and the National Institutes of Health, the Program's activities include conducting asthma surveillance, broadening statewide and regional asthma partnerships for coordinating action on asthma, and improving asthma management and control through evidenced-based interventions. Included in the Program's activities are efforts to train health care professional on the asthma guidelines, increase asthma self-management education for individual and improve the reimbursement for asthma recommended care. APCP's goal is to reduce exposure to asthma triggers and irritants in homes, licensed childcare centers, schools, workplaces and senior centers. The Program researches effective interventions to reduce asthma disparities. Through its Asthma Disparities Initiative, the Program supports projects in the regions most affected by asthma, both to improve clinical care and to develop and coordinate asthma coalitions. The Program has an NIH grant to study effective interventions to reduce disparities among children. Lastly, the Program provides Asthma Action Plans for children and adults in seven languages, with partial funding from Title V. APCP partners with the Massachusetts Asthma Action Partnership to implement and oversee the Strategic Plan for Asthma in Massachusetts 2009 – 2014. Major recent accomplishments include:

- Comprehensive 2009 asthma burden document - The Burden of Asthma in Massachusetts
- Revised Strategic Plan for Asthma in Massachusetts 2009 – 2014 with over 65 lead partners
- Statewide partnership, Massachusetts Asthma Advocacy Partnership, with over 80 partners
- Receipt of NIH R01 grant to study innovative approaches in reducing asthma disparities in youth
- Support of local community health centers and asthma coalitions to develop best practice models for the state on reducing asthma disparities (called the Asthma Disparities Initiative)
- Successful advocacy for new regulations requiring that all school children with chronic illness have individualized health plans.
- Initiation of the Reducing Ethnic/Racial Disparities in Youth (READY) study – this study looks at the ability of community health workers, located in the medical home, to improve asthma outcomes through home educational sessions and environmental assessments
- Established partnership with the New England Asthma Program by working with health payors, purchasers and providers in improving coverage for nationally recommended standards of care.

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Injury Prevention and Control

The Injury Prevention and Control Program (IPCP), within the MA Department of Public Health, is one of the oldest in the nation. The Injury Prevention and Control Program's (IPCP) primary work is through infrastructure building. IPCP staff provides leadership to collaborative initiatives that inform policy development and enhance data collection and surveillance efforts to document the extent of the burden of unintentional injury and suggest areas of emerging programmatic need. In FY 2005, IPCP completed a state plan for injury prevention, *Maximizing Our Efforts: The Massachusetts State Injury Prevention Plan*, a document which guides MDPH injury prevention activities. The Plan is currently being updated. The current plan outlines major priorities and next steps for this work, four key focal areas for prevention (motor vehicle occupant safety, elder falls, poisonings, and fire and burn-related injuries), and two overarching issues that must be integrated into prevention strategies – traumatic brain injury and the role of alcohol and other substances. MDPH convened a Traumatic Brain Injury Task Force to respond to the significant incidence of TBI across the lifespan. This Task Force presented recommendations to the Department, many of which were incorporated into the MA Report on Elder Falls. Several of the IPCP projects are described below.

Public Health Injury Surveillance and Prevention Program (Core Injury Program)

This program, through time limited funding from the CDC, supports dedicated staff with technical expertise in injury surveillance and prevention within the MDPH and convenes and facilitates the Massachusetts Prevent Injuries Now! Network (MA-PINN). MA-PINN is a group of professionals from diverse backgrounds and injury prevention interests (academic and local public health professionals, clinicians, advocates, and state agency representatives) who assist the MDPH in the implementation of the MA Strategic Plan for Injury Prevention. Successful outcomes of MA-PINN have included the development of the Massachusetts Falls Prevention Coalition, the implementation of collaborative social marketing projects with Emerson College, including one on teen seat belt use, another on prevention of falls in the home among older adults, and mobilization of diverse professional groups for the successful passage of a child booster seat law in Massachusetts. This program also conducts comprehensive injury surveillance through the timely analysis and dissemination of findings from population-based databases and enhances injury data collection where feasible. The surveillance findings from this program are widely used by policy makers, program planners, researchers, students, advocates and injury prevention professionals both within and outside of MDPH for policy development, program planning and for evaluation.

Residential Fire Injury Prevention Project

The Residential Fire Injury Prevention Program is funded through September 2011 by a grant from the CDC. The program aims to decrease injuries and deaths due to residential fires in at-risk households. The program utilizes a comprehensive approach involving smoke alarm installation, fire safety education in the home, and community education. The program seeks to increase collaboration by encouraging the formation of partnerships between local fire departments and community agencies serving at-risk populations. The IPCP works in collaboration with the Office of the State Fire Marshal to accomplish its goals.

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Emergency Medical Services for Children (EMSC) Program

The Emergency Medical Services for Children (EMSC) Program provides support and enhancement of emergency medical services for children, including training and curriculum development, comprehensive injury prevention initiatives, innovative planning and policy development, and the development of pediatric care standards and protocols.

Passenger Safety Program

The Passenger Safety Program provides training and education, technical assistance, coalition and task force leadership, program development and public informational materials on a range of passenger safety issues with a specific focus on child passenger safety. IPCP maintains the Car Safe Line, a toll-free telephone line for Massachusetts residents who have questions about child passenger safety, other passenger issues and related state laws.

Suicide Prevention Program

The goal of the Massachusetts Department of Public Health's Suicide Prevention Program is to reduce the number of suicides and suicide attempts among Massachusetts residents. Suicide prevention requires a collaborative approach across the lifespan. The MDPH Suicide Prevention Program seeks to raise awareness of suicide as a public health issue. The Program provides support to community agencies, education and training for professionals and care givers, funds programs working with youth, veterans and elders. The Program supports and encourages communities to collaborate across disciplines to prevent suicides and suicide attempts. Analysis of data guides the program in identifying populations and geographic areas of the state that need assistance. The Program solicits and takes recommendations from the MA Coalition for Suicide Prevention, a statewide broad-based membership group of individuals and organizations dedicated to suicide prevention.

Violence Prevention

Violence prevention staff provide substantial leadership in the area of violence prevention at the community, state, regional, and national levels. In all of these venues, staff bring a public health, *prevention* perspective to the work that often compliments the criminal justice perspective or victim service perspective of many of our collaborative partners.

DVIP continues in a leadership role in the Governor's Council Addressing Sexual and Domestic Violence, an interagency council that includes experts in the field of domestic and sexual violence as well as health care and human services providers. The Council provides recommendations and guidance to the administration. Staff from the Division also work closely with the Massachusetts Commission for Gay, Lesbian, Bisexual and Transgender Youth, responding to recommendations and developing joint expectations for programming and policy.

Early Childhood System Consolidation/MECCS

The Massachusetts Early Childhood Comprehensive Systems (MECCS) project is a systems building project funded by HRSA/MCHB. The grant's main goal is to integrate systems of care, health, and education for young children and their families. MECCS is part of the Division of Perinatal, Early Childhood, and Special Health Needs in the Bureau of Family and Community Health.

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The MECCS project supports the development of a comprehensive, strength-based, family-centered service whose ultimate goal is a caring, nurturing environment in which our state's youngest children can grow up healthy and ready to learn. With this goal in mind, the MECCS project focuses on five areas: (1) Mental Health and Social/Emotional Development, (2) Family Support, (3) Parenting Education, (4) Access to Health Insurance and Medical Home, (5) Early Care and Education/Child Care.

MECCS is guided by an Executive Committee comprised of senior staff from the Departments of Public Health, Early Education and Care, Children and Families, Mental Health, and Elementary and Secondary Education, along with the Children's Trust Fund and the Executive Office of Health and Human Services' Children, Youth and Families cluster. The MECCS Executive Committee recently responded to the Children's Behavioral Health Initiative's (CBHI) goal to transform the behavioral health system for children by developing a strategic plan for an early childhood behavioral health system of care. As a result of presenting this plan to CBHI's Executive Committee, the MECCS Executive Committee was designated as the Young Children's Interagency Workgroup (YCIW) of CBHI.

Recently, MECCS participated in the successful application for two federal SAMSHA grants. One grant (MassLAUNCH, with DPH as lead) is being piloted in Boston and will provide enhanced medical homes for young children by placing a team of an Early Childhood Mental Health Clinician and a Family Partner into select pediatric practices. The second grant (MyCHILD, led by the EOHHS) is focused on developing a system of care in pilot communities within Boston to identify children under 6 who have or are at high risk for serious emotional disturbance (SED), and provide them with family-directed, individualized, coordinated and comprehensive services.

4.D2 Planning, Evaluation, Research, Data Systems, and Workforce Development

The Massachusetts Title V Program participates in many areas related to planning, evaluation, research, and workforce development. These activities often entail data collection and data systems; establishment of standards of care, guidelines and certification/credentialing; program monitoring; and continuous quality improvement. Massachusetts is a national leader in many of these activities.

Office of Data Translation

The Office of Data Translation (ODT) provides statistics and information for ongoing needs assessment, performance management, and decision support throughout the Bureau of Family Health and Nutrition (BFHN). ODT's mission is to translate data to action in support of partners whose goal is to optimize the health of Massachusetts infants, children, mothers and families.

Working closely with Bureau leaders, ODT staff conduct data analysis, evaluation, needs assessment, and surveillance activities. This work informs RFR development, federal grant applications, performance monitoring, clinical research, community mobilization to broaden public awareness as well as establishment of strategic initiatives to address emerging trends.

ODT houses a total of 15 epidemiologists, research analysts, consultants, and others, who support program staff (Newborn Hearing Screening, Early Intervention, Birth Defects,

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and FOR Families programs, etc.), the Pregnancy to Early Life Longitudinal Life (PELL) project, the Pregnancy Risk Assessment Monitoring System (PRAMS), the Maternal Mortality and Morbidity Review Committee, the Perinatal Advisory Committee, and the MCH Block Grant activities. ODT staff generate statistics used to advise policy and program development. The Bureau leadership has affirmed as both a principle and an MCH priority that managers and staff use data to prioritize issues, inform practice, support programs, and adapt to shifts in the continuum of care and nature of issues

Continuous Quality Improvement

BFHN, the Title V agency, uses both population and program data to support an internal balanced scorecard initiative. The balanced scorecard is a management system that enables organizations to clarify their vision and strategy and translate them into action through a continuous quality improvement process. It provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and results. BFHN began the balanced scorecard process in late 2007. Since then it has developed and reviewed on a quarterly basis the results of balanced scorecards for each division with BFHN. Collectively, the balance scorecard approach has allowed BFHN to set and meet targets for initiatives, which support the improvement of health outcomes across the MCH populations

Data Collection and Data Systems

MDPH has several key data collection tools data systems, and data linkage projects to support planning, evaluation, and research to develop an improved system of care in the state. These resources have become the primary sources for research on the MCH populations and are a key step in promoting community based service systems. These data have become the basis for several state and national performance measures as well.

Planned efforts focus on the linkage of datasets to create full profiles of clients and better understand how the systems of service support individuals, especially those populations with disparate health outcomes. Massachusetts is hampered in this effort by substantial restrictions on the linkage of datasets to protect the privacy of individuals whose data is included. Much work has occurred and will continue to link better these data sources while still ensuring the privacy of participants.

Registry of Vital Records/Vital Statistics

The Registry collects, processes, corrects and issues copies of birth, death and marriage records that occur in Massachusetts. Information about divorces is also collected and maintained at the Registry. The information that is collected on the nearly 250,000 annual vital events (births, deaths and marriages) that occur in Massachusetts forms the primary research database for physicians and other health providers, genealogists, historians, demographers and other researchers.

MassCHIP

MassCHIP was developed by the Massachusetts Department of Public Health to assist communities and professionals in health planning. MassCHIP provides access to 36

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health status, health outcome, program utilization, and demographic data sets. It currently has over 4,000 active users working in a variety of settings, including hospitals, HMOs, government agencies, universities, community health centers, and local boards of health. In the past year, users have accessed information from MassCHIP approximately 84,000 times.

YHS/ YRBS

The Massachusetts Department of Elementary and Secondary Education (DESE) - in collaboration with the Centers for Disease Control and Prevention (CDC) and the Massachusetts Department of Public Health - conducts the Youth Risk Behavior Survey (YRBS) in randomly selected public high schools in every odd-numbered year. The YRBS focuses on the major risk behaviors that threaten the health and safety of young people. This anonymous survey includes questions about tobacco use, alcohol and other drug use, sexual behaviors that might lead to unintended pregnancy or sexually transmitted disease, dietary behaviors, physical activity, and behaviors associated with intentional or unintentional injuries. Data from the YRBS provide accurate estimates of the prevalence of risk behaviors among public high school students in the Commonwealth, and are important for planning health education and risk prevention programs.

The Massachusetts Youth Health Survey (YHS) is the Massachusetts Department of Public Health's (MDPH) surveillance project, through the University of Massachusetts Center for Survey Research (CSR), to assess the health of youth and young adults in grades 6-12. The YHS is used primarily for surveillance and needs assessment activities; statistics developed are used for block grant reporting to the Health Resources Services Administration (HRSA) and the Substance Abuse and Mental Health Services Administration (SAMHSA). The survey contains health status questions in addition to questions about risk behaviors and protective factors. The YHS instrument currently used provides several different types of measurements:

- Prevalence of physical and mental health conditions, including chronic disease and disability
- Prevalence of risky behaviors that contribute to the leading causes of morbidity and mortality in youth, including alcohol, illicit drug, and tobacco use; poor diet, physical activity, and weight control, and violence and victimization
- Measures of possible "protective" factors, such as family support, that are associated with lowered levels of substance abuse and unhealthy behaviors, and which may help make students more "resilient" and less "at risk"

Since 2006, DESE and DPH, after discussions with CSR and the CDC, have coordinated the administration of the two survey efforts. The YHS is administered in Massachusetts public Middle Schools and both the YHS and the YRBS is administered in Massachusetts public High Schools. A report summarizing results of the 2009 Youth Risk Behavior Survey and the Department of Public Health's 2009 Youth Health Survey is due to be released shortly.

BRFSS

The Health Survey Program operates the Behavioral Risk Factor Surveillance System (BRFSS) in Massachusetts. The BRFSS has been conducted by the Health Survey Program at

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the Department of Public Health since 1986 and by our survey vendor, Abt SRBI, since 2008. The survey began as a landline telephone survey; however, starting in 2009, Massachusetts cellular telephone numbers will be included in the survey. In 2010, a mail survey will be conducted in addition to the landline and cellular telephone surveys.

HCFP

The Division of Health Care Finance and Policy (Division) collects patient-level data for Massachusetts acute care hospital inpatients, observation patients, and emergency room patients to support the Division's analyses of such issues as preventable hospitalizations, hospital market analysis, alternative care settings, the patient care continuum, and comparative costs and outcomes in acute care hospitals. It also conducts an annual household survey of health insurance coverage that is used to monitor the implementation of health care reform in the state; those data are used for a National Performance Measure and a Health Systems Capacity Indicator.

PRAMS

PRAMS, the Pregnancy Risk Assessment Monitoring System, is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments. PRAMS collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. Initiated in 1987, the goal of the PRAMS project is to improve the health of mothers and infants by reducing adverse outcomes such as low birth weight, infant mortality and morbidity, and maternal morbidity. PRAMS provides state-specific data for planning and assessing health programs and for describing maternal experiences that may contribute to maternal and infant health.

A three month PRAMS pilot project was conducted in 2005 to demonstrate the feasibility of implementing the full PRAMS protocol in Massachusetts. Successful completion of that pilot enabled MDPH to obtain funding for the full implementation of PRAMS. Data collection began with 2007 births and is ongoing. MA PRAMS data were weighted by CDC and achieved a 70% response rate for 2007 and 72% for 2008. The 2007 PRAMS Surveillance Report was completed and disseminated in November 2009 (available online at: <http://www.mass.gov/dph/prams>). Several topic-specific fact sheets are in various stages of development, and three have been posted on the MDPH website (HIV testing, postpartum depression, and maternal smoking). The MA PRAMS team has received supplementary PRAMS funding from the Applied Sciences Branch at CDC for linkage of PRAMS data with the PELL. Preliminary analyses were performed and findings were presented at the 15th MCH EPI conference, Tampa, Florida.

PRAMS provides data not available from other sources about pregnancy and the first few months after birth. These data can be used to identify groups of women and infants at high risk for health problems, to monitor changes in health status, and to measure progress towards goals in improving the health of mothers and infants. PRAMS data are used by state and local governments to plan and review programs and policies aimed at reducing health problems among mothers and babies. PRAMS data are used by state agencies to identify other agencies that have important contributions to make in planning maternal and infant health programs and to develop partnerships with those agencies.

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H1N1 PRAMS Supplemental.

PRAMS received supplemental funding from CDC PRAMS to collect data on seasonal and H1N1 influenza vaccine utilization among pregnant women in MA and identify barriers for not receiving vaccination. Since December 2009, the influenza supplemental survey has been added to the current PRAMS survey at the end of the survey and the influenza data collection process has begun. So far, most mothers who have completed the PRAMS survey also completed the influenza survey.

WIC Data System

Massachusetts WIC services are currently provided via a distributed information system with independent applications operating at each WIC site. The WIC information system was developed in the 1980s and transferred from Illinois to Massachusetts in 1991. This outdated system is written in Clipper and runs on a DOS platform at Local Agency sites, and utilizes Natural and ADABAS at ITD. Currently, Massachusetts WIC is piloting a new, state of the art WIC information system called Eos. Eos is a web-based transaction processing application. It enhances WIC's ability to integrate sharing of common data, improve reporting, meet state and federal security requirements, including those imposed by HIPAA. This new system allows Massachusetts WIC to better serve the families dependent on the program and provides major benefits to the WIC staff, including enhanced ability to collect and analyze WIC data. The new system will also enable linking of WIC data with PELL.

Program Monitoring

Massachusetts uses a purchase of service system to provide most MCH Partnership services. Services are procured through competitive bidding and RFRs. In addition to regular monitoring of contract billing and payments, contract performance is also monitored with program-specific performance measures. Program audits, including on-site visits and client record reviews are also used on a regular basis. Vendor achievements on performance measures are weighed along with other criteria when programs are rebid and new contracts awarded.

These department efforts are linked to broader efforts by the Executive Office of Health and Human Services (EOHHS), which launched EHSResults in 2007 to foster transparency, accountability, and cross-agency collaboration throughout the Secretariat. EHSResults is building a foundation for performance management at EOHHS by identifying strategic goals, tracking and reporting on outcomes across EOHHS, providing performance information for better internal decision making, and sharing some examples of progress with the public.

EIM/ESM and Virtual Gateway

Enterprise Invoice Management/Enterprise Service Management (EIM/ESM) streamlines, standardizes, and consolidates contract management, reporting, and billing activity for eight state agencies (including MDPH) and over 500 community providers. EIM/ESM functions as the system of record for these delivered services and facilitates closer program oversight while providers also benefit from the decreased time between invoice submission and payment.

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The Virtual Gateway includes an internet-based common intake application to be used by hospitals, health and human service providers, and the public to obtain information about public programs, screen for eligibility, and apply for a number of human service programs, including MassHealth and food stamps, using a single, integrated online application. To facilitate the common intake and follow-up services, EOHHS developed regulations that enable data sharing across EOHHS client-service programs, within federal constraints. This is of significance for data linkage projects.

Research and Evaluation

Massachusetts Pregnancy to Early Life Longitudinal (PELL) Data System

The Pregnancy to Early Life Longitudinal database (PELL) is a public-private partnership between the MDPH, Boston University School of Public Health, and the CDC, the primary funding agency. Initially developed to examine the impact of prenatal and perinatal experiences on subsequent maternal, infant, and child health, PELL offers public health practitioners and researchers the ability to study risk and protective factors and health outcomes longitudinally over the life span. The core PELL data set includes birth certificates and fetal death reports linked to the delivery-related hospital discharge records for both mother and infant. This core linkage is longitudinally linked to statewide programmatic and surveillance datasets including Early Intervention, WIC, the Birth Defects Registry, other public health programs, and pre and post birth/delivery hospitalizations, observational stay visits, and emergency room records for the mother and child. PELL data have been used by MDPH for the study of morbidity and mortality among mothers and children, tracking of hospital and program utilization and associated costs, and evaluation of state MCH programs.

PELL data linked with EI program data have been used to examine the incidence of and characteristics associated with early diagnoses (prior to age 36 months) of autism spectrum disorders in Massachusetts. MDPH is negotiating with the Massachusetts Department of Elementary and Secondary Education (DESE) to share student data from DESE's Student Information Management System to evaluate the importance of EI services for children with autism spectrum disorders (ASD), with the goal of improving developmental outcomes and educational achievement for these children. MDPH is awaiting determination by DESE as to whether such a project can be conducted under the Family Education Rights and Privacy Act (FERPA).

MDPH linked data from the Early Intervention Partnerships Program (EIPP) with PELL to conduct an evaluation of EIPP. The PELL data system is also currently being used for studies of stillbirths, Down syndrome, late-preterm births, and perinatal outcomes associated with maternal sickle cell disease. PELL data will be linked with clinical data on assisted reproductive technology (ART) to improve scientific and clinical knowledge about the association between ART and pregnancy outcomes, infant health, and maternal health.

Interpregnancy interval (IPI) data are available from both the annual birth data (retrospectively) and longitudinally linked birth data in PELL (prospectively and retrospectively). Depending on the policy question each method has its utility in MCH to improve maternal health and improve birth outcomes. IPIs are analyzed by age of the mother, correlated with birth outcomes, and included as an ongoing measure in the annual births data release by MDPH. The data are also being used to develop program initiatives to decrease the percent of women giving birth who have short IPIs.

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Massachusetts Child Fatality Review

The Massachusetts Child Fatality Review is a process in which MDPH is an active participant and leader on the State Team. The Massachusetts Child Fatality Review law, passed by the state legislature in October 2000, established Local Teams within each of the 11 District Attorneys' offices and a State Team within the Office of the Chief Medical Examiner (OCME). The Local Teams collect information on individual cases, discuss case information in team meetings, and advise the State Team by making recommendations for changes in law, policy and practice that will prevent child deaths. Local Teams also take action at the community level to enhance the safety of children. Through the review process, Child Fatality Review Teams promote collaboration among the agencies that respond to child deaths and/or provide services to families. In addition to ensuring public health input at all state and local CFRT meetings, the MDPH continues to provide support to the State Team in the preparation of the annual CFRT report, through the organization of statewide CFR conferences and the provision of trainings at these conferences, and through the provision of data support.

Several operational changes have occurred in the past five years pertaining to this work. In 2005, Massachusetts signed a data sharing agreement with the Michigan Public Health Institute to participate in the National Child Fatality Review Database. Through this agreement, MDPH coordinates data collection for the State Team, providing trainings and technical assistance to local teams willing to participate in the national web-based system, and serving as the point of contact for the National Center on Child Death Review. Participation by the local teams in this database has been limited by a lack of resources at the local team level. In 2008, the MDPH developed an additional but simpler reporting mechanism for monitoring the local CDR process in Massachusetts to ensure collection of basic data and all recommendations from all local teams (including those not participating in the web-based database). Additionally, in 2009, the MDPH took on a heightened role of Co-Chair of the State Team. As part of this role, state and local team protocols and processes have been systematically examined and are in the process of being updated where necessary.

In 2009, the State Team submitted a report to the Massachusetts Legislature on the status of sudden unexplained infant death (SUID) investigations, providing a series of recommendations for improved data collection and standardized training of death scene investigators. The MDPH has played an active role in the development of that report and is working with the Chief Medical Examiner to establish standard data elements for collection by death scene investigators. Once collected, these data will significantly improve our understanding of the magnitude and risk factors for SUID in MA.

Massachusetts Maternal Mortality & Morbidity Review Committee

The Massachusetts Maternal Mortality and Morbidity Review Committee (MMMRC), established in 1997 by the Commissioner of Public Health, reviews maternal deaths, studies the incidence of pregnancy complications, and makes recommendations to improve maternal outcomes and prevent mortality. While the annual number of pregnancy-associated deaths is relatively low in Massachusetts, one in three deaths of women who die while pregnant or during the first year postpartum is caused by an injury. From a public health perspective, these deaths are potentially preventable through changes in policies,

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prevention and treatment programs, and clinical practice. Furthermore, these deaths are sentinel events that can provide important clues about maternal morbidity.

Review of Infant Mortality (RIM)

In FY10, the MDPH Medical Director convened a group of staff from the Bureau of Family Health and Nutrition (BFHN), Bureau of Substance Abuse Services (BSAS), Bureau of Community Health Access and Promotion (BCHAP), and the Bureau of Health Information, Statistics, Research and Evaluation (BHISRE) to establish a process for reviewing infant deaths statewide. The purpose of the RIM is to decrease the incidence of preventable infant deaths in Massachusetts. The RIM guiding principles include understanding of the causes of and contributors to infant mortality to inform policy and program priorities; complementing work done within the Birth Defects Program and by the Child Fatality Review Program; reviewing infant deaths within the frameworks of the life course perspective and social determinants of health; identifying and addressing disparities; ensuring that review teams are multidisciplinary; and partnering with communities to implement recommended action steps to reduce infant mortality and eliminate disparities in infant mortality. Initially, RIM will include infants under one year whose death was caused by prematurity (< 37 weeks) or a known medical cause. Fetal deaths and infant deaths due to injury, violence and sudden unexplained infant death (SUID) will be excluded. The review process will include surveillance of all infant deaths meeting criteria for RIM inclusion and an in-depth review of a sub-sample of infant deaths. Based on these reviews, the RIM will develop and disseminate recommendations for preventing infant deaths, and will work with local communities to implement recommended strategies to prevent infant deaths.

Other Standards of Care, Guidelines/Credentialing, and Evaluation Programs

Mass Breastfeeding Initiatives

The Nutrition Division and WIC continue to distribute materials in multiple languages to birth hospitals and OB/GYN community providers to improve early breastfeeding success and enhance hospital collaboration with community-based programs such as WIC's Peer Counselor Program. WIC also continues to implement a statewide Breastfeeding Performance Improvement Project to improve breastfeeding initiation and duration rates as well.

The Nutrition Division and Breastfeeding Coalition continue to work to promote public awareness of recent legislation to protect women breastfeeding in public and, with the DPH Wellness program CDC obesity grant, to provide breastfeeding workshops to nursing students and medical residents. DPH recognized hospitals that have received letters of intent from the baby-friendly hospital initiative at the annual Massachusetts Breastfeeding Coalition Meeting.

Newborn Hearing Screening

The Universal Newborn Hearing Screening Program (UNHSP) directly supports the network of referral and data tracking resources to ensure early identification and treatment of hearing conditions. A list of twenty-nine DPH Approved Audiological Centers (ADCs) is established and hospitals are required to exclusively refer infants to those centers. ADCs must meet DPH Audiological Diagnostic Center Guidelines to become approved.

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MA Health Quality Partners

The Massachusetts Health Quality Partners (MHQP) is a broad-based coalition of physicians, hospitals, health plans, purchasers and government agencies first established in 1995 to promote improvement in the quality of health care services in MA. Member organizations include Blue Cross Blue Shield of MA, Fallon Community Health Plan, Harvard Pilgrim Health Care, Health New England, Tufts Health Plan, Massachusetts Hospital Association, Massachusetts Medical Society, Massachusetts Department of Public Health, MassHealth, MHQP Physician Council, two consumer representatives and one employer representative.

MA Health Quality Partners (MHQP) has issued Adult and Pediatric Routine Preventive Care Recommendations and Immunization Guidelines every two years since 2001. A collaborative working group of clinicians compiles a single set of preventive care and immunization recommendations to eliminate inconsistent guidelines and to support efforts to provide high quality, evidence-based care. The guidelines are based on recommendations from the U.S. Preventive Services Task Force (USPSTF), the U.S. Centers for Disease Control and Prevention (CDC), the Massachusetts Department of Public Health (MDPH), the American Academy of Pediatrics, and the American Academy of Family Physicians and other nationally recognized specialty societies. The guidelines are used by managed care organizations in the Commonwealth to help satisfy National Committee for Quality Assurance requirements.

Sexual Assault Kits & Training for Sexual Assault Nurse Examiner Program

The Sexual Assault Nurse Examiner Program has developed what is considered the national gold standard kit and protocol for forensic evidence collection in sexual assault case. There is a first of its kind “child friendly” pediatric sexual assault forensic evidence collection kit that is used by specially trained pediatric SANEs to provide services within 3 days of ED presentation to victims under the age of twelve who have been sexually assaulted. Core to the SANE Program’s mission is the provision of statewide training and outreach to medical providers, DCF staff, DA’s offices, law enforcement officers and other stakeholders.

School Health Licensing and Requirements

The School Health Unit sets requirements for the participating districts, many of which have influenced other districts through the consultation offered to school nurses. The unit:

- Assumes responsibility for registering school districts to delegate medications, if standards are met (105 CMR 210.000).
- Tracks the administration of epinephrine for life threatening anaphylaxis as required by 105 CMR 210.000.
- Sets standards for school health programs, including the 1,300 page *Comprehensive School Health Manual (2007)*, a CD of which was distributed to all school nurses in the Commonwealth (2,100) and is currently online.
- Reinforces the Department of Elementary and Secondary Education's School Nurse Licensure requirements at the local level.
- Contracts with Northeastern University School Health Institute (SHI) to provide more than 40 programs a year for 2,000-3,000 participants. This includes a two

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day Summer Institute and a two day Leadership Institute. The SHI provides an array of online courses pertinent to school health: depression recognition, growth screening, rash surveillance, and others.

Workforce Development

Massachusetts Primary Care Office (PCO)

The Massachusetts Primary Care Office (PCO) promotes the health and well being of Massachusetts residents by increasing access to comprehensive primary care, in medically underserved areas and for under-served population groups. By working collaboratively with Federal, State, and local partners, the PCO coordinates resources that address the delivery of comprehensive primary care health services; reduces health disparities; and recruits and retains health professionals in underserved areas. The PCO performs comprehensive analyses of primary care provider capacity and health outcome data to accurately assess the high-need areas, and the potential for federal shortage designation applications, or Health Professional Shortage Areas (HPSAs). The PCO provides technical assistance to communities seeking HPSA designations and federal 330 funding for community health centers; and provides input on state reimbursement and licensing policies that impact primary care providers. The PCO participates in dialogue and promotes health policies on the state and national levels.

With support from HRSA, the PCO administers the State Loan Repayment and J-1 Visa Waiver Programs, and is the state Liaison with the National Health Service Corps, to enhance recruitment and retention of primary care providers in both urban and rural areas. PCO staff work closely with other initiatives within the Department of Public Health and other State agencies to assure coordination and collaboration among programs.

MA State Loan Repayment Program (MSLRP)

MSLRP is funded by a 50/50 Federal/State match and mirrors the Federal SLRP rules. In late 2008 there were 36 Health Professionals active in the MSLRP, including nurse practitioners, licensed clinical social workers, physicians, mental health counselors, dentists, physician assistants, dental hygienists and a psychiatric nurse specialist.

The PCO works with Department of Developmental Services (DDS, formerly DMR) on a unique loan repayment program for Dentists committed to work with adults/children with developmental disabilities/special needs/mental retardation. DDS contributes state funds. Program funding has been in jeopardy since last year.

In addition the new state FY09 Health Care Workforce Center Loan Repayment Program has awarded 5 physicians and 4 nurse practitioners with state-only funds to provide services in state-identified high need areas.

National Health Service Corps

In 2008, there were 74 NHSC clinicians active in Massachusetts. In 2009, 119 NHSC clinicians are active in MA - 90 loan repayors and 29 scholars.

J1-Visa Waiver

Each federal fiscal year, 30 physicians are recommended for practice in underserved areas of MA through the physician visa waiver program. Their obligation period is at least three years and each year a number of these physicians add additional obligation time by

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participating in the National Interest Waiver program. Physician types include primary care physicians, psychiatrists, and some specialists.

Office of Community Health Workers

The Department, through its contracts with community-based organizations including CHCs, supports significant outreach and health promotion activities provided by community health workers (CHWs). Community health workers are the bridge between communities in need and vital health and human services. Their unique ability to build trust in the community enables them to increase access to and improve utilization of preventive primary care. Without their efforts, many residents might either go without health care and other vital services, or get care later when it is most costly. For example, the HIV/AIDS Bureau provides outreach to out-of-school youth at risk of HIV/AIDS, most of whom are poor, minority, or both. CHWs provide screening and improve referrals that help improve the accessibility of clinical services. Similarly, the Early Intervention Partnership Program (EIPP) provides services to hard-to reach women to promote cultural competency of clinical services and reduce disparities. Almost 50% of EIPP clients speak English as a second language. Bilingual/bicultural community health workers are part of each EIPP team, along with a nurse and social worker, helping to link this very difficult to reach population with long-term services.

In the Massachusetts landmark 2006 universal health care reform legislation, the legislature recognized the value of community health workers by including, as Section 110, a provision requiring the MDPH to conduct a CHW workforce investigation, convene a statewide CHW advisory council, and make recommendations in a legislative report for a sustainable CHW program in the Commonwealth. In an extensive study, MDPH examined the use and funding of CHWs and their roles in increasing access and reducing disparities. The study found that there are approximately 3,000 CHWs in Massachusetts, and that CHWs increase access to care, reduce health disparities, improve health care quality, and may reduce health care costs, due to reduced hospitalizations and use of emergency departments and improved self-management of health conditions. The legislative report, released in December 2009, makes recommendations for a sustainable CHW program in four areas: conduct a statewide CHW professional identity campaign; strengthen workforce development, including training and certification; expand financing mechanisms; and establish an infrastructure to ensure implementation of recommendations. The Office of Community Health Workers, within the Health Care Workforce Center in the Division of Primary Care and Health Access, has been created in response. See the Center's website for more information and copies of reports (<http://www.mass.gov/dph/hcworkforcecenter>)

4.D3 Four Constructs of a Service System for CYSHCN

The Maternal and Child Health Bureau (MCHB) has defined four constructs by which to assess the service system for children and youth with special health care needs (CYSHCN). This capacity assessment responds to each of these four constructs below. Form 13, "Characteristics Documenting Family Participation in CYSHCN Programs," displays the strong Massachusetts commitment to family participation throughout its CYSHCN programs and initiatives.

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1. Collaboration with other state agencies and private organizations

MDPH continues to collaborate with other state agencies and private organizations, either through specific initiatives that we oversee or in which we participate. Key among these collaborative efforts have been:

The Federation for Children with Special Needs

The Federation for Children with Special Needs is the state's parent training and information center, the site of the state Family Voices chapter, and home to the MCH-funded Family-to-Family Health Information Center. MDPH works with the Federation to help ensure an informed and empowered family constituency. The Department has several contracts with the Federation, including Family TIES, the statewide information, referral and Parent-to-Parent network for families and their providers. In addition, the Federation was involved in the needs assessment through key informant interviews and continues to provide helpful guidance.

The Interagency Coordinating Council (ICC)

The Massachusetts Interagency Coordinating Council (ICC) is a federally mandated statewide interagency group that advises and assists MDPH on Early Intervention (EI). The ICC is comprised of parents, professionals, and providers. Specifically, members of this dynamic group include representatives of state agencies (Department of Early Education and Care, Department of Elementary & Secondary Education, Department of Developmental Services, and others), higher education, one State legislator, one medical professional, EI providers, early childhood service providers, and parents. MDPH staff attend ICC Meetings on a regular basis.

Children's Behavioral Health Initiative (CBHI)

The BFHN was a major participant in the implementation of the Rosie D. class action suit during 2009, which has been integrated into a broader Children's Behavioral Health Initiative (CBHI). The Title V Director participates actively in the CBHI. He is the Department's representative on the Executive Committee and also serves on the Implementation Committee. The Massachusetts Early Childhood Comprehensive Systems Project (MECCS) continues to support CBHI in its implementation of behavioral health screening, including reviewing and disseminating information about the toolkits it developed for clinicians and others to various MECCS networks, such as the Healthy Child Care Consultants. The MECCS Director has participated in discussion with CBHI and Mass Health staff about the use of maternal depression screening tools during the early infant well child visits, as recommended by the Mass Chapter of the AAP's Children's MH Task Force. Other Title V staff also participate in the CBHI activities as they relate to school-age children with behavioral health needs.

EOHHS Massachusetts Patient Centered Medical Home Initiative

Since 2002, the Care Coordination for Children and Youth with Special Health Care Needs Medical Home Project has been one of MDPH's key efforts aimed at achieving the Healthy People 2010 objective of ensuring a medical home for every child with special health care needs. Its purpose has been to enhance cooperative links between medical care

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and public health, and the Project has worked with over 30 practices. It reflects the conviction that care coordination is an essential element of planning and delivering integrated, family-centered care and services to this population.

There is now a broader EOHHS Massachusetts Patient Centered Medical Home Initiative (which is funded in part by the Commonwealth Fund) and Title V is working to assure that children and their families are part of this new initiative. The Title V Director participates in the Initiative. The Director of Community Support and the Director of Family Initiatives have participated in planning meetings, sharing the Division's expertise and initiatives to promote medical home in the past decade. The Director of Community Support and the Care Coordination Medical Home Practice Facilitator will present the program's Care Coordination model to the Qualis/Commonwealth Fund medical home project's upcoming learning collaborative.

Mass LAUNCH

Mass LAUNCH, an initiative of MDPH, will develop the state's early childhood service system for children from birth to age 8. The SAMHSA grant provides \$850,000/year for 5 years to leverage lessons learned from three demonstration sites to inform state policy and cost-sharing strategies regarding children at risk for or experiencing early childhood mental health (ECMH) issues. The Department has chosen the Boston Public Health Commission (BPHC), working in partnership with the Boston Mayor's Thrive in Five (Ti5) Initiative, as its local partner to enhance local early childhood systems of care.

Other MDPH Collaborations

Other MDPH collaborations that enhance capacity and support the state program's efforts include:

- The Care Coordination Program, which collaborates with other agency and community partners to organize the "Understanding Services for Children and Youth with Special Health Care Needs" training
 - It is held in each region annually and brings together all of the EOHHS agencies, community-based organizations, family partners, and MDPH programs serving CYSHCN and their families
- The Director of Family Initiatives serves on the Advisory Boards of the Massachusetts Developmental Disabilities Council and the Institute of Community Inclusion
- Massachusetts Young Children's Health Interventions for Learning and Development (MYCHILD) is led by the Massachusetts EOHHS in partnership with BPHC
 - It will provide up to \$9 million over six years and requires a state match of \$8 million
 - MYCHILD focuses on intervention for children aged 0-5 years with or at imminent risk for serious emotional issues
- Participation on an interagency group led by the Executive Office of Health and Human Services (EOHHS) for Chapter 171 Liaisons on Family Support Plans

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- Participation in the New England Regional Genetics Collaborative, including the Medical Home Workgroup and Provider Education
 - The Massachusetts state designee for the New England Regional Genetics Group (NERGG)
- The SSI/Public Benefits Specialist is an ex-officio member of the Statewide Special Education Advisory Council, a member of the Disability Determination Services Advisory Committee, and a participant in the SSI/Disability Coalition along with the Disability Law Center and statewide legal assistance programs
- Universal Newborn Hearing Screening Program has a written collaborative agreement with the MA Commission for the Deaf and Hard of Hearing to ensure families are referred to that agency soon after diagnosis of hearing loss

2. State Support for Communities

State support overview / DPECSHN overview

State support for communities is provided through multiple programs, processes, and initiatives. Specific programs of the Division for Perinatal, Early Childhood and Special Health Needs (DPECSHN) address the special needs of children with disabilities at the community level. Initiatives in this area include:

- Addressing health disparities at the state level, including adopting the national standards for Culturally and Linguistically Appropriate Services (CLAS) in all contracts and programs
- The Care Coordination program helps families obtain services by providing links to community based resources and consultation to parents, educators, and medical and social service providers
- The Children's Behavioral Health Initiative (CBHI), which provides screening, care coordination, and other behavioral health services through Community Service Agencies
- The Community Resource Line, a statewide 800 line providing information, referral, and technical assistance to families with CYSHCN
 - Resource Specialists also provide information and assistance to providers who care for CYSHCN and their families
- The Family TIES program, which is the state Parent-to-Parent program. Education and skill building for families to take on a variety of roles across the system of care occurs through the Office of Family Initiatives, Family TIES, and EI Parent Leadership Project
- The Family-to-Family Health Information Center, which is funded by the Maternal and Child Health Bureau. Provides technical assistance and support to families of CYSHCN. DPH is a project partner and attends Advisory Board meetings
- The Flexible Family Support Fund and the Catastrophic Illness in Children Relief Fund, which provide financial support to eligible families with CYSHCN
- Intensive efforts to promote provision of EI services

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- Regional Consultation Programs (RCP) provide enhanced services to children in EI programs
- Increased screening activities in a variety of settings
- Ongoing outreach and child find activities by EI providers
- The Massachusetts Behavioral Health Partnership (MBHP), in conjunction with the MassHealth managed care entities, selects provider agencies to serve as Community Service Agencies (CSAs) providing Intensive Care Coordination (ICC) and Family Support, based on the wraparound model
 - There is a CSA for each of the 29 geographic areas of the Department of Children and Families (DCF) as well as three CSAs, not limited to a single DCF area, that were chosen for their expertise in serving specific linguistic and cultural communities (African-American, Latino, Deaf and Hard of Hearing)
- MassCARE (Massachusetts Community AIDS Resource Enhancement), which is a statewide program for women, infants, children, youth and families living with HIV
- The MASSTART program, which provides consultation to schools and families about safe school placement of very medically involved children
- The Pediatric Palliative Care Network, which provides home-based services to meet the physical, emotional and spiritual needs of children with life-limiting conditions and their families, during the course of illness, death and bereavement
- Practice-based MDPH care coordination in community-based medical practices, which help increase the capacity to meet needs of CYSHCN at the community level
- The SAMHSA grants at MDPH and EOHHS will support one mental health clinician and two family partners at six community health centers in Boston
 - These teams will provide screening, care coordination, parent education, and other services to several Boston communities
- Through participation in the MCH Investing in Family Support Conference, the UNHSP developed a systematic plan to ensure support for families, including parent-to-parent support for families with children with hearing loss
 - The program is also collaborating with the Family TIES Program and began providing flexible support funds to ensure parents can participate in planning and educational activities related to their child's hearing loss

In meetings and focus groups with parents of CYSHCN for this needs assessment, there was agreement among parents that the various forms of parent support - in particular, parent-to-parent support or peer groups - were very helpful. Education of parents to promote family participation and parent support occurs through the Family TIES program, the Massachusetts statewide information and referral network for families of CYSHCN and their providers; the Parent-to-Parent Program; the Federation for Children with Special Needs; Massachusetts Family Voices; and other family organizations such as those organized around specific conditions.

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Catastrophic Illness in Children Relief Fund

CICRF was established by state legislation in July 2000 to help families bear the excessive financial burdens associated with the care of CYSHCN. CICRF is a payer of last resort who provides financial assistance for Massachusetts families with children experiencing a medical condition requiring services that are not covered by a private insurer, federal or state assistance, or any other financial source. To be eligible for CICRF, the child must be under age 22 and a Massachusetts resident, and the family's out-of-pocket expenses related to their child's medical condition must exceed 10% of the family's annual income up to \$100,000 and 15% of any portion of the annual family income that is above \$100,000, in a given 12 month period. The vast majority of families served are low income, but there is no specific income eligibility requirement, since eligibility is based on total expenses in relation to total income.

CICRF is a reimbursement program. Generally, families are reimbursed for expenses already incurred. In some cases CICRF may grant prospective approval and may pay a provider directly. Types of expenses covered include full or partial (such as co-pays or deductible) costs associated with medical supplies and equipment; physical, occupational, and speech therapy; hospital and physician services; per diem travel and related expenses during inpatient hospitalizations; some alternative or complementary treatments; accessible vehicles; and home modifications.

The Fund is overseen by a Commission consisting of 11 members (4 state agency ex-officio members and 7 public members), and is staffed by MDPH. It is financed by quarterly transfers from the state's Medical Security Trust Fund (MSTF). From its inception through FY 09, CICRF provided \$12.2 million in reimbursements to the families of 947 children with a wide variety of medical conditions. The majority has health insurance (and most have Medicaid or CommonHealth as a primary or secondary insurer) but still had catastrophic expenses despite their coverage. This was generally because the insurance does not cover certain services or expenses, or because families have significant co-pays or deductibles associated with care.

In summary, CICRF has proven to be an invaluable resource for families struggling with the need to preserve family life in the face of unbearable financial obligations. The Fund has assisted families from a variety of income levels with a wide range of awards in proportion to their need.

SSI/Public Benefits

The SSI/Public Benefits Specialist conducts statewide trainings for parent groups and organizations, state and local agencies serving families with CYSHCN, and health care providers through community settings and hospitals serving CYSHCN. Training and technical assistance is provided to help ensure CYSHCN are aware of benefits available to them and that they have adequate health insurance. The SSI/Public Benefits Specialist also trains parents and providers serving "transitional youth" - along with Disability Law Center staff - on topics related to children, youth, and transition to adulthood. Staff continue to be involved in needs assessment activities.

With the passage of the Massachusetts state health reform law in 2006, and additional health insurance options for families, the public benefits specialist makes information available to families of CYSHCN regarding health insurance expansions. Families are directed to the appropriate resources/contacts regarding health insurance options due to

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health reform expansions (i.e. Health Connector Authority/Commonwealth Care and Commonwealth Choice options), depending on a family's health insurance status and financial circumstances.

3. Coordination of health components of community-based systems

Care Coordination for CYSHCN

The DPECSN Care Coordination Program is designed to help families' coordinate multiple medical specialties to reduce fragmentation of care. Care Coordinators help families navigate the health care system to better manage the medical, educational, and social aspects of their children's needs. They may conduct home visits, attend IEP meetings, or train parents to be better advocates. They connect parents of CYSHCN to other families facing similar challenges. Care Coordinators also help providers understand existing entitlements, services, and benefits available to families of CYSHCN and how to access them, as well as assist practices in developing systems to help them provide medical homes to families of CYSHCN. Care Coordination Staff were involved in the 2010 needs assessment and continue to provide important input into CYSHCN needs and Title V services.

Twelve Care Coordinators are located in all six MDPH regional health offices and provide services to families from across the state. As part of the program's Medical Home Project, they have been co-located in pediatric practices to promote the medical home model since 2002. This past year Care Coordinators were located in 10 pediatric and specialty practices, including 7 Federally-qualified Community Health Centers, 2 hospital-based health centers, and one private practice. The program's Medical Home Practice Facilitator assists both the assigned Care Coordinator and the Practice Medical Home Team - made up of physicians, other clinicians, parents and practice administrators - to develop work plans and convene monthly meetings.

Medicaid Managed Care

Medicaid managed care has enhanced opportunities for coordination of care at the community level in Massachusetts. Unlike states in which families experience Medicaid managed care as a de facto cut in benefits, Massachusetts has chosen to provide a choice for families between a traditional managed care and membership in Medicaid's own PCC gatekeeper manager care program. This shift has enhanced coordination for parents of CYSHCN.

In 2003, MDPH developed and funded a home visiting program model called the EI Partnerships Program (EIPP), which is a high-risk maternal and newborn screening, assessment, and service system. In early 2007, MDPH approached the Massachusetts Medicaid Managed Care Organizations (MCO) with a collaborative financial proposal that sought to partner a community health model (EIPP) with the existing medical network of care provided by the MCO (telephonic perinatal case management). Through this collaboration, MDPH and the two Medicaid MCOs' are able to complement their respective services, enhance MCO member benefits, and improve the health and well-being of pregnant and post-partum women and their infants.

In November 2007 with Network Health, the Medicaid MCOs have voluntarily entered into financial contracts with the EIPP vendors for the provision of EIPP services to their respective members. Finally, in 2008, families and the BFCH monitored the

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implementation of Health Reform. The shift from PCC to MCO plans was monitored closely to assure that the needs of families were still being met and that no decrease in services was occurring. The majority of children within both Medicaid and CHIP are now within one of four managed care plans which have expanded to provide statewide coverage.

Pediatric Palliative Care

The Pediatric Palliative Care Network (PPCN) contracts with 11 community-based providers to provide home-based palliative care to children with life-limiting conditions and their families. The goals are to enhance choice, relieve suffering, and ensure the best quality of life. The PPCN supports the child and family to accomplish these goals in accordance with their values, needs, and preferences by providing access to a full range of consultative and direct care palliative services.

PPCN services complement those rendered by the child's primary care provider who retains professional responsibility for the child's plan of care, and PPCN providers coordinate and remain in close communication with the physician. Services include – but are not limited to - skilled pain and symptom management; counseling for the child and family; spiritual care; advance care planning; referrals to other community services; short-term respite care; and volunteers who support families in a variety of ways.

Universal Newborn Hearing Screening Program

MDPH's Universal Newborn Hearing Screening Program (UNHSP) systematically tracks hearing screenings and closely follows each family to ensure the goals of screening by one month, diagnosis by three months, and intervention by six months occur. Approximately 1,450 infants fail their newborn hearing screening annually (<2%) and 220 infants are diagnosed with hearing loss. Staff follow-up on screening results and diagnostic information through outreach calls and approximately 2,700 calls are made per year to parents and providers. A parent of a child with hearing loss provides parent support after diagnosis and encourages families to access EI.

The program has a grant through the Maternal and Child Health Bureau for addressing issues related to "lost to follow-up." Lost to follow-up is when families do not receive screening, diagnosis, or intervention in compliance with the nationally established goals and objectives for newborn hearing screening. In March 2010, the UNHSP was recognized in a CDC MMWR report for the program's low lost to follow-up rate. UNHSP also has a Cooperative Agreement through the Center for Disease Control and Prevention, Early Hearing Detection and Intervention (EHDI) Program for data collection activities, including statewide surveillance of early childhood hearing loss and integration with other early childhood systems/programs.

The UNHSP has a statewide network of approved audiological diagnostic centers that families are referred to when an infant does not pass a newborn hearing screen. Birth facilities are required by regulation to exclusively refer to these centers. Standards/Guidelines were established for the DPH Approved Audiological Diagnostic Centers and this ensures that infants/young children with suspected hearing loss receive appropriate and timely services.

Staff participated in a Learning Collaborative with the National Initiative for Children's Healthcare Quality (NICHQ). Staff partnered with Beth Israel and Deaconess Medical Center and Brigham and Women's Hospital on issues related to infants missing their

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hearing screening that were transferred at birth or were born at home. Staff and hospital partners used small tests of change theory to begin to understand why some infants miss their hearing screening. Intensive data analysis was performed as part of this project to understand the populations. A Best Practices Document is being finalized for distribution to hospitals.

4. Coordination of Health Services with Other Services at the Community Level

Care Coordination for CYSHCN

As described above, DPECSHN's Care Coordination addresses a full range of services at the community level. Care Coordinators assist families in accessing care and services and provide consultation to parents, educators, and medical and social service providers with a focus on children and youth with complex medical conditions. Services include assessment, coordination, education and referral. Care Coordinators can help families: coordinate medical, social and educational systems; access referral information about specific programs and services; become a more effective advocate for their child; identify community resources; understand the full range of available public benefits; and plan for transition. Finally, Care Coordinators are located in all regional DPH offices and selected pediatric primary care settings to partner with providers and to help implement the medical home model for CYSHCN.

Community Resource Line for CYSHCN

DPECSHN's toll free statewide Community Resource Line offers information, technical assistance, and referral for families with CYSHCN. Experienced Community Resource Specialists are available to assist families Monday through Friday (except holidays) from 9:00 am to 5:00 pm. Families and providers are welcome to call the Community Resource Line. Resource Specialists provide information about and referral to a broad range of programs including: public benefits information and eligibility; family-to-family supports; and other programs within DPH, other state agencies, and community-based programs that may be able to provide additional assistance. Families most frequently contact the CRL with requests for assistance with health insurance coverage, school issues, support needs, financial assistance, and coordination of services.

Family TIES

Family TIES of Massachusetts is a statewide information, referral, and support network run by and for families of children and youth with special health care needs. Family TIES regional parent coordinators can assist families and providers in finding resources and services within their region and provide general support to families of children and youth with special health care needs. The Parent-to-Parent Coordinator facilitates parent-to-parent matches with other families who are experiencing similar situations and oversees the Parent Advisor Program. Family TIES also maintains the Central Directory of EI services and produces an annual Directory of Resources for Families of Children and Youth with Special Needs. It is a project of the Federation for Children with Special Needs, with funding and in collaboration with the Massachusetts Department of Public Health, Division for Perinatal, Early Childhood & Special Health Needs (DPECSHN). Family TIES parent coordinators are located in each of the DPH regional offices across the state.

Strategic Action Teams / Strategic Planning/Public Awareness

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In FY09, the CYSHCN Program began a strategic planning process to raise internal and external awareness of the Program, enhance collaboration among the initiatives making up the Program, and identify goals and action steps to engage stakeholders and set policy and direction. One of the key areas that emerged was the promotion of **Medical Home**, creating a smooth and accessible continuum of services, and providing support to families during critical life/health events and transitions. Products to date have included a variety of marketing materials, guidance for staff around use of technology, Medical Home fact sheets for families and providers, a Program Guide and resources to support cultural competence.

As part of the Strategic Planning Initiative, the CYSHCN Program has also increased its outreach and marketing efforts to increase awareness about the services provided by the Title V CYSHCN Program and to highlight the inter-relatedness of the various programs under that umbrella. One key area has been the development of an External Stakeholder Database of people involved and/or interested in issues related to CYSHCN and their families. It will allow the CYSHCN Program to communicate more easily with stakeholders, which will improve coordination and collaboration, as well as increase awareness about available services and supports, issues related to CYSHCN and their families, and ways to get involved. The database includes family members, health care providers, community organizations, academics, insurers, schools, advocates, and others.

Other Public Awareness activities to date have included:

- Development of CYSHCN Program magnets, publicizing the Program and promoting the Community Support Line
- Development of a CYSHCN Program display presentation for use at conferences and meetings
- A CYSHCN Program brochure
- Plans to convene a Marketing and Outreach Work Group for promoting public awareness

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5. Selection of State Priority Needs

List of Potential Priorities

Massachusetts Title V used research, data analysis, interviews with internal and external stakeholders, and focus groups to develop comprehensive lists of population and capacity related priorities from which the following twenty-two emerged as potential priorities for the state. Further engagement with stakeholders and the public hearing process refined the list to the top ten priorities for the state. Each of the priorities includes a review of potential impact and feasibility components to inform the decision process as stated in section 1: Process. The top ten priorities are marked with an asterisk. (See tables *Population Priority Concepts* and *Infrastructure Capacity Priority Concepts* for a comprehensive list of priority concepts revealed in interviews and focus groups)

Cross Population:

1. *Promote Healthy Weight**

Healthy weight is arguably the single most important issue for public health over the next decade. MDPH is a key voice on addressing healthy weight.

Potential Impact

- 57% of residents are obese or overweight; (30% of children/youth are overweight)
- Obesity is associated with adverse short and long-term health outcomes (diabetes, gestational diabetes, heart disease, etc.)
- Type 2 diabetes among youth aged 10-19 years increased disproportionately among minorities. Non-White populations had more than twice the incidence of White populations
- Nearly every internal and external stakeholder interview mentioned obesity and several focused on the need for a coordinated approach versus individual programs
- Potential Actions:
 - o Develop a comprehensive healthy weight strategy across MDPH programs

Feasibility

- Political will exists and aligns with the MDPH Commissioner's Mass-in-Motion initiative, the Wellness Promotion Advisory Board, and the core mission of the Title V agency. Significant legislation on healthy snacks in schools is currently under active discussion in the state legislature.
- Opportunity to leverage programs touches broad populations (WIC, EI, Essential School Health Services) and community resources
- Additional grant opportunities are available including American Recovery and Reinvestment Act (ARRA) and Health Care Reform public health funds

2. *Promote emotional wellness and social connectedness across the lifespan**

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Emotional wellness is increasingly understood as a broad need affecting the development of individuals, especially children, during key times in their lives. MDPH can play a role.

Potential Impact

- Depression affects 31% of post-partum women¹
- Among high school students in Massachusetts, 24% felt sad or hopeless enough to halt usual activity.² More than ten percent reported having a suicide plan.³ Needs are more acute for CYSHCN.
- Mental health is affected by violence and the impact of bullying
- Mental health was a consistent theme in internal and external stakeholder interviews
- Potential Actions:
 - o Conduct broad-based education, especially working with schools
 - o Improve training and workforce capacity
 - o Integrate mental health screening across programs

Feasibility

- MDPH may need to collaborate with Department of Mental Health services to provide guidance for screening and brief intervention
- Anti-bullying legislation recently passed
- Actions overlap with other conditions related to mental health such as obesity, substance abuse, and violence

3. *Coordinate preventive oral health measures and promote universal access to affordable dental care**

Dental care is highly correlated with income and disparities in care are affected by the limited number of providers who accept public insurance. MDPH regards dental care as core to its role in the development of children.

Potential Impact

- Black and Hispanic individuals in Massachusetts have much higher rates of tooth loss compared to White individuals (49% and 47% compared to 24% respectively in 25-44 year olds with tooth loss)⁴
- Decay and caries correlate with poor adult dental health and non-White kindergarten children in Massachusetts have nearly two times higher prevalence of dental caries relative to White children.⁵ Seventeen percent of the state's 3rd graders had untreated decay⁶
- Dental hygienists are not equally accessible across the state with many parts of Western Massachusetts underserved⁷
- Forty percent of hygienists do not have experience with special needs populations while CYSHCN are at greater risk for oral health problems⁸
- Potential Actions:
 - o Conduct nutrition education and oral health programs through intersection with schools

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- Leverage other programs (EI, WIC) to include oral health education

Feasibility

- Oral health intersects with other infrastructure level development such as improving access to care for children and youth with special health care needs
- Builds upon the recommendations of *The Status of Oral Disease in Massachusetts: A Great Unmet Need 2009* report and MDPH's leadership through the work of the Office of Oral Health

4. Enhance screening for and prevention of violence and bullying*

Violence and bullying disproportionately impact women and minority populations. MDPH must continue as a leader in viewing violence and bullying as public health issues.

Potential Impact

- Females (15%) report having experienced sexual violence at twice the rate of men (7%). Women with a disability were even more likely than women without a disability (25% vs. 13%) to report having experienced violence.⁹
- Black males aged 15-24 years were 30 times more likely than White males to die from homicide¹⁰
- The Sexual Assault Nurse Examiner (SANE) Program has higher conviction rates than physicians alone
- Violence occurs in multiple forms including bullying, community violence, violence against women, youth violence, and violence against infants (shaken baby syndrome)
- Potential Actions:
 - Build upon success of SANE program
 - Build upon existing processes for screening and referral including those used by the WIC program
 - Collaborate with schools, community partners, and youth development programs to reduce male violence norms

Feasibility

- The Massachusetts legislature has passed legislation to combat bullying in schools
- MDPH is a leader in violence prevention efforts as violence is seen as a preventable public health issue
- Leverage existing programs (Safe Spaces, SANE, etc.)

5. Support reproductive and sexual health by improving access to education and services*

Trends in birth statistics including teen pregnancy and use of reproductive support indicate the growing importance of appropriate sexual health choices. MDPH has a critical role in addressing sexual health and ensuring that it is addressed across programs.

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Potential Impact

- Almost 33% of high school youth reported being sexually active in the last three months¹¹
- Almost 39% of high school youth reported not using a condom during last sexual intercourse¹²
- Growing number of pregnancies occurring among women aged 45 years and older while this group also had the highest prevalence of use of reproductive assistance (29.6%)¹³
- Potential Actions:
 - o Encourage family planning approach to address teen pregnancy
 - o Examine infant health and developmental outcomes of infants conceived with assisted reproductive technologies

Feasibility

- Broad support from the MCH Steering Group representing bureau leadership across MDPH
- MDPH programs already intersect with target populations at key teachable moments: schools, programs for young children, programs for new mothers, etc.

Maternal Health

*6. Improve the health and well-being of women in their childbearing years**

Massachusetts has a growing gap in pregnancy-related health outcomes and reducing disparities will improve overall outcomes. This priority is a direct continuation of a priority from 2005.

Potential Impact

- Fetal deaths continue to account for more than half of the state's feto-infant mortality rate
- Infant deaths have not shown much improvement in the past decade; infant and neonatal mortality has increased among Hispanic and Asian populations
- Racial disparities show that narrowing the gap between Whites, Blacks and Hispanics will improve birth outcomes overall
- Potential Actions:
 - o Increase education around preconception and prenatal risk and overall health risk by focusing on unhealthy behaviors (e.g., smoking), chronic disease prevention and management
 - o Increase education regarding pregnancy and risk in older women
 - o Influence policy and licensing requirements that reduce systems barriers, such as access to care for low income individuals

Feasibility

- Intersects with general parenting education

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- Direct programs already in place but could leverage other programs and relationships
- Efforts already underway to expand upon work of the child fatality review group and develop a review of infant mortality group to decrease the incidence of preventable infant deaths in Massachusetts.

Child/Adolescent

*7. Reduce unintentional injury and promote healthy behavior choices for adolescents**

Unintentional injury accounted for the largest percentage of deaths among children and youth. MDPH sees unintentional injury as a public health issue to be reduced or avoided, especially among adolescents.

Potential Impact

- In 2007, 75% of all injury deaths were unintentional: 15% were suicide, 6% were homicide, and 4% were of undetermined intent, other, or adverse effects. Unintentional injuries resulting in death for youth were predominantly due to motor vehicle crashes (#1 cause of death among youth aged 15-24 years accounting for 37% of deaths)¹⁴
- Among non-fatal unintentional injuries, falls were the leading cause of injury for all age groups under 14 years.¹⁵
- Potential Actions:
 - o Revise licensure criteria and improve education for safety around playgrounds, homes, and vehicles to decrease risks
 - o Improve effectiveness of child fatality review process and safe home/safe sleep education
 - o Focus increased effort on the implementation of the junior operator license law, including new enhanced distracted driving provisions, in collaboration with multiple stakeholders.

Feasibility

- MDPH will provide leadership in this area as unintentional injury is increasingly understood as a preventable public health issue

*8. Expand medical home efforts to focus on systems building and securing access & funding for children and youth**

The medical home model is an ongoing focus of MDPH and the Title V agency is broadening the strategy for medical home to include all children in an effort to improve care and engage a wider range of stakeholders.

Potential Impact

- Less than half (45.7%) of CYSHCN in Massachusetts met HRSA Core Outcome for medical home¹⁶

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- According to data from the 2007 National Survey of Children's Health, 66.2% of Massachusetts children aged <18 years received care within a medical home
- Potential Actions:
 - o Promote awareness and understanding of the medical home concept through social marketing, newsletters and alerts across multiple institutions/programs that work with families across the lifespan including birth hospitals, EI, health care providers, schools, etc.
 - o Expand MDPH practice-based care coordination to strengthen and expand the medical home model in medical practices
 - o Demonstrate ongoing effectiveness of medical home for CYSHCN, their families and providers and expand it to include all children
 - o Strengthen capacity to train/mentor primary care providers to include medical home in their practices
 - o Strengthen and improve collaborations with other state agencies, professional organizations (e.g., AAP) and insurers to promote medical home
 - o Develop and disseminate standards and offer medical home certification to pediatric practices that implement these standards
 - o Promote appropriate levels of reimbursement by insurers for strategies that support the medical home model
 - o Support families in taking lead roles in pediatric practices to increase family involvement and promote medical home

Feasibility

- Medical home efforts have strong support within MDPH and champions in the community
- Medical home is a key component of creating a comprehensive service system, a goal that is identified in the mission of the CYSHCN Program

9. *Promote healthy behavior choices for adolescents to reduce high-risk behaviors*

Review of adolescent behavior through self reported surveys revealed a significant percentage of adolescents are engaged in very high risk activities including drug use and sexual activity. However, outside of injury prevention and education, the influence of Title V programs on adolescent risk taking is limited.

Potential Impact

- Approximately 1 in 5 adolescents engage in multiple risky behaviors that include motor vehicle risk, risky sexual behaviors, drug and alcohol use, and physical conflict. In 2007:
 - o Twenty-eight percent of high school students reported binge drinking in the previous 30 days¹⁷
 - o Twenty-seven percent of high school students reported being offered, sold, or given drugs at school¹⁸
- Reducing high risk behaviors may also reduce teen pregnancy rates and binge drinking influence on rates of fetal alcohol syndrome disorders

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- Tobacco control shows clear opportunity for impact as rates of high school cigarette use and use before age 13 have declined by 50% from 1995 to 2007.¹⁹
- Potential Actions:
 - o Employ a systemic approach to screening and intervention, including school collaboration

Feasibility

- Requires the coordination of the work of multiple bureaus (Bureau of Community Health Access and Promotion, Bureau of Substance Abuse Services, and many others)
- Feasibility limited by multiple factors leading to multi-risk youth behavior

10. Enhance care and care opportunities for infants and toddlers by taking a more active role in childcare standards and practices and advocating the positive influence of early childcare

Growing utilization of EI services opened the door to new thinking to help ensure developmental support for all youth and especially those with mild delays. However, childcare standards are under the umbrella of an agency outside of MDPH and therefore are not a priority that could be significantly influenced by Title V in Massachusetts.

Potential Impact

- EI growth is surging because of increasing speech delay
- High quality childcare supports cognitive and language development
- Massachusetts has more than two times the licensed preschool capacity for childcare than infant/toddler capacity (112,460 vs. 46,109, respectively)
- From remarks in several interviews, our increasingly isolated society reduces opportunities for social learning by infants and toddlers and public health may need to take a more active role in promoting developmental learning
- Potential Actions:
 - o Take a role in training and collaboration with early education
 - Setting standards and licensing
 - Changing public perception of childcare for children aged < 3 years

Feasibility

- MDPH can build upon efforts at the Department of Early Education and Care (EEC)
- Aligns with Governor's readiness agenda for public education

CYSHCN

*11. Support effective transitions from (1) early childhood to school and (2) adolescence to adulthood for children and youth with special health care needs**

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Transition for CYSHCN was a priority given by nearly every stakeholder associated with CYSHCN. Recent CYSHCN Program efforts reveal great potential to influence with a long term focus.

Potential Impact

- Only 46.6% of CYSHCN in Massachusetts met HRSA Core Outcome for transition²⁰
- Transition is a critical moment in the preparation of all youth for adult life especially those transitioning into the workforce following high school. This includes developing skills for independent living and education on alcohol and drug use; healthy eating and physical activity; personal, financial, and health care management; living environment; employment and/or post secondary education; and health insurance.
- Transition was mentioned in most interviews especially among those individuals working with CYSHCN
- Potential Actions:
 - o Build a stronger relationship with schools.
 - o Work with community groups to increase the age of first use of tobacco and alcohol
 - o Encourage family planning approach to address teen pregnancy

Feasibility

- Requires strong leadership and collaboration among and cooperation between state agencies
- Systems building role
 - o Areas: awareness, planning, education
 - o Actors: parents (including teen parents), providers, educators, other state agencies

12. Improve management of asthma in school-aged children through collaboration with schools and education of childcare providers

Asthma is a critical issue for many youth and adults with low rates of well controlled asthma and there is a clear racial disparity in those needing hospitalization. While an ongoing focus for MDPH, the asthma program is supported by additional separate grant funding and it was decided not to be as significant a priority for Title V as other issues. Asthma hospitalization disparities will be prioritized in the form of a state performance measure.

Potential Impact

- More than ten percent of Massachusetts children have current asthma²¹
 - o Almost sixty percent of them had activity limitations due to asthma in the past year²²
 - o Sixty-five percent of these children reported not well or very poorly controlled asthma²³
- Asthma prevalence peaks in fourth and fifth grades

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- Non-Hispanic Blacks have a 3.4 times higher age adjusted asthma death rate (all ages) than other races²⁴
- Potential Actions:
 - o Coordinate with schools
 - o Conduct workforce training and educational messaging to childcare providers

Feasibility

- Improving the lives of children and families with special health care needs is core to the role of public health
- Builds upon school nurse program efforts

13. Broaden understanding of autism treatment and services to ensure youth with autism spectrum disorders (ASD) receive early treatment at the most appropriate level

Similar to asthma, ASD is an important issue for children but the potential for significant improvement in this area by adding a specific Title V focus was unclear. ASD will be prioritized in the form of state performance measures for adolescent substance use and binge drinking for women of childbearing age.

Potential Impact

- Prevalence of ASD among US children aged 3-17 years is 110 per 10,000 with an estimated 13,000 children aged <18 years in Massachusetts having ASD²⁵
- The number of youth with ASD in EI tripled from 2000 to 2009²⁶
- ASD can be identified early and managed, which improves functioning
- Potential Actions:
 - o Incorporate ASD into broad training initiatives
 - o Enhance screening through parent and childcare provider education

Feasibility

- ASD is not consistently covered by insurance. Services are covered by EI and contribute to the significant recent increase in program costs

Capacity

Several capacity priorities were part of the short list the project team and steering group reviewed in detail. All but one capacity priority fell out of the top ten due in part to their indirect impact on the MCH population. While most of the following did not make the top ten, they all contain important concepts that will be considered in action planning for each chosen priority.

14. Promote workforce capacity of primary care providers, mental health providers, community health workers, and other specialists

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Ensuring the appropriate training of health professionals is critical to achieve positive health outcomes and assure that the needs of the MCH populations are met through activities such as culturally appropriate early screening and treatment. MDPH's strategy is to continue to partner with colleges and universities to have a major impact on provider training.

Potential Impact

- From the remarks in several interviews, involvement in education both improves understanding of issues and perception of the role of public health
- Potential Actions:
 - o Take a role in training and collaboration with education providers to inform new practitioners of public health issues in the state

Feasibility

- MDPH can build upon collaborations with the many local teaching hospitals and universities
- Follow the recommendations of the *Community Health Workers in Massachusetts: Improving Health Care and Public Health* Report of the Massachusetts Department of Public Health Community Health Worker Advisory Council

15. Integrate all Children and Youth with Special Health Care Needs (CYSHCN) programs into a holistic, easy-to-access service system to improve program access to care and reduce the burden on families

Integration of the CYSHCN programs is already underway and the new, more integrated Program will contribute to achieving the medical home and transition priorities.

Potential Impact

- Coordinated approach improves the scale of resources per participant especially for outreach and marketing
- CYSHCN programs are relatively small and focus on specific service areas allowing a coordinated approach to improve coverage for clients with multiple needs
- WIC provides an integrated service model where staff are key to making it a participant-centered program and WIC now has an 88% satisfaction rating
- Potential Actions:
 - o Three stage approach
 - Align internally
 - Bring in collaborators
 - Define the model for care (intersection with Medical Home)

Feasibility

- Builds upon the CYSHCN Program vision and mission and action team efforts to date

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- Aligns with medical home efforts

16. Develop and apply a framework to reduce disparities targeting the increasingly diverse MCH populations in Massachusetts

Because disparities in health outcomes of the MCH populations is such an important issue, health equity was elevated to one of eight guiding principles to determine the prioritization process and will be a primary factor in action planning.

Potential Impact

- Massachusetts has differing health outcomes across racial, socioeconomic and geographic categories
- Disparities was a predominant topic across interviews
- Potential Actions:
 - o Incorporate CLAS standards into all programs
 - o Incorporate goals to improve outreach to target populations into provider contracts

Feasibility

- Core to the mission of public health
- Builds upon the efforts of the Office of Health Equity
- MDPH's largest programs have good penetration into many disparate populations in the state
- Resources, such as translation services, already exist to allow improvement
- Opportunity to leverage further links to community groups supporting target populations

17. Improve community engagement of MCH-serving programs through:

- *Essential Allies/Advisory Boards*
- *Priority Community Groups*
- *Youth Development*
- *School Engagement*

Community engagement involves several different strategies. Consideration of this priority allowed the project team to engage with stakeholders on effective communication and brainstorming on ways to outreach to the community.

Potential Impact

- MDPH can improve visibility in the community for all of its programs and increase understanding of the Title V agency's health priorities and recommended interventions
- Gaps exist in current services and programs
- Interviews revealed the potential to leverage existing contracts to build community engagement. Several programs offered models for engagement such as the Massachusetts Tobacco Cessation and Prevention Program.

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- Potential Actions:
 - o Increase connection with essential allies
 - o Create a pediatric provider community
 - o Leverage provider contracts to increase engagement

Feasibility

- Individual programs are well connected already to their communities
- Regional offices, centers, and Community Health Network Areas (CHNAs) offer a starting point for change

18. Develop and implement an effective marketing/outreach strategy that:

- *Provides optimal clarity on programs*
- *Targets messages to specific segments*
- *Leverages key “teachable moments”*
- *Takes advantage of new media, especially the internet*

Similar to community engagement, discussion of market strategy allowed the Title V agency to explore new ways to engage with stakeholders and will inform action planning going forward.

Potential Impact

- New internet strategies are becoming more widely accessible by both low and high income populations
- Increase responsiveness and improve educational capacity for current and emerging health issues across all populations
- Opportunities to leverage teachable moments are available among MCH populations
- New and more direct channels of communication have been successful for other programs
- Interviews yielded that public perception of MDPH does not include many of the programs and services covered by MCH – need to establish reputation as “protector” of public health
- Potential Actions:
 - o Build understanding of current population segments across programs
 - o Engage with schools and community leaders to inform segmentation and identify teachable moments
 - o Develop a comprehensive web strategy

Feasibility

- In the private sector, online cost for service is a fraction of the cost of direct contact
- Prior efforts can be leveraged to understand the right segments for outreach. Many programs have experimented with web-based interactions and are looking for guidance
- Interviews revealed a variety of options to pursue

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*19. Improve data availability, access and analytical capacity**

Data access will continue as a priority for Massachusetts. MDPH recognizes the importance of linked datasets and data access for the community to support local program development.

Potential Impact

- Better understanding of clients will improve marketing, service and outreach, especially for clients shared by many programs
- Improved tracking of youth aged 3 years and older and across generations
- Potential Actions:
 - o Continue use of data for performance-based management of programs, such as WIC and the Women’s Health Network
 - o Develop further original research supporting evidence-based policies

Feasibility

- MDPH recognizes the need to improve use of data for policy and program development, especially during the current period of constrained state resources
- Build upon existing data linkages (e.g., EI and the Pregnancy to Early Life Longitudinal (PELL) Data System) to show outcomes across program activities and increase longitudinal analysis of outcomes

20. Develop strategies to monitor and anticipate changes following the impact of national health reforms and Massachusetts health care reform on access to quality health care for all Massachusetts residents

MDPH will closely monitor national health reform to determine what changes, if any, are needed in Massachusetts as the national program is implemented across the country.

Potential Impact

- Increasing numbers of Massachusetts residents are now insured but changes to coverage have left some without needed services and others unable to afford previously available insurance
- Potential Actions:
 - o Collaborate with providers and community and state agencies to identify and inform best practices in the changing insurance environment

Feasibility

- Leverages role as a “protector” of public health
- Builds upon network of programs

21. Promote continuity of care and Life Course Model with an emphasis on social determinants of health to improve coordination of services across all MDPH programs across the lifespan

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Similar to focusing on disparities, the Life Course perspective was elevated to one of eight principles for determining priorities in Massachusetts. The Life Course perspective has been essential to determine the top priorities for the state and represents an opportunity to ensure targeted actions have the greatest impact.

Potential Impact

- Improves alignment of efforts of MCH and non-MCH programs since many programs are outside the Title V agency's umbrella
- Potential Actions:
 - o Leverage the needs assessment steering group to develop cross-agency workgroup to open the door to education and resolve alignment of frameworks

Feasibility

- Internal interviews revealed that most programs were using a strategic framework for planning that could be made consistent with the Life Course Model.

22. Enhance MDPH's ability to recognize and respond to emerging health problems and lessen the potential impact on maternal and infant health

The H1N1 flu challenged our ability to respond to emerging public health issues. The Department's successful response, as determined by extensive interviews, led the Project Team and Steering Group to focus on urgent issues with greater potential for impact over the next five years.

Potential Impact

- Natural disasters increasingly viewed as public health events
- Infectious diseases can emerge and spread quickly
- Women of childbearing age and young children are at special risk (such as for H1N1)
- Disproportionate impact on population sub-segments (STDs and adolescents/Boston/western Massachusetts; HIV and Blacks, Hispanics)
- Potential Actions:
 - o Improve means to communicate emerging health findings and raise the level of importance when necessary

Feasibility

- Opportunity to leverage contact with pregnant women and educate at teachable moments
- MDPH has a track record of success in this area
- Enhancement of recognition and action will help MDPH establish itself as a leader in the state
- MDPH is coming from a good position from the H1N1 response

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Methodologies for Ranking/Selecting Priorities:

The MDPH Project Team, along with a Steering Group of senior health leaders and other stakeholders, underwent a comprehensive process to develop the ten draft MCH priorities for 2010 to 2015. The process included development of a comprehensive list of potential priorities for Massachusetts. (*See Figure 5-3 Population Priority Concepts and Figure 5-4 Infrastructure Capacity Priority Concepts*) While an extensive list of concepts was considered, some topics were not considered for priorities where the state already has an excellent track record and plans to continue to succeed, such as immunization rates, where the state leads much of the country. Following development of potential priority areas, the Project Team then refined these through analysis and stakeholder feedback.

Stakeholder engagement included dozens of internal and external interviews as well as many focus groups to develop and narrow potential priorities. These priorities included both previous MCHB priorities as well as new ideas emerging from the trends discussed above. The Project team first developed a list of principles to guide the prioritization process including:

- Promote health and well-being of MCH populations
- Eliminate disparities by targeting the increasingly diverse MCH populations in MA
- Integrate life course perspective and social determinants of health into all programs
- Ensure community engagement through essential allies and others
- Ensure parental involvement, including fathers
- Target interventions as early as possible and focusing on teachable moments
- Be nimble

The project team then applied a screening process that leveraged all available data and evidence, and incorporated the subjective points of views of stakeholders through surveys, interviews, and focus groups. The priorities reflect the knowledge gained from existing and past MDPH programs and activities.

In simple terms, the team used a two-dimensional decision criterion:

- 1) The potential impact of the priority
- 2) The feasibility of success

“Potential Impact” included consideration for:

- Number of people affected (incidence & prevalence)
- Quality of life and long-term outcomes
- Life Course Perspective
- Social Determinants of Health
- Health Equity
- Prevention – actions/programs based on current research
- Impact across Bureau populations

“Feasibility” included consideration of:

- Level of MDPH subject matter competency

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- Political and organizational will
- Resource availability and relative cost
- Leadership vs. supporter position for particular issues
- Congruence between the core missions of MCH and MDPH
- Availability of government and community partners and resources to advance the work of MDPH
- Enhanced collaborations among shared priorities between Bureaus

The Project Team assessed all priority concepts discussed at the stakeholder interviews and focus groups using these criteria. They also assessed available data to support decision making. The Team then conducted a more detailed evaluation to determine where priorities fell along the life course continuum, selected priorities that could be translated into services or systems change, and focused on priorities that affected MCH populations. To accomplish this task, both the Project Team and the Steering Group spent many hours brainstorming and reviewing data. External research, including literature reviews, surveys, key-opinion-leader interviews and focus groups influenced the relative importance of the priorities.

Based on this evaluation, the Project Team identified a preliminary shorter list of twenty two potential priorities from which ten would emerge as the MCH priorities for Massachusetts.

Public Hearings

As a final step in determining the ten priorities for Massachusetts, the findings of the Needs Assessment were opened to public feedback via posting on the state website and through public hearings to allow members of the community to publicly voice their questions, opinions and concerns. Public Hearings occurred across the Commonwealth in an effort to give equal access to stakeholders to give their feedback on the selected priorities.

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Massachusetts Needs Assessment Public Hearing Locations

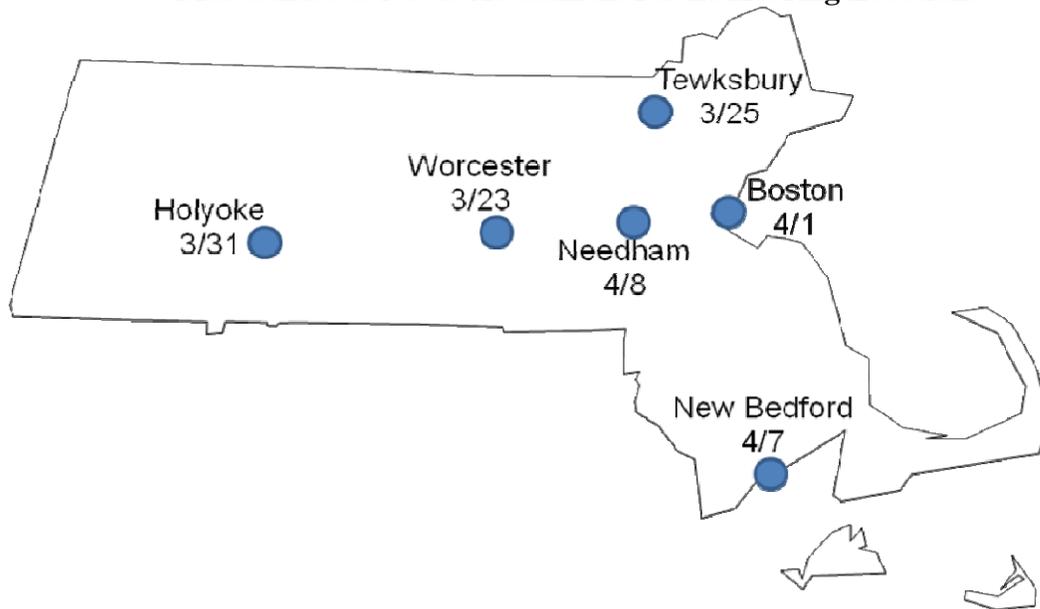


Figure 5-1

All Public Hearing attendees supported the drafted priorities and public commentary reinforced the Needs Assessment findings. The hearings included a short presentation of the needs assessment process and some key findings of the extensive interviews and research. All hearings had note takers present to capture the feedback from stakeholders present. Comments were collected and incorporated into the Needs Assessment findings.

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Massachusetts Needs Assessment Public Hearing Feedback

<p>Worcester Align goals with Community Health Centers Educate the family through the mother</p> <p>Tewksbury Support healthy weight during pregnancy Support mothers' emotional needs</p> <p>Holyoke Support for mental wellness Provide High quality support groups Improve access to care Support PPD legislation Enhance substance abuse services Expand home-visiting Increased use of CHW's Reduce infant mortality Educate parents Include fathers in skill development Resolve transportation barriers Use holistic approach to health care Support getting into care earlier</p> <p>Needham Support EI</p>	<p>Boston Support for PPD Support healthy weight Increase prenatal care/centering pregnancy Support medical/legal partnerships Focus on social determinants of health Focus on transition for Autistic children Focus on wellness for siblings of SIDS Work with local public health departments Fund after-school programming Support Healthy Start Clarify continuation of focus on health disparities</p> <p>New Bedford Support for PPD Improve dental care Encourage safety Support holistic care for fragile infants Holistic approach Reduce infant mortality Pilot on wellness, similar to senior centers, but for young parents and families</p>
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Figure 5-2

Priorities Compared with Prior Needs Assessment

In developing the priorities for 2010, BFHN reviewed the needs of the population. Several new needs rose to priority status. Other needs remained high priorities, but their relative ranking needed modification to match what we knew about the current MCH populations. A review of the priorities is discussing the relationship of the 2005 and 2010 priorities.

The overall trend is an increased focus on the disparate access and outcomes of MCH populations, which in part led to health disparities as a principle across priorities. Most Massachusetts families live in safe communities with access to good schools, health care, and safe physical environments. However, much of the MCH population at some point will face one of the issues within each priority, including how to maintain healthy weight, to avoid violence and bullying, to deal with a child with special health care needs, to make safe choices and seek care when appropriate.

- 1. Promote healthy weight** continues as a priority as Massachusetts builds strategies to deal with the obesity epidemic in the state and nation.
- 2. Promote emotional wellness and social connectedness across lifespan** builds upon the mental health priority of 2005 with a more specific focus on wellness and an understanding, built upon the Life Course perspective, that

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mental health is a cumulative outcome of heredity, experiences, support, education, and environment.

- 3. Coordinate preventive oral health measures and promote universal access to affordable dental care** is a more specific oral health priority than 2005. Oral health in Massachusetts strongly correlates with income status. The state's oral health statistics highlight poor access and affordability of oral health care, two of the leading reasons for the disparity in outcomes.
- 4. Enhance screening for and prevention of violence and bullying** revises the violence priority from 2005. To reduce violence, we focus on ensuring that screening for violence is incorporated into programs to stop cycles of violence and the impact of violence on mental wellness. One area where violence can be prevented is to reduce bullying and with it, the negative impact it has on the health and wellness of MCH populations.
- 5. Support reproductive and sexual health by improving access to education and services** is a new priority centering on the need to support reproductive and sexual decision making by ensuring that all residents have equal access to education and services.
- 6. Improve the health and well being of women in their childbearing years** is a continuation of the priority from 2005 as the state focuses on disparate populations and the many reasons for poor outcomes.
- 7. Reduce unintentional injury and promote healthy behavior choices for adolescents** combines and revises the previous injury and adolescent health priorities. As unintentional injury and "accidents" are increasingly understood as preventable public health events, the new priority focuses on healthy choices and encouraging informed decisions regarding health and wellbeing.
- 8. Expand medical home efforts to systems building and securing access and funding for children and youth** is a new priority. The Massachusetts Title V agency has long been active in promoting medical home for children and youth with special health care needs. This priority represents a shift in strategy to focus on medical home for all children.
- 9. Support effective transitions from (1) early childhood to school and (2) adolescence to adulthood for CYSHCN** expands the previous transition priority to include both the transition into school and the transition out of school into adulthood.
- 10. Improve data availability, access, and analytical capacity** is a revision of the previous data related priority to improve the capacity of data systems and encourage improved utilization at both the state and community levels.

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Priority Needs and Capacity

All of the 2010 priorities concentrate on the population and infrastructure levels of the service pyramid. All priorities were judged for their impact and feasibility, to ensure that all priorities are relevant and actionable with support from existing programs and collaborations. Achieving success in the priorities will depend on identifying how each priority is relevant to individual service programs.

Determining programmatic support for priorities has had an added challenge of the needs assessment and priority setting occurring during a time of fiscal uncertainty due to the larger economic uncertainty of the state. Many programs were subject to significant budget and staff cuts as mentioned in section 4, such as funding elimination of Shaken Baby Prevention efforts. The Project Team and Steering Group included consideration of programmatic resources as part of the feasibility to affect each potential priority.

Success with 2010 priorities also depends on identifying how to best leverage the wide number of ongoing collaborations across MDPH and with other state and local agencies and programs. As BFHN, the Massachusetts Title V agency, enters the action planning phase following the needs assessment, each program mentioned in section 4 will need to review the new priorities and identify where and how to implement changes in strategy and services to ensure success in each priority as measured by the newly revised state performance measures. BFHN will actively share the new priorities, leveraging of the Needs Assessment Steering Group, with all partners and collaborators to share the targeted needs of the MCH populations. Success will depend on working in concert with other agencies and programs to ensure the priorities of MCH are the priorities of others in the state working for and with the MCH populations.

MCH Population Groups

The Project Team and Steering Group ensured that the priorities targeted all MCH populations. Using the Life Course perspective, the Project Team evaluated each potential priority for its greatest impact. Much of the debate of several priorities centered on whether the most appropriate target population should be at the parent or child level. The result is a variety of priorities that focus on each MCH population specifically and some that are truly cross population priorities. One priority focuses solely on capacity building. The following list represents the priorities categorized by target population:

- **Cross Population Priorities**
 - Promote healthy weight
 - Promote emotional wellness and social connectedness across lifespan
 - Coordinate preventive oral health measures and promote universal access to affordable dental care
 - Enhance screening for and prevention of violence and bullying
 - Support reproductive and sexual health by improving access to education and services

- **Maternal and Infant Health Priorities**

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- Improve the health and well being of women in their childbearing years
- **Child and Adolescent Health Priorities**
 - Reduce unintentional injury and promote healthy behavior choices for adolescents
 - Expand medical home efforts to systems building and securing access & funding for children and youth
- **CYSHCN Priorities**
 - Support effective transitions from (1) early childhood to school and (2) adolescence to adulthood for CYSHCN
- **Capacity Level Priorities**
 - Improve data availability, access and analytical capacity

Figure 5-3 Population Priority Concepts

Access	Educating about brain development	Medical Home
Access for immigrants	Eliminating disparities among different ethnic/racial and income groups	Mental health aggravated by homelessness
Access for teenagers	Emergency Preparedness	Mental health for youth
Access to culturally appropriate care	Exclusivity and early breastfeeding	Motor vehicle fatality
Access to family support	Expand catastrophic illness relief fund	Nutrition standards
Access to health care for children	Extension of EIPP to rural communities	Preconception care
Access to health resources in schools	Family planning	Pregnancy in racially stigmatized environments
Access to long acting contraceptives	Fertility treatment effects: short term and long-term	Pregnant women with sub. use issues
Access to primary care	Focus on fathers	Pregnant women's oral health
Access to WIC	Focus on vulnerable populations	Preschool years - develop system to support kids healthy behaviors
Adequate health coverage and access	Genetic testing	Preventive health care
Adolescent sports injury	Gestational diabetes during pregnancy	Putting prevention into all programs
Adolescent unintentional injury – motor vehicle, TBI, falls of 1-4 yr olds	Health care transitions	Racial disparities in infant mortality outcomes
Antiviolence work	Health insurance for immigrant children	Reducing norms around violence of men against others

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Asthma prevention and control	Hearing loss for children	Respite care
Autism	High weight gain in pregnancy	Risky behaviors: high risk kids
Autism spectrum disorders	HIV screening for pregnant women	Safe home
Automobile and focus on seatbelts, texting	Homelessness as a public health crisis	Safe sleep for infants <1
Avoiding prenatal care due to addiction	Home visiting	School based health centers
Behavior in children	Hygiene promotion	Schools covering spending for chronic disease
Better understanding of preconception risk	Identifying a systematic approach to identifying those at high(er)risk	Screening for violence
Breast friendly hospitals	Impact of economic downturn on providers	Sexual dating violence
Breastfeeding promotion	Impact of Health Reform – Access to Care	Sexual health
Breastfeeding promotion	Impact of prematurity on birth outcomes and the family	Sexual violence prevention for CYSHCN
Building safer communities	Impact of technology on health and risky behaviors	Shaken baby syndrome
Bullying	Improving pregnancy outcomes	STDs
Care coordination	Improving transportation	Strengthening adolescent services
Cesarean and late pre-term births	Increase educational opportunities for youth	Substance abuse for youth
Child fatality review	Increased diversity and older age at first birth	Suffocation of infants
Child obesity	Infant mortality	Suicide prevention
Children's chronic disease	Infrastructure in rural communities	Support for gay, lesbian, and transgender youth in schools
Children's oral health	Interaction of abortion and obesity/diabetes	Surrogacy and how this affects data collection/reporting
Concerted policy approach to obesity	Interconception care	Teaching parents how to be parents esp. given the loss of extended family
CSHCN: continual need for ongoing, coordinated care	Inter-pregnancy interval	Teenage driving deaths
Delaying age of first use in alcohol	Learning disabilities	Teenage pregnancy
Delaying the age of 1st use of tobacco	Life transition - childhood to adulthood	The effect of parental substance abuse
Developing systems to follow-up kids after age 3	Life transition - school to adulthood	Transitions/Leveraging universal coverage
Developmental disabilities	Life transition - school to	Trauma involved care

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	school	
Disparities across all programs	Life transitions - EI to school	Unintentional injury prevention
Disparities for people with disabilities	Life transitions - pediatric to adult	Universal home visiting for pregnant women
Domestic violence especially with intact families living in transition	Maternal chronic disease	Unplanned pregnancy in young adults
Drowning of 1-4 year olds	Maternal drug overdose and infant drug exposure	Violence screening in reproductive health
Early abnormal weight gain patterns	Maternal health	Wellness of those that go into workplace right out of high school
Early childhood mental health	Maternal infant mental health	Youth health promotion
Early entry into prenatal care	Maternal mental health and infant bonding	Youth violence prevention
Early referrals to appropriate programs	Maternal mental health screenings	

Figure 5-4 Infrastructure Capacity Concepts

Accurate, up-to-date information dissemination	Improved public relations
Additional training for staff on how to work with CYSHCN	Improved resources for data collection
Asset mapping	Improving MDPH branding
Better communication and transparency among regional and central agencies/coalitions	Improving integration of services with oral health
Better coordination to share data	Improving outreach
Better coordination with EEC	Improving translations of public health messages
Better data for programs that do not have good systems	Improving ways to share data
Better data sources	Improving website
Branding other programs around EI	Increasing awareness and use of data
Bring state hospitals into the MDPH communication loop.	Increasing capacity
Building collaborative relationships with providers and communities	Increasing data capacity: geocoding could be possible if registry had more resources
Building database of external stakeholders	Increasing qualitative data collection
Bureaus should meet more to share priorities	Increasing/strengthening collaboration between MDPH and partners
Capacity for local data collection and use	Infrastructure programs in general need support
Changing image of WIC from formula supplier to breastfeeding support	Instituting random internal audit process

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Clarifying restrictions on social networking sites	Integrating better information re: social determinants
Community support line	Interagency coordination with the family centric approach
Connecting with Health Care Reform to promote focus on public health	Keeping data updated
Consistency of funding, so that we can continue sustainability	Linking data esp. WIC to PELL
Continuing to educate staff	Local commitment and cross-community sharing
Continuous quality improvement, accountability, and monitoring	Making website more consumer friendly
Coordinated data system to facilitate access to services	Market WIC as nutrition instead of as a hunger/food program
Coordinating with business leaders	Maximizing use of existing data since resources are scarce
Coordinating with community leaders	More collaboration across programs
Cross-collaboration DMH/MDPH	More collaboration on training
Cross-utilization of resources to increase the efficiency of spreading the message	More culturally competent outreach staff
Curbing loss of providers	More culture competency
Data collection by YHS, YRBS strengthened	More epidemiologists
Data in a digestible format for communities to use	More funding for marketing
Data sharing to track cases longitudinally	More funding for workers/agencies, and
Data system linkage	More funds for computers and programs at MDPH
Data system streamlining	More outreach to diverse families
Developing and working with public transit systems	More scientific/clinical experts available to assist staff and the Advisory Committee
Developing PELL as an ongoing resource	More state funding for PSAs
Direct, radio based marketing to Spanish communities	Multi-language access to web based information
Electronic birth certificates	Need more funding for marketing
Electronic Medical Records	Need to introduce more social networking
Engage community through providers	New technology for marketing
Engaging public to increase awareness of role/scope of public health	Improve science base on the prevention side
Epidemiology support	Program reviews based on client satisfaction
Evaluation capacity	Recording medication data
Expanding and strengthening school health	Reducing siloed structure and sharing
F.O.R. Families data system	Resources for any form of training, marketing or outreach

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Family to family support	Services must be family centered for all programs
File linkage	Simplifying editing of the website
Getting access to Medicaid data	Transparency & communication of information

Priority Needs and State Performance Measures

Massachusetts Title V has identified 10 state performance measures (SPM) to complement the national performance measures (NPM) applicable to the state’s priorities.

<u>National Performance Measures</u>	
NPM 1	- Screening & follow-up for metabolic disease
NPM 2	- CSHCN family partnership/satisfaction
NPM 3	- CSHCN with Medical Home
NPM 4	- CSHCN with adequate insurance
NPM 5	- CSHCN community systems ease of use
NPM 6	- Transition services for youth with SHCN
NPM 7	- Immunization
NPM 8	- Teen Births ages 15-17
NPM 9	- Dental Sealants
NPM 10	- Motor vehicle deaths ages 10-14
NPM 11	- Breastfeeding
NPM 12	- Newborn Hearing Screening
NPM 13	- Children without health insurance
NPM 14	- WIC child BMI over 85th percentile
NPM 15	- Smoking in last trimester
NPM 16	- Suicide deaths ages 15-19
NPM 17	- VLBW at facilities for high risk
NPM 18	- First trimester prenatal care

Figure 5-5

All state performance measures relate to one or more specific priorities. The state performance measures include:

- SPM1 The percentage of pregnancies among women aged 18 years and older that are intended
- SPM2 With technical assistance from MCHB, develop an MCH measure for emotional wellness and social connectedness across the lifespan at the individual and systems levels by July 2011.
- SPM3 The percentage of females aged 18 – 45 years reporting binge drinking
- SPM4 The percentage of women with a recent live birth reporting that they had their teeth cleaned recently (within 1 year before, during, or after pregnancy)

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SPM5	The percentage of School Based Health Center clients for whom an assessment for intimate partner/teen dating/sexual violence was done
SPM6	Develop an MCH healthy weight measure that aligns with MDPH's overall strategy for promoting healthy weight across all populations
SPM7	The rate (per 10,000) of hospitalizations due to asthma among Black, non-Hispanic and Hispanic children aged 0-4 years
SPM8	The rate (per 100,000) of motor vehicle deaths among youth aged 15-24 years
SPM9	The percentage of high school students having missed a school day due to feeling unsafe at or on the way to school
SPM10	The percentage of high school students reporting no current use (in past 30 days) of either alcohol or illicit drugs

Two of the SPM are continuations from 2005 (SPM1 & SPM10) and two others are modifications (SPM4 & SPM6). The project team engaged stakeholders from across programs with significant input from evaluation groups within MDPH. Measures were developed using the following guiding principles that all measures had to pass for consideration by the Steering Group:

- Quantifiable
- Understandable
- Outcomes over process measures
- Low burden of collection
- Indicative, if not inclusive
- Use existing internal and/or external measures when possible
- Opportunity for measurable improvement
- Expectation of robust activity in that area

The performance measures for each priority are discussed more thoroughly below by priority and correspond to the table mapping priorities to NPM and SPM (Figure 5-6).

- 1. Promote healthy weight** will be measured primarily through a developmental SPM over the next year *SPM6 Develop an MCH healthy weight measure that aligns with MDPH's overall strategy for promoting healthy weight across all populations*. MDPH needs to engage in a strategic planning process with stakeholder input to more clearly define the healthy weight strategy before creating a specific process or outcome measure. Other related measures include *NPM4 WIC BMI* and *NPM11 Breastfeeding*
- 2. Promote emotional wellness and social connectedness across lifespan** will be measured through a combination of *NPM16* suicide deaths and a state developed process measure *SPM2 With technical assistance from MCHB, develop an MCH measure for emotional wellness and social connectedness across the lifespan at the individual and systems levels by July 2011*. SPM2 will measure success in defining one or more process action steps and success

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indicators to improve the state's understanding and focus on mental health issues.

- 3. Coordinate preventive oral health measures and promote universal access to affordable dental care** will be measured through *NPM9 Dental Sealants* and a continuation of state measure *SPM4 The percentage of women with a recent live birth reporting that they had their teeth cleaned recently (within 1 year before, during, or after pregnancy)*. Currently, providers rarely mention the importance of oral health during prenatal visits which furthers the gap between those accessing oral health care and those not. SPM4 will help measure success of efforts in this area.
- 4. Enhance screening for and prevention of violence and bullying** will be measured through two newly developed state measures focusing on two important components – domestic and intimate partner violence and school safety. The first will be measured through *SPM5 The percentage of School Based Health Center clients for whom an assessment for intimate partner/teen dating/sexual violence was done*. The second through *SPM9 The percentage of high school students having missed a school day due to feeling unsafe at or on the way to school*.
- 5. Support reproductive and sexual health by improving access to education and services** will be measured through *NPM8 teen births* and through a continuation of a state performance measure from 2005 which continues to have a high degree of relevance to reproductive choice issues. The measure is *SPM1 The percentage of pregnancies among women age 18 and over that are intended*. In addition, the state measures *SPM2 Promote emotional wellness*, *SPM3 Female binge drinking*, and *SPM5 SBHC visit covered partner violence* will be indicators for this priority.
- 6. Improve the health and well being of women in their childbearing years** will be measured through six different NPM, as indicated in the table. In recognition of the need to be inclusive of substance abuse as a major issue affecting health and developmental outcomes, the state has added *SPM3 The percentage of females ages 18 - 45 reporting binge drinking*. *SPM2 Promote emotional wellness* and *SPM5 SBHC visit covered partner violence* are also applicable.
- 7. Reduce unintentional injury and promote healthy behavior choices for adolescents** will be measured through a continuation of a SPM from 2005 and a new SPM which covers a gap left by NPM10. Recognizing the impact of substance abuse on adolescent health and decision making, the state continues with *SPM10 The percentage of adolescents reporting no current use (in past 30 days) of either alcohol or illicit drugs*. The state also adds *SPM8 Motor vehicle deaths ages 15-24* which is the next step from *NPM10* which ends at 14 years of age. Feedback to the Project Team was that *NPM10* captured the

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safety of children with an adult driving, whereas SPM8 covers the adolescent as the driver. *SPM3 Female binge drinking* is also applicable.

8. **Expand medical home efforts to systems building and securing access & funding for children and youth** will be measured by a new SPM measure in addition to the directly relevant *NPM3, 4, 6, and 13*. The new measure will help monitor and bring awareness to a known disparity and sign of the gap in services children experience without a coordinated medical home. The new measure is *SPM7 The rate (per 10,000) of hospitalizations due to asthma among Black, non-Hispanic and Hispanic children aged 0-4 years*.
9. **Support effective transitions from (1) early childhood to school and (2) adolescence to adulthood for CYSHCN** will be measured through the existing NPM for youth with SHCN including *NPM2, 3, 4, 5, and 6*. *SPM2 Promote emotional wellness, SPM7 Asthma hospitalization disparity, SPM10 Adolescents' substance abuse* are also applicable.
10. **Improve data availability, access, and analytical capacity** will not be measured directly by the NPM or SPM. Instead, it will be part of the NPM and SPM collection process and one successful outcome of this priority will be the successful collection of all NPM and SPM. Progress will be directly tracked and measured annually through the national data capacity reporting requirements, as specified in Forms 09A and 09B. Improvements in data collection and timely analysis are also reported in the narratives for the Health Systems Capacity Indicators (HSCIs) and Health Status Indicators (HSIs) in the annual Application and Report.

Priority	National PM	State PM
1. Promote healthy weight	NPM4 WIC BMI NPM11 Breastfeeding	SPM6 Develop healthy weight strategy
2. Promote emotional wellness and social connectedness across lifespan	NPM16 Suicide Deaths ages 15-19	SPM2 Promote emotional wellness
3. Coordinate preventive oral health measures and promote universal access to affordable dental care	NPM9 Dental Sealants for youth	SPM4 Teeth cleaned within 1 year of childbirth
4. Enhance screening for and prevention of violence and bullying	n/a	SPM5 SBHC visit covered partner violence SPM9 Feeling unsafe at or on the way to school
5. Support reproductive and sexual health by improving access to education and services	NPM8 Teen Births ages 15-17	SPM1 Intended pregnancies SPM2 Promote emotional wellness SPM3 Female binge drinking SPM5 SBHC visit covered partner violence

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Priority	National PM	State PM
6. Improve the health and well being of women in their childbearing years	NPM4 WIC BMI NPM11 Breastfeeding NPM8 Teen Births ages 15-17 NPM15 Smoking in last trimester NPM18 First trimester prenatal care NPM17 VLBW at facilities for hi-risk	SPM2 Promote emotional wellness SPM3 Female binge drinking SPM5 SBHC visit covered partner violence
7. Reduce unintentional injury and promote healthy behavior choices for adolescents	NPM10 Motor vehicle deaths ages 10-14	SPM3 Female binge drinking SPM8 Motor vehicle deaths ages 15-24 SPM10 Adolescents' substance abuse
8. Expand medical home efforts to systems building and securing access & funding for children and youth	NPM2 CYSHCN family partnership NPM3 CYSHCN with Medical Home NPM4 CYSHCN with insurance NPM5 CYSHCN community systems NPM6 CYSHCN transition services NPM13 Children with insurance	SPM7 Asthma hospitalization disparity
9. Support effective transitions from (1) early childhood to school and (2) adolescence to adulthood for CYSHCN	NPM2 CYSHCN family partnership NPM3 CYSHCN with Medical Home NPM4 CYSHCN with insurance NPM5 CYSHCN community systems NPM6 CYSHCN transition services	SPM2 Promote emotional wellness SPM7 Asthma hospitalization disparity SPM10 Adolescents' substance abuse
10. Improve data availability, access and analytical capacity	(covered by national data reporting)	(All Measures)

Figure 5-6

In summary, Massachusetts has used an exhaustive process to develop priority areas of immediate impact over the next five years. These priorities cut across MCH populations and have support of the many stakeholders involved in the process of selection. Massachusetts will measure success in these areas through national and state measures that, while not inclusive of all activity, will show at minimum the directional effect for each priority.

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References

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- ² YRBS 2007
- ³ YRBS 2007
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- ⁶ The Status of Oral Disease in Massachusetts: A Great Unmet Need, 2009
- ⁷ MA Dental Hygienists' Survey, 2007
- ⁸ Faine M. Nutrition issues and oral health. In: Proceedings from Promoting Oral Health of Children with Neurodevelopmental Disabilities and Other Special Health Care Needs. May 4-5, 2001; Center on Human Development and Disability, University of Washington, Seattle, WA
- ⁹ BRFSS 2007
- ¹⁰ MassCHIP Massachusetts Community Health Information Profile, 2007 Mortality (Vital Records) ICD-10 based
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- ¹² YRBS 2007
- ¹³ PRAMS 2007
- ¹⁴ MassCHIP Massachusetts Community Health Information Profile, 2007 Mortality (Vital Records) ICD-10 based
- ¹⁵ MA Injury Surveillance Program - Injuries to Massachusetts Residents, 2006, published December 2008
- ¹⁶ U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children with Special Health Care Needs Chartbook 2005–2006. Rockville, Maryland: U.S. Department of Health and Human Services, 2008.
- ¹⁷ "FASD: What Everyone Should Know (2006)", National Organization on Fetal Alcohol Syndrome
- ¹⁸ MYRBS 2007
- ¹⁹ MYRBS 1993-2007
- ²⁰ U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. The National Survey of Children with Special Health Care Needs Chartbook 2005–2006. Rockville, Maryland: U.S. Department of Health and Human Services, 2008.
- ²¹ MA BRFSS 2005-2007
- ²² MA Child Asthma Call-Back Survey 2006-2007
- ²³ MA Child Asthma Call-Back Survey 2006-2007
- ²⁴ 2000-2006 MA Registry of Vital Statistics
- ²⁵ Prevalence of Parent-Reported Diagnosis of Autism Spectrum Disorder Among Children in the US, 2007 (2009)
- ²⁶ Department of Public Health, Early Intervention: Program Review, October 2007

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6. Outcome Measures – Federal and State

Massachusetts views the outcome measures as part of the state's improvement cycle which starts with the Needs Assessment. The Needs Assessment informs priorities. These priorities translate into activities that will be monitored and measured with national and state performance measures in addition to ongoing internal performance and contract monitoring systems.

<u>National Outcome Measures</u>
NOM 1 – Infant Mortality (IM)
NOM 2 – Disparity Black and White IM
NOM 3 – Neonatal Mortality
NOM 4 – Post-Neonatal Mortality
NOM 5 – Perinatal Mortality Rate
NOM 6 – Child Death Rate

Figure 6-1

The actions of MDPH and its collaborators are an effort to improve health outcomes for the state including the six national outcome measures. As elaborated more fully in section 3, the state's disparities in health outcomes, across different socio-economic and racial/ethnic backgrounds, was a major factor in determining priorities and measures. Focusing on disparities in health outcomes is part of MDPH's overall strategy to improve MCH population health outcomes statewide.

For the first time, BFHN has decided to include a state outcome measure in addition to the national outcome measures. Review of mortality data revealed that homicide was the leading cause of injury death among children 0-14 years and homicide was the second leading cause of injury death among youth aged 15-24 years. Massachusetts has selected a violence prevention state outcome measure that brings attention to the large gap between White, non-Hispanic and Black, non-Hispanic homicide deaths. Youth and young adult males, especially Black, non-Hispanic males, are disproportionately involved as victims of homicide. The trends seen nationally are consistent with what is observed in the Commonwealth. During 2005-2007 the homicide rates for Black non-Hispanics, Hispanics, and Asians aged 15-24 years were 25, 12, and 8 times that of White non-Hispanics in this age group, respectively. In 2007 the ratio of Black, non-Hispanic to White, non-Hispanic homicide deaths in Massachusetts was roughly 36 to 1. Disparity in White-Black homicide deaths is described more fully in section 3.

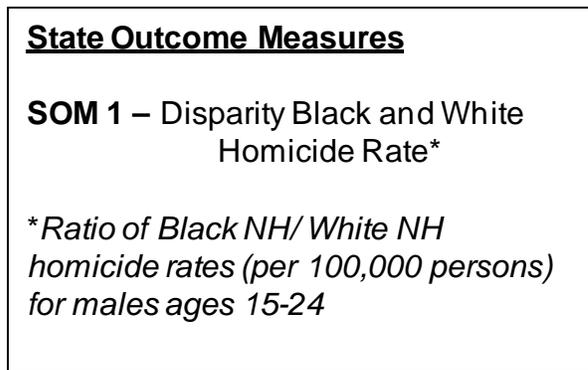


Figure 6-2

This outcome measure will be achieved through targeted approaches to violence, mental health, built environment, and other areas more fully described in section 4. See Figure 6-3 for a graphic description of the interrelation between the assessment of need, priorities, programs and measures.

From a Life Course perspective, all actions improving the health and well-being of the MCH populations across the lifespan will impact the state's success within the national outcome measures. In addition, Massachusetts consciously augmented the national performance and outcome measures by including state performance measures related to substance use and violence. We see our efforts across all state performance measures, federal performance measures, and health systems capacity indicators as contributing toward improved outcomes.

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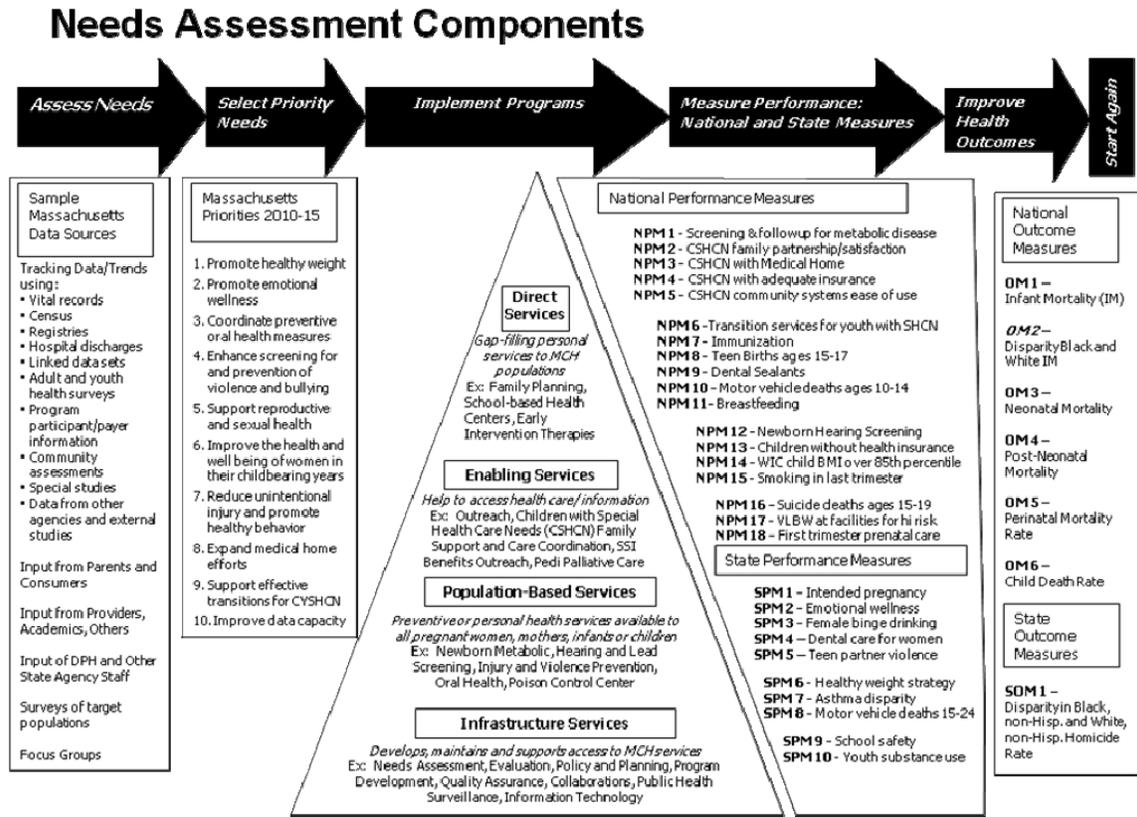


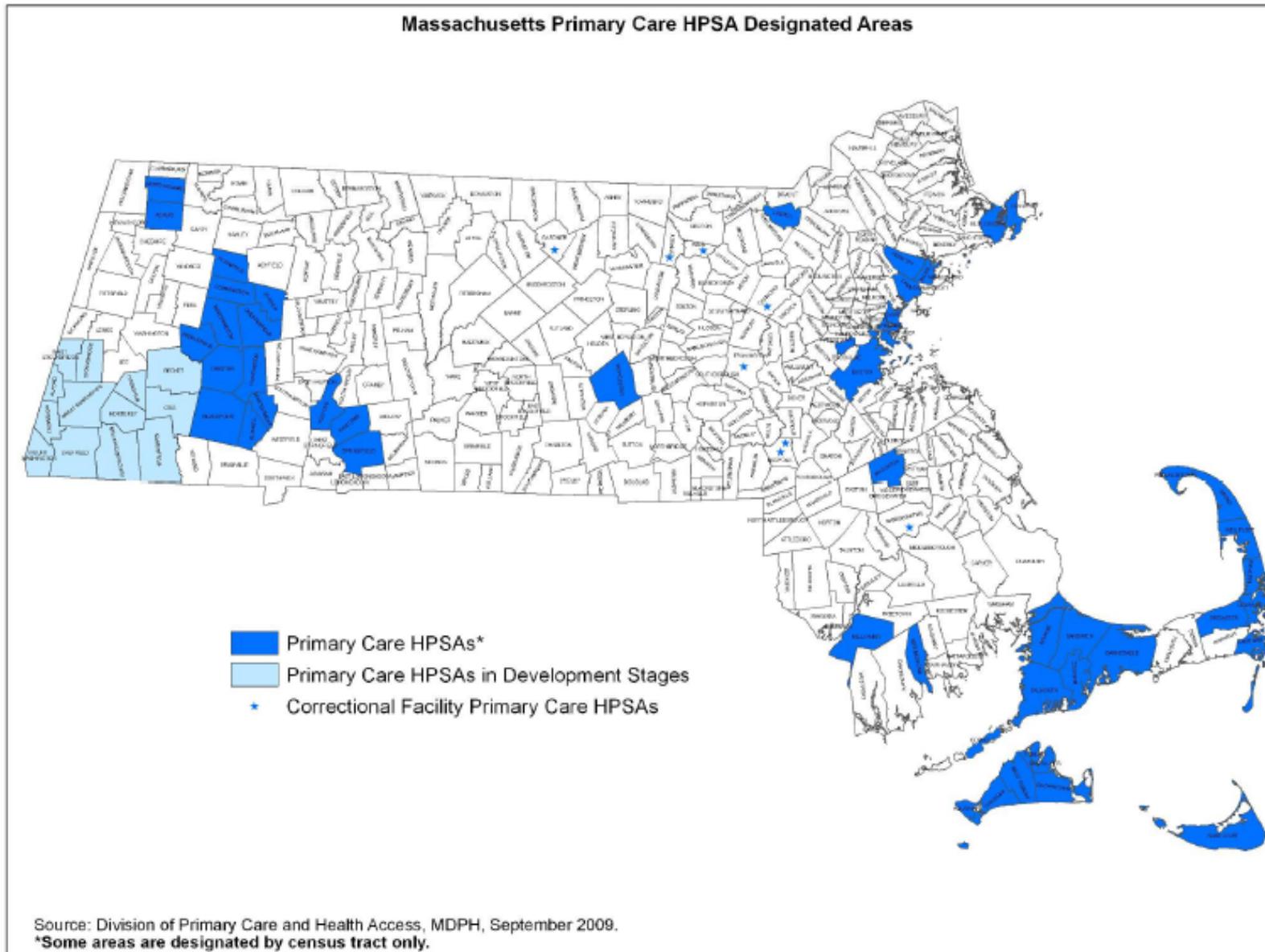
Figure 6-3

**Federal Shortage Designation Maps:
Health Professional Shortage Areas (HPSA)
Medically Underserved Areas (MUA)
Medically Underserved Populations (MUP)**



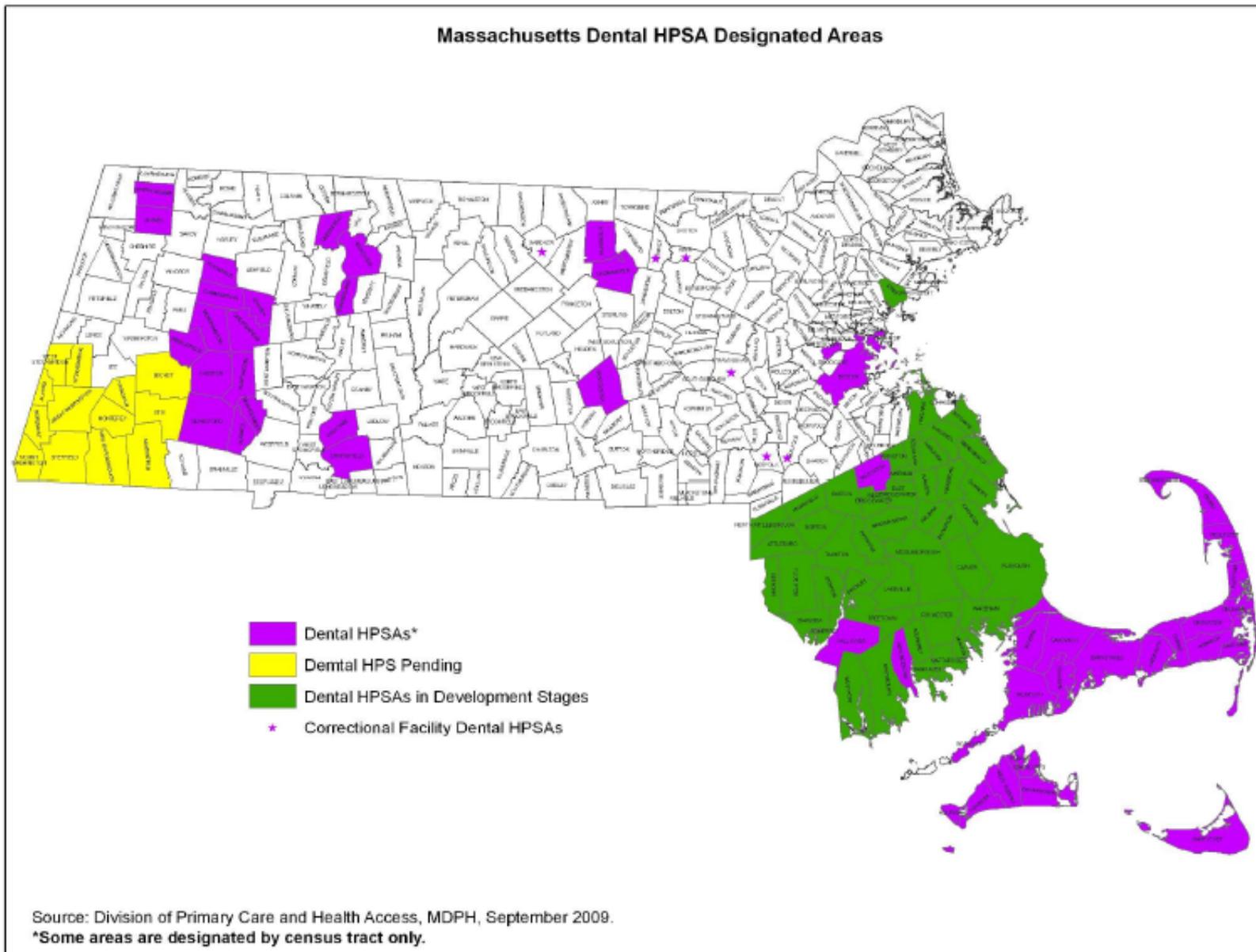
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Massachusetts Primary Care HPSA Designated Areas



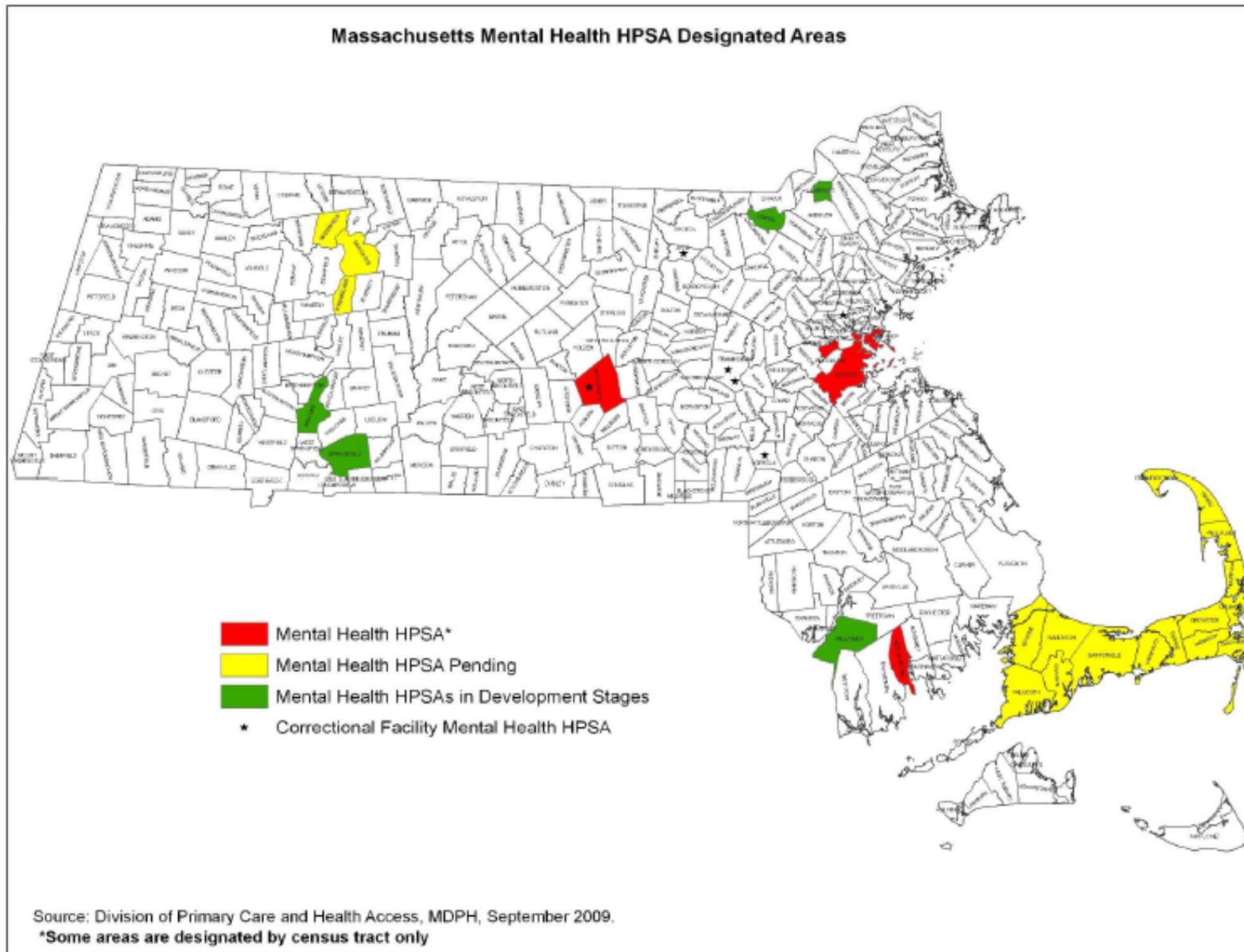
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Massachusetts Dental HPSA Map



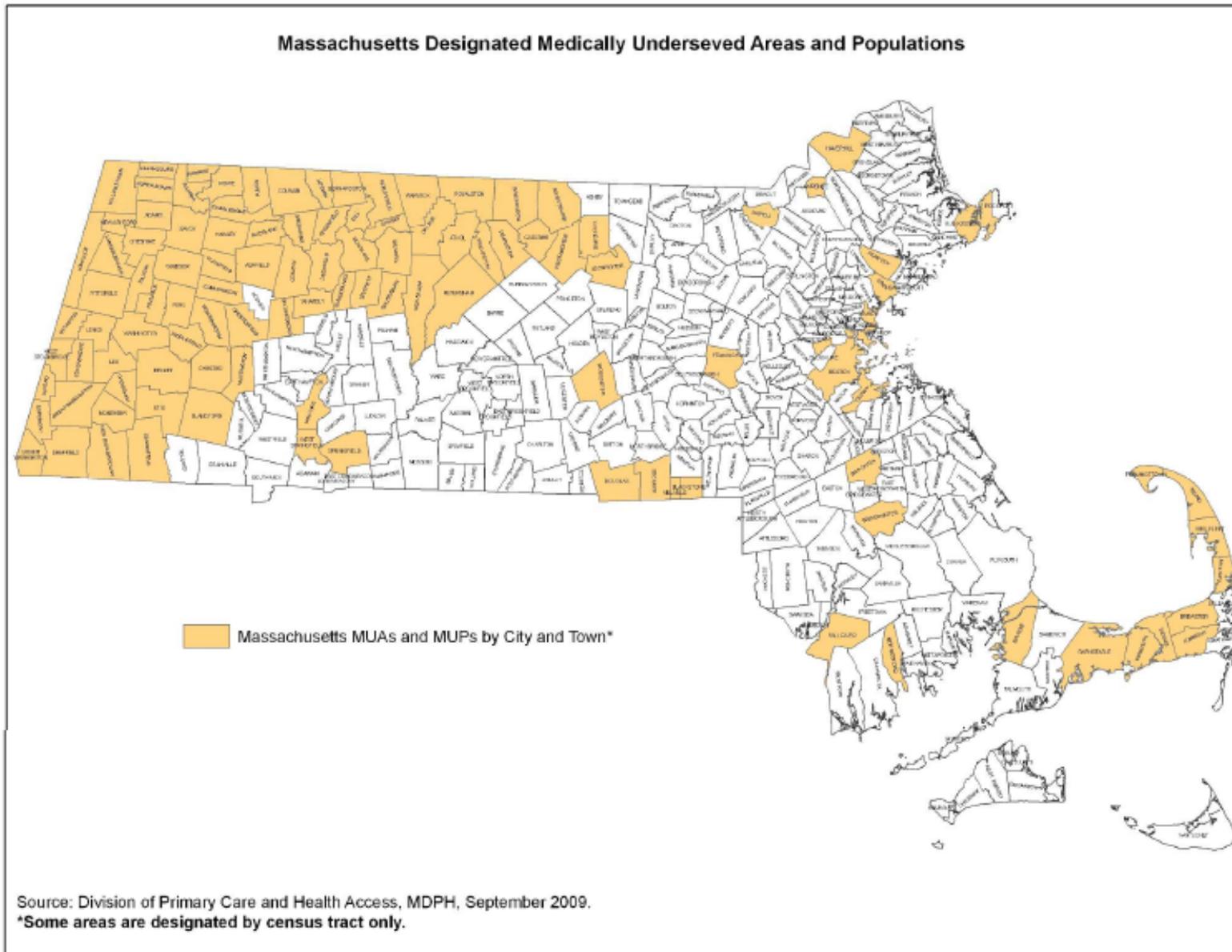
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Massachusetts Mental Health HPSA Map



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Massachusetts Medically Underserved Areas/Populations Map



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Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
Services / Programs for Pregnant Women, Mothers and Infants	
MCH Immunization Program (Federal)	In partnership with the Massachusetts Immunization Program, supports MCH programs to improve childhood immunization rates through assessment, education, tracking and follow-up. Works in coordination with the WIC program, other Bureau programs and Boston immunization program.
EI Partnerships Program (EIPP) (Federal & ISA - Medicaid)	Home-visiting services for at-risk pregnant and postpartum women and their infants through age 1. Coordinated by an existing Early Intervention program and led by a multi-disciplinary team including a maternal child health nurse, social work / mental health clinician, and community health worker. Programs provide maternal and infant health assessment and monitoring; health education and guidance; screening and appropriate referrals; and linkage to additional community-based resources.
Growth and Nutrition Program (State)	Multidisciplinary outpatient evaluation and treatment for children birth to age 6 with nutritional growth delay (commonly known as Failure to Thrive).
Massachusetts Center for Sudden Infant Death Syndrome (SIDS) (State and Federal)	Culturally competent bereavement support and educational services to families and caregivers of infants and young children (0-3 years) experiencing infant and child death from SIDS and other causes; training professionals responding to a family with an infant or child death; toll-free 24-hour helpline.
Maternal Mortality and Morbidity Review (Safe Motherhood) (Federal)	Systematic review of deaths of all women who die while pregnant or during the first year postpartum. An expert committee consults with Department staff to review cases and make recommendations.
A Helping Hand: Mother to Mother <i>(ending in FY11)</i> (Federal)	ACF-funded demonstration project that is developing and implementing a model for enhanced identification of newborns exposed in-utero to illegal substances and providing comprehensive services to them, their mothers and families. Seeks to integrate delivery of substance use, child welfare, child development, mental health, and other social services to address families' needs through services that are individualized, strength-based, family-centered, and culturally competent. A key element of the model is a Family Support Specialist who is a peer (a mother in recovery) and serves as a mentor, support and advocate.
FRESH START <i>(previously Helping Hands for Infants and Families)</i> (Federal)	ACF-funded demonstration project to enhance identification of and provide comprehensive services for pregnant women and infants (and their mothers and families) affected by substance abuse (SA) and/or HIV/AIDS in Hampden County, MA, which includes Springfield and Holyoke. Program objectives are to prevent child abuse and neglect by ensuring stability, permanence, and well-being for these infants through nurturing caregiving. Program model uses both a peer mentor and clinical therapist to in-home substance abuse treatment and link women to a broad array of community services.

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Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
Massachusetts New Parents Initiative (MNPI) <i>(ending in FY11)</i> <p style="text-align: right;">(Federal)</p>	MNPI is a federally funded project that seeks to improve the health of new parents, infants and their families across the life span through enhancing communication between providers and new parents and among new parents using emotion based messaging. This public health social marketing campaign will target health care providers working with new parents, infants and their families in Massachusetts with a focus on populations experiencing poor perinatal outcomes.
Shaken Baby Syndrome (SBS) Prevention <p style="text-align: right;">(State)</p>	Leadership of a multi-agency, multi-disciplinary advisory group that guides statewide Shaken Baby Prevention efforts. Conducts surveillance of shaken baby syndrome, has developed prevention strategies for many high risk groups, and created educational materials for maternity hospitals to use in fulfilling the legislative mandate to educate all new parents in shaken baby syndrome prevention.
Universal Newborn Hearing Screening and Follow-up Program <p style="text-align: right;">(State & Federal)</p>	Oversight of newborn hearing screening programs at all hospitals and birth centers, including review and approval of hospital screening policies and procedures. Systematic outreach and follow-up to parents and pediatricians to ensure prompt diagnosis and early EI enrollment of children with congenital hearing loss. Parent to parent support provided at diagnosis. Review and approval of audiological testing center protocols.
Pregnancy Risk Assessment Monitoring System (PRAMS) <p style="text-align: right;">(Federal)</p>	A self-administered survey asks about maternal attitudes and experiences before, during, and shortly after pregnancy. The purpose of PRAMS is to help the MDPH establish and maintain an epidemiological surveillance system aimed at understanding maternal behaviors and experiences during the periods of preconception, pregnancy and early infancy, and their relationship to health outcomes.
WIC (Women, Infants, and Children Nutrition Program) <p style="text-align: right;">(State, Federal, & ISA – DAR)</p>	Nutrition education and counseling and access to nutritious foods for low-to-moderate income pregnant and postpartum women, infants, and children up to age five, who are at risk of developing nutrition-related health problems. Access to healthcare and social services, immunization screening and referrals, and coupons for fresh produce at farmers' markets.
Breastfeeding Initiative <p style="text-align: right;">(State & Federal)</p>	Collaborative efforts between BFHN and other programs to increase statewide breastfeeding initiation and duration rates. Provides promotional materials statewide, supports hospital breastfeeding regulations, monitors breastfeeding rates and trends, and provides training to healthcare professionals and child care providers.
Services / Programs for Children and Adolescents	

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Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
CLPPP (Childhood Lead Poisoning Prevention Program) (Federal)	Comprehensive lead poisoning prevention program and enforcement of state lead laws. Services include screening, medical case management, blood lead analysis, environmental case management, education, training, and outreach. (Partial MCH funding)
Family Planning Services (State & Federal)	Comprehensive clinical care (including screening for cervical cancer and sexually transmitted diseases), health education and counseling, provision of contraceptives, and community education, and outreach for low-income women, men, and adolescents.
<i>MariaTalks.com</i> (State and Federal)	New statewide sexual health hotline and website launched in Jan. 2009 and designed specifically for MA teens. Website, hosted by AIDS Action Committee, developed collaboratively by the Family Planning Program, STD Bureau, Division of Violence and Injury Prevention, and other related MDPH programs. Contains comprehensive, medically accurate information and referral sources on 'sex, birth control and things that matter,' including pregnancy, STI and STD, sexual violence, substance use, and GLBTQ information and programs. Website is linked to social networking sites such as MySpace and Facebook, and to a Statewide Sexual Health Hotline (877-MA-SEX-ED or 877-627-3933) that uses a multi-language service line to meet the needs of callers.
Massachusetts Early Childhood Comprehensive Systems Project (MECCS) (Federal)	MECCS works both within and outside the MDPH to coordinate services for young children from birth to age 5. Program target areas for MECCS include: access to health insurance and medical homes; social-emotional development and mental health; early care and education; parenting education; and family support.
Massachusetts LAUNCH <i>(new in FY10)</i> (Federal)	New SAMHSA-funded initiative to promote the wellness of young children from birth to 8 years of age by addressing the physical, emotional, social, cognitive and behavioral aspects of their development. The Boston Public Health Commission (BPHC), working in partnership with the Boston Mayor's Thrive in Five Initiative (Ti5) is the local partner to enhance care in Boston by building comprehensive local systems in Boston neighborhoods with pediatric medical homes.
Injury Prevention and Control Program (Federal)	Promotes increased knowledge of injury prevention and reduction strategies across the lifespan; includes data collection, surveillance and reporting, program and coalition development, public information, provider training, policy development and evaluation. Also provides leadership and coordination of MDPH participation in county-based and statewide Child Fatality Review Team system.
Emergency Medical Services for Children (EMSC) Program (Federal)	Support and enhancement of emergency medical services for children, including training and curriculum development, comprehensive injury prevention initiatives, innovative planning and policy development, and the development of pediatric care standards and protocols. Work with the EMSC Advisory Committee to implement the required performance standards.
Passenger Safety Program (Federal)	Provides training and education, technical assistance, coalition and task force leadership, and public information materials; works to increase awareness of passenger safety issues and to reduce motor-vehicle related injuries. Also maintains the Car-Safe Line, a statewide toll-free phone line for questions about passenger safety and related Massachusetts laws.

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Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
Suicide Prevention Program (State and Federal)	Works closely and collaboratively with the Massachusetts Suicide Prevention Coalition to address issues of suicide across the lifespan through implementation of the statewide strategic plan for suicide prevention. Funds community-based agencies to address high-risk populations. Supports a variety of activities including surveillance and training as well as the coordination of an annual Suicide Prevention conference.
MCH Immunization Program (Federal)	In partnership with the Massachusetts Immunization Program, supports MCH programs to improve childhood immunization rates through assessment, education, tracking and follow-up. Works in coordination with the WIC program, other Bureau programs and Boston immunization program.
Office of Adolescent Health and Youth Development (State)	Coordinates and integrates services and technical assistance related to youth and young adults throughout the Bureau and Department. Supports linkages with health care providers, policy and program developers, youth, families, state agencies, and community networks. Facilitates the Mass. Statewide Adolescent Health Council and provides advisory and staffing support to the Governor's Statewide Youth Council.
Office of Oral Health / MDPH SEAL (See also OOH under All Populations) (Federal)	MDPH SEAL is a school-based oral health prevention program targeting high-risk school-aged children. In FY 2010, the SEAL Program was in 52 schools in 4 high-need communities. Dental Hygienists, using portable dental equipment, provide screenings, sealants and fluoride, as well as referrals to partnering dentists in the community for restorative care.
School-Based Health Centers (State)	Comprehensive primary health care centers in elementary, middle, and high schools. The centers operate as licensed satellite clinics of community health centers or hospitals, enhancing access for school-aged children who lack regular, preventive health care. Specific initiatives include promotion of mental health, depression screening, and risk assessment for a range of adolescent risk behaviors.
School Health Services - Core (State)	Systems development and technical assistance available to all public school systems and private schools. Activities include policy development, regulations and standards setting; support of school nurse credentialing and certification; School Health Institute for continuing education; exploration of reimbursement systems; establishment of data systems; and implementation of new models of care. Publication of the <i>Comprehensive School Health Manual</i> .
Essential School Health Services Programs (ESHS) (State)	Funding to school districts to enhance school health service programs, coordinated with comprehensive school health education programs, using a nurse-managed model. Goals include strengthening infrastructure; ensuring comprehensive tobacco control and health education programs; establishing linkages with community providers and health insurance for all students; and implementing data systems.

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Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
Catastrophic Illness in Children Relief Fund (State trust fund)	Trust fund program established by state legislature to assist families with significant financial burdens resulting from the medical condition of a child under age 22. Provides financial assistance to MA families with children experiencing a medical condition requiring services not covered by a private insurer, federal or state assistance, or any other financial source.
Children with Special Health Needs Community Support Line (Federal)	Statewide toll-free community support line for families of children with special health needs. Information, referral and technical assistance provided to families and providers, including public benefits information, family-to-family supports, referrals to the Catastrophic Illness in Children Relief Fund, care coordination services, other community resources, and state agencies. Links families to needed services.
Early Intervention Services (State and Federal)	Comprehensive developmental evaluations, multidisciplinary therapeutic and education services for children ages 0-3 who are at established, biological or environmental risk for development delay. Provides support and education for parents caring for these children, especially those with complex medical needs.
Early Intervention Regional Consultation (Federal & ISA - EEC)	Provides consultation by specially selected providers to the EI service network, child care sites, and families concerning building community capacity for inclusion of children with medically complex conditions in natural environments. Support for inclusion in child care and preschool for children ages 3 – 5 with special needs has been expanded through collaboration between DPH and the Department of Early Education and Care (EEC).
Early Intervention Services Specialized Training and Support Projects (State and Federal)	EI child and family services (see above) for children with low-incidence conditions, including children who are blind and those diagnosed with autism spectrum disorders.
Early Intervention Training Center (Federal and ISA - DESE)	Provides support and professional development opportunities to the Massachusetts Early Intervention (EI) community, including those seeking certification through the Department of Public Health.
EI Partnerships Program (EIPP) (Federal & ISA - Medicaid)	Home-visiting services for at-risk pregnant and postpartum women and their infants through age 1. Coordinated by an existing Early Intervention program and led by a maternal child health nurse, programs provide maternal and infant health assessment and monitoring; health education and guidance; screening and appropriate referrals for pre-term labor, maternal depression, substance and tobacco use, and domestic violence; assistance with breastfeeding; parenting skills; and linkage to additional community-based resources.
Family Support Fund (State & Federal)	Helps families enrolled in the Care Coordination Program pay for expenses related to their child’s special health care needs. Assists families when private or public benefits are not available for the service or item being requested and with bills not covered by insurance, including medication, respite, special equipment, medical supplies or other expenses related to the child’s diagnosis.
Growth and Nutrition Program (State)	Multidisciplinary outpatient evaluation and treatment for children birth to age 6 with nutritional growth delay (commonly known as Failure to Thrive).

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Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
Family Initiatives for CSHCN (Federal)	Multiple opportunities for families of CSHCN to participate in policy and program development, implementation and evaluation to ensure family-centered, culturally competent, responsive programs. Family members trained and supported to take paid and advisory positions within all Division for Perinatal, Early Childhood and Special Health Needs activities. Targeted outreach to culturally and linguistically underserved communities. Projects conduct outreach and training to ensure these goals.
Family TIES (Federal)	Statewide information and referral for families of CSHCN and their providers. Parent to Parent program matches experienced parents with others seeking information and support. Central Directory of Early Intervention services. Access through toll-free in-state phone line and web-site. Staffed by parents of CSHCN.
Early Intervention Parent Leadership Project (State & Federal)	Parent staffed project to support families whose children receive EI services to gain advocacy and leadership skills. Works to include the parent voice at the program, regional and statewide levels. Access through toll-free in-state phone line and website.
MASSTART (Massachusetts Technology Assistance Resource Team) (Federal)	Specialized nurse consultation to parents and schools to ensure safe placement of technology-assisted children and other children with complex medical needs in school settings. Training sessions are also provided.
Medical Review Team (and Pilot Program for Short-Term Post-hospitalization Placement) (Federal)	Multidisciplinary Team that screens all children for whom placement, both long and short term, is sought in a pediatric skilled nursing facility in Massachusetts, to assure they meet strict medical and cognitive criteria. MRT also reviews young adults ages 18-22 who need placement in an adult skilled nursing facility for either rehabilitation or long term placement. MRT also reviews children for placement in a pediatric skilled nursing facility for a short term post hospital placement. This program is for currently hospitalized children who could be discharge to home or community placements but need to remain in a hospital because or requirements for complex skilled nursing care. The children must meet the MRT skilled nursing criteria but the cognition criteria are waived for this population. A clear discharge plan out of the facility is needed as well in order to be found eligible.
Medical Review Team – Pilot Program for Short-Term Post-hospitalization Placement (Federal)	Pilot program for short-term post-hospitalization placement in a pediatric nursing home. The program is for currently hospitalized children who could be discharged to home or community placements but need to remain in a hospital because of requirements for complex skilled nursing care. The children must meet the MRT skilled nursing criteria but the cognition criteria are waived for this population.
Pediatric Palliative Care (State)	A range of services are individualized to the child and family to improve their quality of life by meeting the physical, emotional and spiritual needs experienced during the course of illness, death, and bereavement. They complement existing services and most are expected to be provided in the home. They may be provided simultaneously with curative treatment. Services include pain and symptom management, case management, social services and counseling, respite, advanced care planning, spiritual care, and bereavement.

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Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
<p>MassCARE (Massachusetts Community AIDS Resource Enhancement)</p> <p style="text-align: right;">(Federal)</p>	<p>Provides HIV-related specialty medical care, care coordination and support services for women, infants, children and adolescents with HIV/AIDS in community-based health centers and pediatric practices. Outreach to pregnant women and obstetrical providers to ensure early identification and enrollment in care of pregnant women with HIV, to enhance care for pregnant women, and prevent HIV transmission from mothers to infants. Outreach and support to perinatally infected, newly diagnosed and at-risk adolescents through teen groups and community education. Active consumer network of meetings and activities for families.</p>
<p>Office of Oral Health <i>(See also OOH/MDPH SEAL under Children and Adolescents)</i></p> <p style="text-align: right;">(State, Federal, and private funds)</p>	<p>Enhancement of oral health in Massachusetts through the development and support of organized systems of dental disease prevention, treatment, research, education and access to care. Tufts Dental Facilities provides comprehensive dental services to individuals with developmental disabilities residing in the state's Developmental Centers and the community, with priority given to individuals with mental retardation. The program also provides enhanced preventive oral health services at community-based sites such as HeadStart, Early Intervention, special education classrooms, adult day activity and habilitation programs and community residences, using portable dental equipment. Dental clinics are provided at 6 sites.</p>
<p>Office of Nutrition</p> <p style="text-align: right;">(State and ISA)</p>	<p>Serves as the liaison with health, education and human services programs responsible for the nutritional needs of Massachusetts residents across the lifespan. Evaluates nutrition-related legislation and policies. Provides guidance for nutrition services and related activities. Manages Mass Nutrition Board; administers the Growth and Nutrition and PKU programs.</p>
<p>Wellness Section</p> <p style="text-align: right;">(State and Federal)</p>	<p>Provides leadership and works with internal and external partners to promote, develop and implement evidenced-based policies, practices, and programs that support healthy lifestyles across the lifespan. Current key initiatives include Obesity Prevention and Control; Mass in Motion which includes Calorie posting, Executive Order 509 requiring nutrition standards for food procurement within state agencies, Working on Wellness, a worksite wellness initiative; Healthy Choices, a school-based wellness initiative; Municipal Wellness Leadership Grants, a grant program that promotes community infrastructures that support residents' access to healthy food and opportunities for physical activity and Body Mass Index (BMI) regulation. Other efforts focus on ensuring appropriate development and implementation of related monitoring, surveillance and evaluation systems.</p>
<p>Injury Prevention and Control Program</p> <p style="text-align: right;">(Federal)</p>	<p>Promotes increased knowledge of injury prevention and reduction strategies across the lifespan; the program works through coalition development, program development, public information dissemination, provider training, policy development and data collection and surveillance. Staff also provide leadership and coordination to county-based and statewide Child Fatality Review Team system.</p>

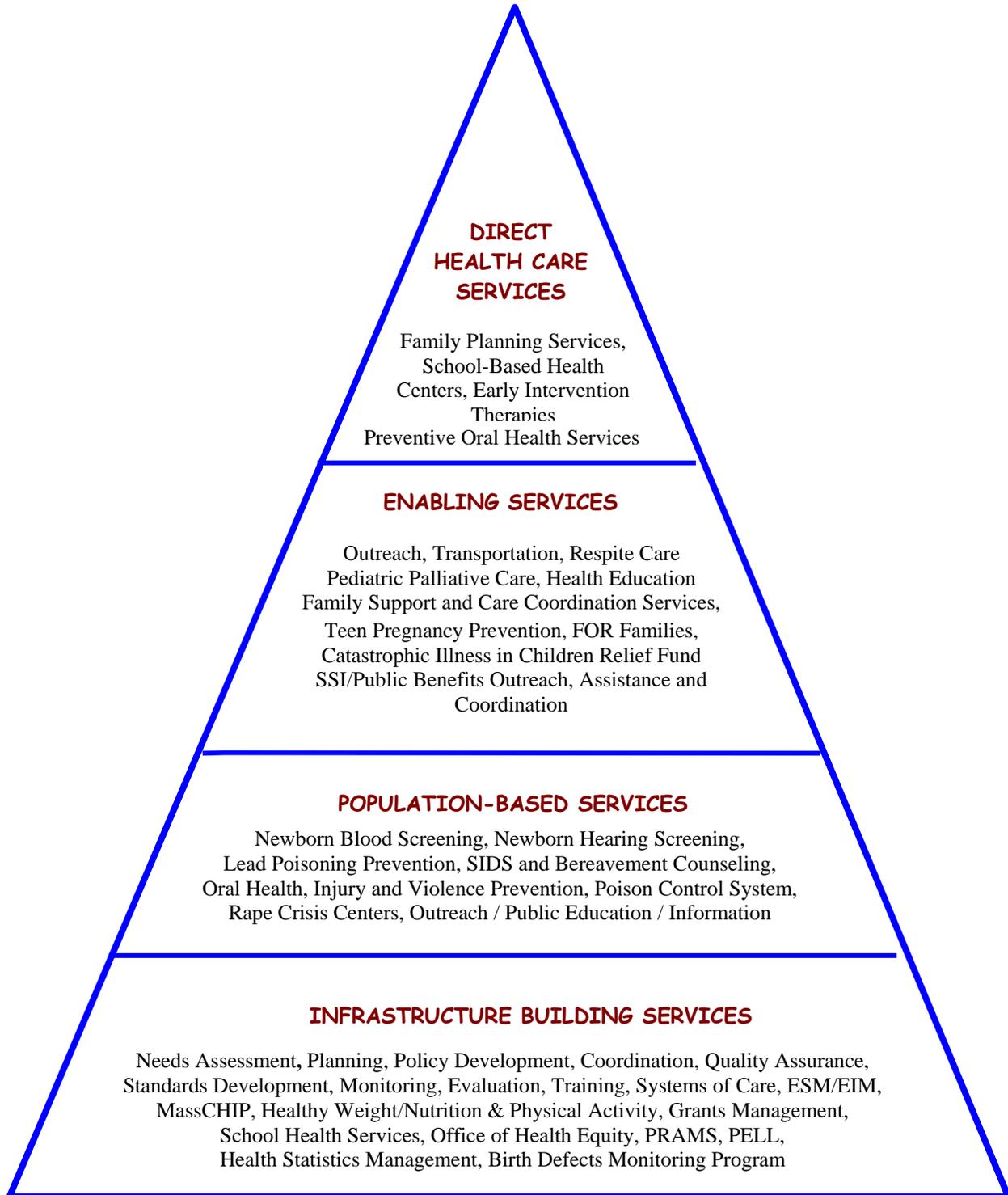
IIB. Massachusetts MCH 2010 Comprehensive Needs Assessment

Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
<p>Public Health Injury Prevention and Surveillance Program</p> <p style="text-align: right;">(Federal)</p>	<p>Supports dedicated staff with technical expertise in injury prevention and surveillance and convenes the Massachusetts Prevent Injuries Now! Network (MassPINN). MassPINN is a group of professionals from diverse backgrounds and injury prevention interests (academic and local public health professionals, clinicians, advocates, and state agency representatives) who assist the MDPH in the implementation of the MA Strategic Plan for Injury Prevention. This program also conducts comprehensive injury surveillance through the timely analysis and dissemination of findings from population-based databases and enhances injury data collection where feasible.</p>
<p>Regional Center for Poison Control and Prevention – serving Massachusetts and Rhode Island</p> <p style="text-align: right;">(State and Federal)</p>	<p>A 24-hour, free hotline serving Massachusetts and Rhode Island through a single contract. The PCC provides consultation and expertise in the diagnosis and management of poisoning emergencies to medical providers and lay consumers. Provides professional education and develops innovative public education strategies to prevent poisoning and toxic exposures for residents across the lifespan.</p>
<p>Suicide Prevention Program</p> <p style="text-align: right;">(State)</p>	<p>Provides statewide suicide prevention, intervention and surveillance activities to implement the statewide suicide prevention plan. Funds community-based agencies to address high-risk populations. Includes training to professionals and efforts to increase public awareness and understanding of suicide and related risks among the general population.</p>
<p>The Massachusetts Residential Fire Injury Prevention Program</p> <p style="text-align: right;">(Federal)</p>	<p>The Massachusetts Residential Fire Injury Prevention Program aims to decrease injuries and deaths due to residential fires in at-risk households. The program utilizes a comprehensive approach involving; smoke alarm installation, fire safety education in the home and community education. The program seeks to increase collaboration by encouraging the formation of partnerships between local fire departments and community agencies serving at-risk populations. The IPCP works in collaboration with the Office of the State Fire Marshal to accomplish its goals.</p>
<p>Violence Prevention and Intervention Services</p>	<p><i>See also Services for Children and Adolescents</i></p>
<p>Rural Domestic and Sexual Violence Project</p> <p style="text-align: right;">(Federal)</p>	<p>Provides advocacy and services to children who witness domestic violence and their mothers in rural communities in Western Massachusetts. Provides education and training to professionals and service providers, and works to increase community awareness of domestic violence, child victimization, and the primary prevention of sexual and domestic violence.</p>
<p>SANE (Sexual Assault Nurse Examiner) Program, Adolescent / Adult Services</p> <p style="text-align: right;">(State & ISAs - EOPS)</p>	<p>Development of protocols and standard of care for treatment of sexual assault victims age 12 and over in emergency rooms/urgent care centers; specialized training and certification of Sexual Assault Nurse Examiners; forensic evidence collection and compassionate medical care for sexual assault patients in designated hospital EDs. Collaboration with rape crisis centers, police, district attorneys; crime lab; expert testimony at trial. <i>(See also Pediatric SANE program for care of patients under age 12)</i></p>

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Table MCH-Related Programs, Brief Descriptions, and Services Provided	
Program and Source(s) of Funding	Description
Sexual Assault Prevention and Survivor Services (State & Federal)	Statewide network of 17 rape crisis centers provides comprehensive sexual assault prevention and survivor services. Each center provides a 24-hour crisis hotline, counseling, and accompaniment of victims through medical, legal, and police processes. Centers also provide professional training and consultation, prevention education, and organizing.
Llamanos: Statewide Spanish Language Sexual Assault Helpline (State)	Provides 24/7 crisis intervention and referral to Spanish-speaking adults and adolescent survivors of sexual assault. Also provides support to professionals and family members to help Latino survivors of sexual assault of all ages and their families in Latino communities.
Sexual Assault Prevention Coalition and Capacity Building (State & Federal)	Supports Jane Doe, Inc: Massachusetts Coalition against Sexual Assault and Domestic Violence; provides curriculum and prevention education materials development and dissemination, training, conferences, and consultation to rape crisis centers.
Domestic and Sexual Violence Integration Initiatives (Federal)	The integration initiatives include: 1) the Domestic Violence Screening, Care, Referral and Information Project (DV SCRIP), trainings for maternal and child health providers on intimate partner violence and how to respond to clients, 2) the VPIS activities related to children exposed to violence, convening multidisciplinary practitioner discussion groups and developing resource materials, and 3) working internally among DPH MCH programs and the DPH programs serving MCH populations on system wide screening initiatives and policy development regarding trauma informed care.
Office of Health Equity (State and Federal)	Promotes the optimal well being of racial, ethnic and linguistic minority communities statewide. Collaborates with public and private entities to ensure an infrastructure that supports responsive health systems and addresses issues of access, capacity and service delivery. Manages new DPH contractual projects to eliminate racial and ethnic health disparities. Serves as a department-wide resource to assist with managing the dynamics of racial, ethnic and linguistic diversity.

**The MCH Pyramid
Core Public Health Services
Delivered in Massachusetts by MCH**



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Massachusetts Federal-State MCH Partnership

Key MCH-Related Relationships

Other State Human Services Agencies and Committees / Cabinets

MEDICAID (MassHealth) AGENCY = Massachusetts Office of Medicaid

Numerous joint efforts to assure quality Medicaid services to MCH populations, The following are recent or current issues, areas of focus, and activities:

- EPSDT
- SCHIP
- Follow-up outreach and service referrals
- Behavioral health services (see Children's Behavioral Health Initiative also)
- School-Based Health Centers (SBHCs); Essential School Health Services; School Health Services
- Medicaid and Children with Special Health Care Needs
- Oral health and dental care access models
- Kaileigh Mulligan Home Care for Disabled Children Program
- Early Intervention collaboration and coverage: transportation services, developmental specialists, EI Specialty Services
- Medical Review Team
- Community Case Management (through Commonwealth Medicine, UMass Medical School) – for MassHealth members under age 22 with complex medical/nursing needs
- Issues related to children and youth in foster care
- Massachusetts WIC Program /Medicaid Letter of Agreement and referrals
- Collaboration on improving asthma outcomes
- Increasing data sharing
- Reimbursement for nutrition services
- Reimbursement rates for family planning services
- Family planning outreach to Medicaid clients ("Keep Teens Healthy" Program)
- Enrollment outreach to child care providers and families using child care

Department of Elementary and Secondary Education (formerly the Dept. of Education) / Local Educational Authorities

Joint DOE/DPH planning committee; Stakeholders' group
Joint work with DOE and DMA for expanded school health and health education program
Coordinated School Health Working Group
School Health Collaborative (CDC-funded DASH initiative)
Task Force on Indoor Air Quality
Bullying Prevention Working Group
Massachusetts Family Literacy Consortium
Statewide Advisory Commission for Special Education (SAC)
Community Partnerships for Children
DOE Family Network Initiative
Technical Assistance/Training Collaboratives
Bureau of School Nutrition Services collaboration
Trauma Informed Schools Initiative
DESE HIV/AIDS Education Materials Advisory Group

Executive Office of Health and Human Services (EOHHS)

Children's Behavioral Health Initiative
Title V director serves on Executive and Implementation Committees
Massachusetts Patient-Centered Medical Home Initiative and MPCMHI Council (PIC)
(with Commonwealth Fund)
Children's Policy Group [Representatives from all EOHHS departments and agencies who provide services to children and youth]

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Adolescent Health Council
Mental Health Working Group
MYCHILD Project
Commonwealth Connector (Massachusetts health reform insurance)
School Readiness
EOHHS SANE Working Group
EOHHS Trauma-Informed Care Working Group
Community Connections coordinating group
MassCALL 2(Massachusetts Collaborative for Active Leadership and Learning)
Community Health Centers Work Group (DMA, MDPH, Division of Health Care Financing and Policy);
convened by MDPH

Department of Transitional Assistance (DTA)

TANF Agency
Massachusetts WIC Program
Letter of Agreement and referrals
Child Nutrition Access Project
Policies and programs for homeless/emergency shelter programs, pregnant teens
Food Stamp Outreach
Domestic Violence Unit

Department of Housing and Community Development

FOR Families
ISA to MDPH for Home Visiting and Referral Services for homeless families living in motels

Department of Mental Health

Children's Behavioral Health Initiative (CBHI)

Division of Health Care Finance and Policy

Health Safety Net
Perinatal Advisory Committee
Establishment of and renegotiation of rates under Chapter 257
Assessments of insurance status

Division of Insurance

Advisory Memorandum on EI
Early Intervention "First Dollar" Implementation in FY11

Department of Children and Families (DCF)

Children's Justice Act Advisory Committee
ISA funding to support services for substance-using mothers their infants (match for ACF grant)
Foster Care Advisory Committee
CAPTA issues
Children Exposed to Violence Working Group
Safe Sleep Advisory Committee
Special Kids: Special Care (their special needs MCO plan)
Domestic Violence Unit

Department of Youth Services

JDAI Advisory Group

Department of Early Education and Care (EEC)

Preschool and School Age Child Care Standards (including medication administration in child care)
Asthma technical assistance
Supportive funding for DPH Regional Consultation Centers
Assessment instruments for Early Intervention
Joint funding of initiatives related to coordinated child care systems
New Home Visiting Needs Assessment Task Force (co-chair)
Transition Memorandum of Understanding – to promote coordination & collaboration in provision of services to infants, toddler, and pre-school children with disabilities
Communities of Practice – networking opportunities between EI, public schools, and EEC programs to share best practices on a variety of topics

Department of Revenue Child Support Program

Department of Environmental Protection

Bureau of Environmental Health – DEP working group

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Department of Employment and Training

Massachusetts Rehabilitation Commission

Disability Determination Services (DDS) Advisory Committee
Statewide Head Injury Program
Vocational and Independent Living
Home Modification for Disabled Loan Program - joint project of MRC and CEDAC – Community Economic Development Assistance Corp.
Massachusetts Assistive Technology Loan Program – joint project of MRC, Easter Seals, and Sovereign Bank

Commission for the Blind

Commission for the Deaf and Hard of Hearing (MACDHH)

Memorandum of Understanding with DPH Universal Newborn Hearing Screening Program

Department of Developmental Services (formerly the Dept. of Mental Retardation)

Families Organizing for Change – Family Support
P.A.L. (Parent/Professional Advocacy League)
Acquired Brain Injury Committee
Autism Center

Joint DPH/DSS planning group on healthy sexuality/healthy relationships, and sexual assault prevention

Children's Trust Fund

Massachusetts Commission on Gay and Lesbian Youth

County District Attorneys Offices

Maternal Death Review Committee
Local Child Fatality Review Teams

Executive Office of Public Safety

Office of the Chief Medical Examiner – state Child Fatality Review Team, Maternal Mortality Highway Safety Division
VAWA STOP grant Advisory Board
Mass. Sexual Assault Evidence Collection Kit Advisory Group
Department of Fire Services

MassHousing

Massachusetts Department of Transportation (DOT)

Collaboration on Transportation Compact

Massachusetts Nutrition Board

Massachusetts Rural Development Council

The Catastrophic Illness in Children Relief Fund Commission

Disabled Persons Protection Commission

Massachusetts Office of Victim Assistance

Governor's Council to Address Sexual Assault and Domestic Violence

Massachusetts Developmental Disabilities Council (MDDC)

Massachusetts Commission on the Status of Women

Massachusetts Commission on Indian Affairs

Massachusetts Office of Refugees and Immigrants (MORI)

Local and Federally Funded Agencies and Health Centers

Relationships with all federally approved and other licensed Community Health Centers
Relationships with all local and regional school districts and with local health departments
Relationships with all Title X and other licensed Family Planning agencies
Boston Public Health Commission
Boston Healthy Start Initiative
Community Health Education Center (CHEC)
City/State HIV Data System Project
Teen Dating Violence Prevention Project
Massachusetts League of Community Health Centers

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Medical Home Initiative
Massachusetts “Safety Net” Managed Care Organizations (MCOs)
Federal Department of Health and Human Services (Region I and nationally)
Maternal and Child Health Bureau / HRSA
Title X (Family Planning) regional office
Federal Region I Women’s Health Working Group
Federal Bureau of Health Professions (HRSA)
Federal Centers for Medicaid and Medicare Services (CMS)
United States Department of Agriculture
Northeast Regional Office
Federal Center for Disease Control and Prevention
Federal Administration for Children and Families
Head Start Bureau
Head Start Programs
Early Head Start Programs
Head Start Collaboration Council
National Highway Traffic Safety Administration
U.S. Consumer Product Safety Commission
Federally-funded Worcester Healthy Start Initiatives (WHSI)
Springfield Maternal and Child Health Commission
Cambridge Health Alliance
Federal Substance Abuse and Mental Health Services Administration (SAMHSA)

Associations, Organizations, and Non-Governmental Task Forces/Committees

Massachusetts Health Quality Partnership (MHQP). This partnership, which includes MHA, MCOs, and others, is working to improve hospital-based and physician group services and Quality Improvement efforts.

Maternity Initiative Work Group
ABCD (Agency for Boston Community Development)
American Academy of Pediatrics – Massachusetts Chapter (MCAAP)
American Lung Association
American Public Health Association
Area Health Education Centers (AHECs)
Association of Maternal and Child Health Programs (AMCHP)
Association of State and Territorial Chronic Disease Prevention Directors
Association of State and Territorial Dental Directors (ASTDD)
Association of State and Territorial Public Health Nutrition Directors (ASTPHND)
Association of Women’s Health, Obstetric and Neonatal Nurses, Mass. Chapter
Asthma Regional Council of New England
Blue Cross/Blue Shield Foundation of Massachusetts
Boston Association for Childbirth Education/Nursing Mothers’ Council
Boston Health Care for the Homeless
Boston Urban Asthma Coalition
Children’s Safety Network
Community Health Education, Research and Services (CHERS)
Delta Dental Foundation
Disability Law Center – SSI/Disability Coalition
DONA International (formerly Doulas of North America)
Educational Development Corporation (EDC)
Federation for Children with Special Needs
Fitchburg Lead Action Coalition
Greater Brockton Asthma Coalition
Harvard Pilgrim Health Foundation
Health Care for All
Children’s Health Access Coalition (CHAC)

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Health Resources in Action (previously The Medical Foundation)
Healthy Mothers, Healthy Babies Coalition of Massachusetts
Hospice and Palliative Care Federation of Massachusetts
Ibis Reproductive Health
Institute for Community Health
Institute for Health and Recovery
International Cesarean Awareness Network
Jane Doe, Inc.: The Massachusetts Coalition Against Sexual Assault and Domestic Violence
John Snow, Inc. – coordination of family planning training initiatives and representation on Regional Advisory Committee
JRI Health
La Leche League of MA/RI/VT
Lamaze International of New England
Latino Health Institute
March of Dimes – Massachusetts Chapter
 March of Dimes Collaborative Group – Folic Acid Awareness
Massachusetts Association for the Chronically Injured
Massachusetts Association for the Treatment of Sexual Abusers
Massachusetts Association of Health Boards
Massachusetts Asthma Action Partnership
Massachusetts Breastfeeding Coalition
Massachusetts Chapter, ACOG
Massachusetts Chapter, American College of Nurse Midwives
Massachusetts Chapter, Perinatal Social Workers Association
Massachusetts Coalition for Sex Offender Management
Massachusetts Association of Community Health Workers (MACHW)
Massachusetts Dental Hygienists Association
Massachusetts Dental Society
Massachusetts Dietetic Association
Massachusetts District Attorneys' Association
Massachusetts Early Intervention Consortium
Massachusetts Family Planning Association (MFPA)
Massachusetts Hospital Association
Massachusetts Immigrant and Refugee Association (MIRA)
Massachusetts Lactation Consultant Association
Massachusetts Medical Society
Massachusetts Midwives Alliance
Massachusetts Nurses Association
Massachusetts Public Health Association
Massachusetts Prevent Injuries Now Network (MassPINN)
Massachusetts Teen Dating Violence Prevention Planning Team
Massachusetts School Nurses Organization
Massachusetts Teachers Association
MassCOSH
MassHealth Managed Care Organizations (MCOs):
 Neighborhood Health Plan
 Boston Medical Center Health Net
 Network Health
MSPCC (Massachusetts Society for the Prevention of Cruelty to Children)
Multiple coalitions, task forces, and networking committees with other state agencies in specific regions of the Commonwealth
NARAL Pro-choice Massachusetts
National Family Planning & Reproductive Health Association (NFPRNA)
National Healthy Mothers, Healthy Babies Coalition
National Organization of People of Color Against Suicide (NOPCAS)
National WIC Association
New England AIDS Education and Training Center (NEATC)

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New England Asthma and Allergy Foundation of America
New England Coalition for Health Promotion and Disease Prevention
New England Regional Genetics Group (NERGG)
Northeast Injury Prevention Network
One Love No Longer Voiceless
Partners for Youth with Disabilities
Pioneer Valley Asthma Coalition
Postpartum Support International
Pregnancy and Early Life Longitudinal (PELL) Database (with Boston University School of Public Health)
Project Bread
Regional EMS Councils and local EMS providers
Safe Kids Coalitions in Boston and Western Mass.
SAGE, collaboration on domestic violence prevention for older women
Samaritans
School Nutrition Association of Massachusetts
Share Our Strength, Operation Frontline
Springfield Partners for Community Action
State Sexual Violence Prevention Team
Tobacco-free Massachusetts
toLabor (The Organization of Labor Assistants and Birth Options Resources)
United Way
Wellness Promotion Advisory Committee
WGBH

Tertiary Care Facilities and Universities / Colleges

University Centers for Excellence in Developmental Disabilities Education, Research and Services (UCEDDs) –
 U Mass Medical School / E.K. Shriver Center
 Children's Hospital, Boston / UMass Boston Institute for Community Inclusion
Baystate Medical Center
Beth Israel Deaconess Medical Center
Boston Medical Center
Boston University
Boston University Goldman School of Dental Medicine
Boston University School of Public Health
Boston University School of Social Work
Brandeis University
Children's Hospital, Boston
Emerson College (Communication Sciences and Disorders)
Forsyth Institute
Harvard Medical School/Brigham and Women's Hospital, Division on Aging
Harvard School of Public Health
Harvard University School of Dental Medicine
Holy Cross College (Deaf Studies)
Massachusetts College of Pharmacy
Massachusetts General Hospital
Mount Ida College
New England Medical Center
Northeastern University
Partner's Health Care
 Brigham and Women's Hospital
 Massachusetts General Hospital
 Dana Farber Cancer Center
Regis College

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Simmons College
Smith College (Deaf Studies)
St. Elizabeth's Medical Center
Tufts Medical Center
Tufts University
Tufts University School of Dental Medicine
Tufts University School of Medicine
Tufts University School of Public Health
University of Massachusetts Memorial Medical Center
University of Massachusetts/Amherst
 Statewide AHEC System
University of Massachusetts/Boston
University of Massachusetts Medical School
University of Massachusetts/Lowell
 TURI (Toxic Use Reduction Institute)