South Carolina 2010 Title V Needs Assessment

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Executive Summary

Every five years the MCH Bureau conducts a comprehensive needs assessment to provide decision makers with the foundational information needed to engage in meaningful priority setting to guide program planning, implementation and evaluation and activities funded under Title V. This document represents the culmination of these activities. To complete the assessment, MCH staff complied data and information using both quantitative and qualitative methods, conducted quasi-focus groups with providers to obtain perspective on health and health service needs, held key stakeholder meetings around each of the established MCHB population groups to review and discuss relevant data and information, conducted site visits to each of eight DHEC public health regions to gain local perspective on needs and capacity, and utilized various components of CAST-V methodology to assess current capacity to perform core public health functions and essential services. MCH leadership compiled all available information stemming from the assessment process to establish priority areas of need and associated performance measures for the next five year planning cycle.

Priority needs and performance measures identified during the 2010 assessment process are largely reflective of the current capacity within the agency and MCH. Focus was placed on identifying needs and measures within the scope of existing program capacity. New priorities and performance measures reflect a fundamental sense of the need to re-build an eroded infrastructure, strengthen working relationships within and outside the MCH Bureau, and strategically position MCH to provide core public health functions within the evolving health care environment following the passage of health care reform.

The new priorities include:

1. Improve overall pre/inter-conception health status of South Carolina women (Infrastructure Building Service)
2. Reduce the annual rate of maternal deaths (Infrastructure Building)
3. Reduce the number of infant deaths due to SIDS/Unsafe sleep environments (Population Based Service)
4. Increase knowledge of appropriate child social-emotional development among parents and early childhood service providers (Enabling Service)
5. Improve systems for obtaining parental involvement in the planning, implementation, and evaluation of DHEC programs and services for CSHCN (Infrastructure Building Service)
6. Promote and support regional based planning of MCH programs/initiatives (Infrastructure Building Service)
7. Increase the degree to which MCH is actively engaged in ongoing assessment and assurance activities (Infrastructure Building Service)
8. Improve coordination of activities related to MCHB National Performance Measures (Infrastructure Building Service)
9. Invest in building existing MCH workforce leadership competencies and skills related to data analysis and program evaluation (Infrastructure Building Service)

1. **Needs Assessment Process**

1.1 Goals and Vision

The South Carolina Maternal and Child Health Bureau envisions a state in which pregnant women, mothers, infants, children (including those with special needs), adolescents and reproductive age women achieve optimal health and well-being. To make this vision a reality the MCH Bureau is committed to assessing health needs, developing policy initiatives supportive of MCH populations, and working to assure access to needed health services. The needs assessment provides an opportunity to re-examine state priorities and begin a new planning cycle. Given the ongoing fiscal challenges facing South Carolina, the needs assessment provides an opportunity to engage in meaningful priority setting under less than ideal circumstances.

Like many states, South Carolina has experienced significant budget reductions through the assessment period. Entering FY 2010-2011 recurring State funds to the agency have been cut by about half (compared to FY 2005 funding) resulting in a significant overall loss of capacity. State and local public health departments have been forced to eliminate positions or leave vacancies unfilled at all levels, significantly eroding critical public health infrastructure in the state.

These realities make alignment of state priorities with core public health functions and essential MCH program services, and the Title V MCH Pyramid even more critical in order to assure best use of diminishing resources. The stated purpose of the 2010 needs assessment is to provide decision makers with the foundational information needed to engage in meaningful priority setting to guide program planning, implementation and

evaluation and activities funded under Title V over the next five-year planning cycle. To accomplish these tasks four specific goals were outlined:

Goal 1: Organize a core needs assessment workgroup who will be responsible for the planning, implementation and evaluation of the 2010 Title V NA process.

Goal 2: Assess and prioritize health and health services needs of MCH populations through the use of quantitative and qualitative data collection methods.

Goal 3: To conduct a capacity assessment to determine the state and regional capacity to perform core MCH program functions

Goal 4: Establish priority needs and performance measures for the MCH Bureau over the next 5-year block grant cycle.

1.2 Leadership

South Carolina began the 2010 Title V Needs Assessment in June of 2009 by re-examining our purpose and role in improving the health and well being of those for which we are responsible. A planning retreat was held among MCH leadership. The retreat focused on examining our current status and discussing strategies critical for continued success in improving maternal and child health in the context of the current challenges. The group expressed the desire for the needs assessment process to be used as a tool to establish strategic goals and direction and affirmed a commitment to work towards aligning priorities with core public health functions. A Bureau vision and mission statement capturing the essence of our desired identity was developed from these discussions. The SC vision for pregnant women, mothers, infants, children (including those with special needs), adolescents and reproductive age women is achieving optimal

health and well-being. To make this vision a reality the MCH Bureau is committed to assessing health needs, developing policy initiatives supportive of MCH populations, and working to assure access to needed health services.

1.3 Methodology

The needs assessment was carried out in four phases reflecting each of the four goals outlined above. As reflected in Goal 1, a core needs assessment workgroup responsible for the planning and implementation of the needs assessment was formed in July of 2009. Staff included Nathan Hale (Assistant Bureau Director), Wesley Gravelle (MCH Epidemiologist), Lucy Gibson (Director, Women and Children's Services), Breana Lipscomb (Research and Planning Unit), Leanne Bailey (CSHCN), Melissa English (Oral Health). Under the direction of the Assistant Bureau Director, the core group was charged with:

- Devising an assessment strategy
- Overseeing the organization, implementation and evaluation of the assessment process
- Identifying key stakeholders with appropriate content knowledge to participate in assessment activities
- Providing the technical and administrative support for all assessment activities

Most workgroup members did not participate in, nor had minimal involvement with previous assessment activities. Therefore, initial meetings focused on reviewing HRSA guidelines and identifying potential strategies for implementing the assessment. As a result, the core workgroup developed a conceptual framework to outline the remainder of the assessment process (Appendix A).

The focus for Phase II was development of a multi-tiered process for completing the health and health services needs assessment. This included: establishing population groups to guide assessment activities; gathering relevant data and information using quantitative and qualitative sources; conductingquasi-focus groups with providers to obtain additional perspective on health and health service needs; convening key stakeholder meetings around each of the established population groups to review and discuss relevant data and information and gather input; and, finally, conducting site visits to each of the eight DHEC public health regions to gain local perspective on needs and capacity. Data and information gained from these activities was organized into a theoretical framework for discussion during the remainder of the assessment.

Given the ongoing fiscal challenges, Phase III focused both on assessing capacity to address existing needs and expectations along with assessing the capacity to address health and health services needs identified during Phase II of the assessment. Regional and local capacity was assessed during site visits. In addition, various components of CAST-V methodology were used for the purposes of assessing our ability to perform core public health functions and essential services. This assessment was conducted among two divisions and within the Bureau. A list of capacity needs was established to consider in conjunction with existing heath and health service needs.

Phase IV of the assessment focused on coalescing all the data and information obtained through the previous phases of the assessment to establish priorities for the next five year planning cycle. Bureau leadership held several planning meetings to review all available information and identified several key areas of need including both health and capacity. Bureau leadership developed a tentative set of needs and performance measures

for consideration. Bureau leadership vetted the potential list to determine the more appropriate given the existing capacity. A final list of priority needs and performance measures were established by Bureau leadership with input from program staff and provided to Health Services Senior Leadership Team (SLT) for approval.

1.4 Methods for Assessing MCH Populations

1.4.1 Population Groups

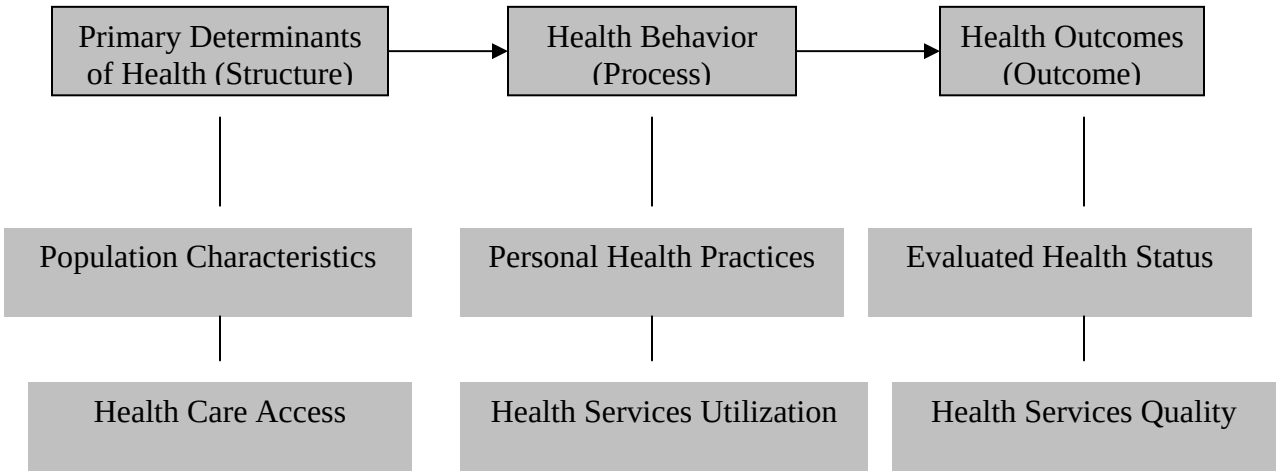
Population groups for the assessment process remained consistent with HRSA recommended population groups. These include pregnant women, mothers and infants; children; and children with special health care needs (CSHCN). Although assessment activities among additional population groups would provide additional information, reduced assessment capacity limited activities to the three recommend populations. Aspects of women's health issues, specifically reproductive and preconception health were incorporated into the pregnant women, mothers, and infant population. Selected adolescent health issues were incorporated into the children's population. Within the broad population of children, special consideration was given to children with special health care needs. Although all children may have special health care needs at some point during childhood, challenges related to access and utilization of health services among this subset of children warrant special consideration. For CSHCN, special focused was placed on developing viable strategies for obtaining quality paternal input in CSHCN programs within DHEC.

1.4.2 Assessment Framework

The framework used to organize this aspect of the assessment is shown in Figure 1. Conducting a thorough needs assessment of MCH populations requires a multi-factorial

framework that encompasses population health status indicators and contributing factors as well as health systems indicators of access, utilization, and quality. The following framework was draws from components of the Anderson Behavioral Model for Health Services Use [1] and the Donabedian quality improvement model [2]. The conceptual framework was originally developed by Dr. Amy Brock Martin, Research Associated Professor with the South Carolina Arnold School of Public Health and modified with permission. The framework is a useful tool for organizing and examining the relationships among factors influencing health and health services outcomes. Organizing the assessment in the context of the established framework assures health and health services outcomes are accounted for and relationships among contributing factors are considered.

Figure 1: Health and health services needs assessment framework



1.4.3 Assessment Process

A multi-tiered process was established for completing the health needs assessment including: gathering of quantitative data relevant to population groups, quasi-focus groups with providers, key stakeholder meetings, and site visits to each of the eight

public health regions. All quantitative and qualitative data collected was organized within context of the Health and Health Services Needs Assessment Framework (Figure 1). First, core workgroup members compiled selected outcome and performance data for each of the three population groups. Data was taken from national and state outcome and performance measures, as well as other widely recognized indicators. Building on quantitative data collected, quasi-focus groups were conduced with selected pediatric and obstetrical providers to gather additional perspective on health and health services needs prominent among the three population groups. Third, key stakeholder meetings were held for each of the three population workgroups. The core workgroup believed it was important to gain multiple perspectives yet keep workgroups small enough to encourage participation. Therefore, population workgroups were limited to 15 persons and structured to include balanced representation from external stakeholders, public health regional program staff, and central office program staff. Workgroup participant names and affiliations are provided in Appendix B. Lastly, site visits were made by MCH leadership to each of the DHEC Public Health Regions to gather additional input from regional staff on health and heath services needs of primary importance in each respective region. Data and information gained from the collective activities occurring during this aspect of the assessment are provided in Appendix C and organized in the context of the Health and Health Services Needs Assessment Framework.

1.5 Methods for Assessing State Capacity

Given the ongoing fiscal challenges facing the state, assessing the capacity to carry out MCH programs was critical. Over the course of the needs assessment process, recurring state funds were reduced by about half. At each juncture of the assessment,

capacity became more and more limited. This had a negative impact on every aspect of the process. Bureau leadership made a conscious decision to focus efforts on determining the extent to which the Bureau is engaged in the core public health functions of assessment, policy development, and assurance because the future value of the Bureau is contingent on the extent to which we can engage in these core functions and essential services. To accomplish this task, various components of the CAST-V methodology were used examine existing capacity to perform these activities and determine what additional capacity is needed to evolve into the public health model.

Bureau leadership held a series of meetings with the two key divisions within the MCH Bureau to assess capacity using various components of the CAST-V methodology: Children with Special Health Care Needs (CSHCN), and Women's and Children's Services (WCS). In addition, MCH Bureau leadership as a whole also used CAST-V methodology to assess capacity from the Bureau's perspective.

In addition to the CAST-V assessment at the State level, capacity data was also gathered at the DHEC regional level during the site visits. Although the State operates under a centralized delivery structure, each administrative region has latitude to address local issues as deemed appropriate. Gathering regional information on capacity given the ongoing challenges is a critical component of the overall capacity assessment. Local priorities vary between regions and may go beyond what is expected from the state, therefore it is important to ascertain the level of capacity to carry out existing services as well as determine the capacity to engage new initiatives. Assessing state capacity to perform core public health functions and essential services coupled with information

gained from the Regional site visits allows the Bureau to survey the landscape of the State and identify consistent capacity needs.

1.6 Data Sources

Information used for completing the needs assessment was derived from numerous sources and including both quantitative and qualitative methods described above. Quantitative data was obtained from vital records, PRAMS, BRFSS, YRBSS, National Child Health Survey (NCHS), National Survey of Children with Special Needs, Medicaid administrative claims, as well as program specific data from WIC, Family Planning, and Birth Defects programs.

1.7 Linkages between Assessment, Capacity, and Priorities

Results from the health and health services assessment were compiled into working documents to create a comprehensive list of potential needs and contributing factors (Appendix C). Using the Assessment framework provided in Figure 1, data and information was compiled and organized for purposes discussion and prioritization. Given the ongoing fiscal challenges, the capacity assessment focused on both addressing existing needs and expectations associated with national performance measures and assessing capacity to address health and health services needs identified during Phase II of the assessment. Aspects of the CAST-V methodology were used for the purposes of assessing our ability to perform core public health functions and essential services. This assessment was conducted with two divisions and within the Bureau. A list of capacity needs was established to consider in conjunction with existing heath and health service needs.

With data and information from both aspects of the assessment, Bureau leadership held several planning meetings to review all available information and identified several key areas of need including both health and capacity. Several core principles guided prioritization of needs:

- Identify needs within our span of control
- Maximize the potential impact of all available funds (do the most good for the most people)
- Moving down the MCH pyramid
- Aligning programs and activities with core public health functions and 10 essential MCH services

Based on these criteria Bureau leadership developed a list of potential needs including health and capacity. Once potential needs were identified, leadership sought input from program staff regarding the appropriateness of the needs and potential activities and measures. The list of needs was narrowed down to a key set of priorities based in the cumulative input of the assessment process and realistic activities within the scope of the Bureau given the current capacity. After considering all input throughout the assessment process, MCH Bureau leadership made the final decision regarding priority needs and associated performance measures. The list of priority needs was developed and put forth to the Agency Senior Leadership Team (SLT) for approval.

1.8 Dissemination

Results outlining the needs assessment process, findings, and priorities will be distributed by various means to multiple audiences. Agency leadership will be briefed on the findings and priorities stemming from the needs assessment process. Results from the

needs assessment will also be provided to various provider groups such as the Pediatric Advisory Council, OB Task Force, and the Maternal, Infant, and Child Health Committee. Electronic versions of the document will be provided to key partner's who participated in the assessment process. In addition electronic versions will be made available to all DHEC public health regions, provider groups, and other interested parties. Electronic versions will be posted on the Agency web-site and made available to the public.

1.9 Strengths and Weaknesses of the Process

The needs assessment process was limited in several ways. First, the MCH Bureau had limited capacity to conduct the assessment at the desired level. Existing staff had limited experience in conducting formal needs assessment activities; therefore, a significant amount of time was spent reviewing assessment guidance and determining how to operationalize assessment activities. Second, the passage of health care reform and the availability of funding for evidence based home visitation (EBHV) and teen pregnancy prevention also created challenges in completing the assessment at the desired level. MCH had to divert time and energy to sort through the legislation, mobilize partners, and begin planning for the required needs assessment and application process in conjunction with finishing the Title V needs assessment. Although these activities are interrelated, the availability of new funding and the requirements placed on Title V certainly emerged as a competing priority in completing the final stages of the assessment process.

Several strengths should be noted. The assessment process was very much focused with a good balance of qualitative and quantitative data collection. More advanced

methods of data analysis were used to illuminate specific target areas reflected in the priority needs. Focus was placed on obtaining quality data that provides useful information as opposed to volume. Also, MCH leadership felt given the current capacity assessment activities should be focused identifying viable strategies for addressing ongoing issues. The health and health services needs of MCH populations are well established and have changed very little over the past few years. With an eroding infrastructure, the challenge is developing viable, sustainable strategies to address these ongoing issues and determining what role of MCH should play in addressing these ongoing issues. A conscious decision was made to spend a considerable amount of assessment activities listening to what our partners felt were important issues and gaining perspective on the what role MCH has in addressing these issues. This allowed MCH to entertain different perspectives on what role others wanted MCH to play in addressing these longstanding issues.

2. Partnership Building and Collaboration Efforts

As capacity continues to decrease, the MCH Bureau's role in developing partnerships to address the health and health service needs of MCH populations is becoming increasingly important. MCH collaborates/partners with several public/private providers to prioritize needs, avoid duplication of service and effort, and blend resources to meet needs. Within the MCH Bureau several strong, active partnerships facilitate ongoing needs assessment as well as identifying and prioritizing emerging issues:

- Family Planning-DHEC, as South Carolina's sole Title X grantee, provides direct services in all counties in the state. Family Planning staff work closely with SC DHHS to ensure the success of the Family Planning Waiver. The

joint Family Planning Waiver Workgroup meets quarterly to fine-tune policies and procedures and address issues related to eligibility and utilization of services. Family Planning staff also work hand-in-hand with the South Carolina Campaign to Prevent Teen Pregnancy and recently collaborated on several grant opportunities that have the potential to bring significant prevention and intervention resources to the state. Several WCS staff are active members of the State Alliance for Adolescent Sexual Health (SAASH).

- Child Health: SC ECCS is working with Greenville County partners and the Connecticut Help Me Grow (HMG) Replication Team to establish the HMG combination of five interrelated components that work collaboratively. These components ensure child health providers are trained in effective developmental surveillance and screening, offer a free and confidential telephone access point that links children and families to existing services, maintain an inventory of community-based programs, and maximize use of resources available to those who contact the call center. ECCS also facilitates a leadership group concerned with cross-agency services coordination for all children 0-5. The ECCS Executive Committee includes representatives of SC Departments of Social Services (DSS), DHHS, Mental Health (DMH), Education(DOE), DDSN, Alcohol and Other Drug Abuse Services (DAODAS), Head Start, First Steps Children's Trust of South Carolina, Office of Research and Statistics (ORS), and Family Connection
- School Health: South Carolina is fortunate to have a School Nurse Consultant who is a joint employee of SC DHEC and the SC DOE. She works across

agencies to promote the health of children in schools. An example of the partnership between these agencies and the local Boards of Education was their joint plan to address last years H1N1 pandemic to provide school based immunizations. Participation in immunizations at school-based clinics was well received and many children were immunized for H1N1 through the schools.

- CSHCN: DHEC maintains active participation in the state IDEA Part C early intervention program (BabyNet) and works closely with collaborating state agencies at the state and local levels. CSCHN representatives participate on state level committees related to respite services, traumatic brain injury and developmental disabilities.

In addition to the provision of services with the Bureau, MCH also coordinates activities with other DHEC Bureau's/Programs on related services. Notable efforts include efforts related to tobacco cessation, motor vehicle crashes, obesity prevention, and immunizations.

- The Division of Tobacco Control (Bureau of Community Health and Chronic Disease Prevention) has several initiatives pertinent to pregnant women, mothers and infants. In addition to efforts targeting smoke free ordinances, the division also received stimulus funds to target tobacco reduction efforts among pregnant women. The program targeted counties with a high density of pregnant smokers and ran awareness add in target areas. The Quit Line has seen an increase in the number of pregnant women calling for services.

- Motor vehicle crashes are the leading cause of death among children over the age of one. The Child Passenger Safety Program within the Bureau of Community Health and Chronic Disease continues working to prevent and reduce deaths and injuries due to motor vehicle crashes through outreach education, counseling and demonstration of proper car seat instillation, and training.
- Through the ECCS partnership with DSS and the states Child Care Block Grant leadership, the Division of Childhood Obesity is working on policy changes in state requirements for child care centers related to nutrition and physical activity. Recent activities include aligning nutrition and physical activity standards across multi programs, and offering bonus reimbursement to centers that participate in assessment of their practices coupled with an improvement plan.
- The Immunization Division (Bureau of Communicable Disease) is currently working with the SC Hospital Association and Medicaid to cocoon newborns and infants, too young to receive an initial DTaP vaccination, against pertussis. A task force has been formed to address Tdap protocol for postpartum areas, educating the mother concerning her infant's risk for pertussis and offering Tdap vaccination to these mothers prior to hospital discharge.
- MCH also works very closely with the Office of Public Health Surveillance and Information Systems within the Commissioners Office on projects related to data and information systems. MCH has worked with PHSIS to develop

web based surveillance systems for certain programs, create web based data modules allowing access to MCH related data including vital records, PRAMS, and BRFSS, and provided GIS support for ongoing mapping projects.

MCH also has strong partnerships with other governmental agencies including the Department of Health and Human Services, the States Medicaid agency. Coordinating with Medicaid is critical for MCH operations. The MCH Bureau works with Medicaid on multiple levels related to numerous aspects of health services for mothers and children. The Division of CSHCN meets regularly with Medicaid and MCO representatives to coordinate services and payment of services for children with special needs. Representatives from WCS and Family Planning coordinate activities related to the Family Planning waiver and access to contraceptive services for eligible women. The MCH Bureau maintains a large administrative contract with Medicaid for the purposes of enrollment outreach and selected services for children and pregnant women. Perinatal Reginalization staff coordinates with DHHS on aspects of perinatal services related to maternal/fetal transport as well as infant back transport from the Regional Perinatal Centers. MCH staff also participates in the Medicaid Medical Advisory Council and Medicaid Managed Care Council.

Stakeholder Involvement in the Needs Assessment Process

Building on collaborative partnerships was an important component of the overall needs assessment process. Needs assessment staff felt it was important to utilize the assessment process to build partnerships and foster collaborative effort both within the Agency and among external partners. Within the agency staff from various program areas

outside the jurisdiction of the MCH Bureau participated in assessment efforts and included representatives from the Bureau of Community Health and Chronic Disease Prevention and the Bureau of Disease Control. In addition, assessment staff worked to enhance partnerships with the eight DHEC Public Health Administrative Regions. Regional leadership and staff have valuable insight into the health and health service needs at the local level and are continually working to address issues related to maternal and child health. It's important central office staff work in conjunction with regional staff to identify and address issues within each respective jurisdiction in a collaborative manor. In addition to fostering partnerships and collaboration within the Agency, staff also worked with external partners during the assessment process and includes the OB-GYN Task Force, Commissioners Pediatric Advisory Council, Regional Perinatal Hospitals, Children's Hospitals, Neonatal Consortium, Family Connections, Head Start, Healthy Start, University of South Carolina, PASO's, Department of Education, Department of Disabilities and Special Needs (DDSN), Department of Health and Human Services (DHHS), Children's Trust, First Steps, South Carolina Kids Count, and the March of Dimes.

Parental Involvement in the Needs Assessment Process

Obtaining parental involvement in the needs assessment process can be challenging. MCH was able to obtain meaningful parental input through the CSHCN work group meeting. Three parents of children with special health care needs participated in workgroup activities. Of the three participating parents, two were associated with South Carolina Family Connections and one was a private citizen. The CSHCN workgroup devoted a significant amount of time to developing strategies for obtaining meaningful

parental input into the CSHCN programs. Having parental involvement in this workgroup was critical for obtaining quality suggestions and potential strategies. Specific strategies suggested by the group were incorporated into the State performance measures.

In addition, with regard to CSHCN, the needs assessment process was also informed by formal and informal CSHCN stakeholder input received since the 2005 needs assessment. Formal sessions were held as agency planned for service reductions necessitated by budget cuts, additional input was obtained, in part, during discussions related to DHEC CSHCN priorities if/when IDEA Part C program management transferred to another lead agency. (This transfer was effective January 1, 2010.) Input was received on multiple occasions from parents (represented by Family Connection/Family Voices), children's hospitals, pediatricians with longstanding collobaroation with DHEC child health and CSHCN services, DHHS (Medicaid), managed care organizations, other providers and DHEC staff. The consensus was the need for use of DHEC resources and expertise for planning and delivery of care coordination services necessary to assure statewide access to these services for assisting families to identify and obtain needed services. Provision of high quality, comprehensive services by nurses, social workers and other DHEC staff providers was consistently identified as a statewide need for CSHCN in the state., particularly low income families and/or those whose children have complex needs.

3. MCH Population Assessment of Needs

Assessment of need for MCH populations was based on both quantitative data sources and qualitative information gathered from key informant interviews, quasi-focus groups meetings around each population and Regional site visits. Assessment of needs is broken into three sections: Pregnant women, mothers and infants; children, and children with special health care needs. Appendix C has a composite list of needs identified or discussed throughout the assessment process for each population group. Needs are organized in the context of the assessment framework and separated by population health and health systems. It is recognized there is overlap among populations and categories; however, the framework is intended to serve a general organization tool. Selected information germane to the overall needs assessment is provided.

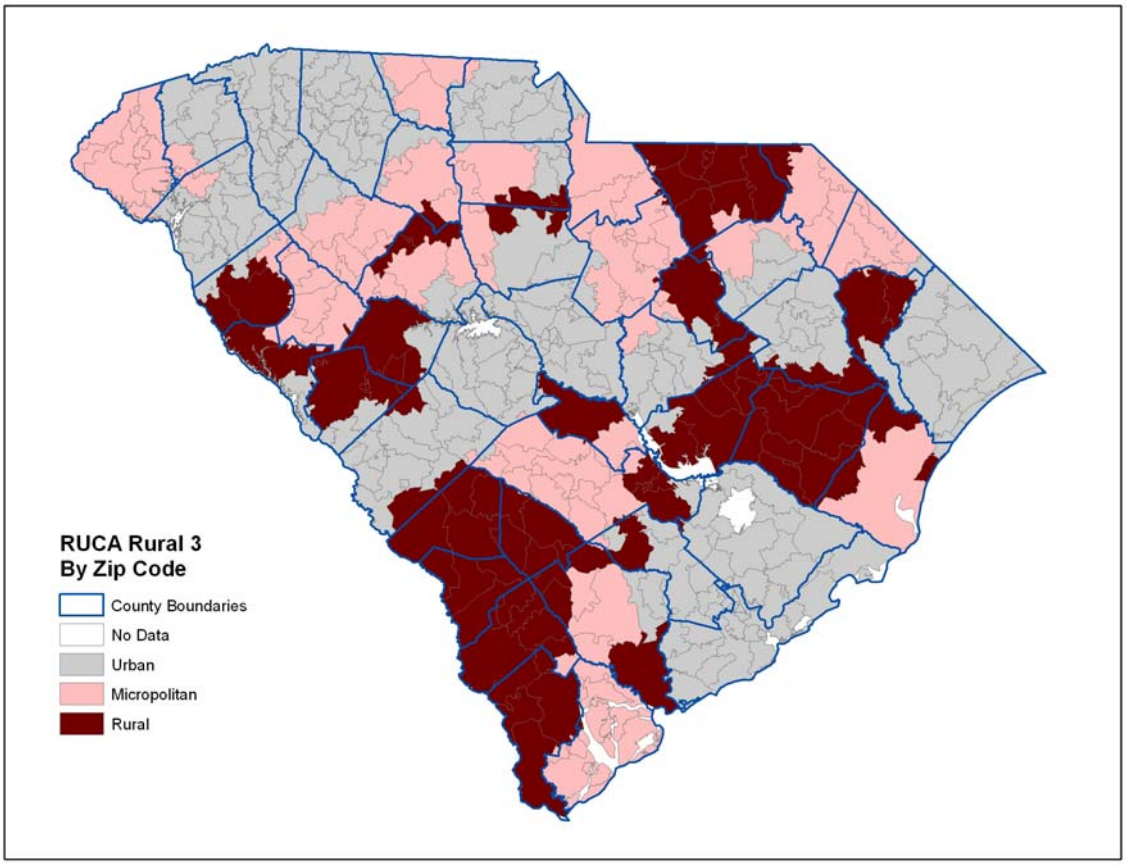
Population Demographics

Approximately 70% of the State is White, 30% African American, and 5% of Hispanic ethnicity. According to 2008 population estimates there are approximately 904,492 women of reproductive age in South Carolina, representing nearly 40% of the total population. South Carolina's current population includes approximately 61,000 infants, 300,000 children between 1-5, 402,000 children between the ages of 6-12, 303,000 adolescents between the ages of 13-17, and 134,000 adolescents between the ages of 18-19. Nearly one quarter (23.8%) of the State's population is under the age of 18.

South Carolina is primarily a poor rural state. Approximately one in five children and adolescents under the age of 19 live in homes currently under the federal poverty line, with values ranging from 14%-50% by County. Moreover, the unemployment rate in

South Carolina has reached ~12-13% over recent months, and is consistently among the highest in the country. Approximately 70% of the State resides in urban commuting areas, 20% in large rural areas, and 10% reside in small rural areas (Figure 2). As typical of the Southeastern United States, African Americans are disproportionately represented in small rural areas of the State, placing them in a doubly disadvantaged position creating significant challenges for health services delivery.

Figure 2: South Carolina population distribution by residence (2004-2007)

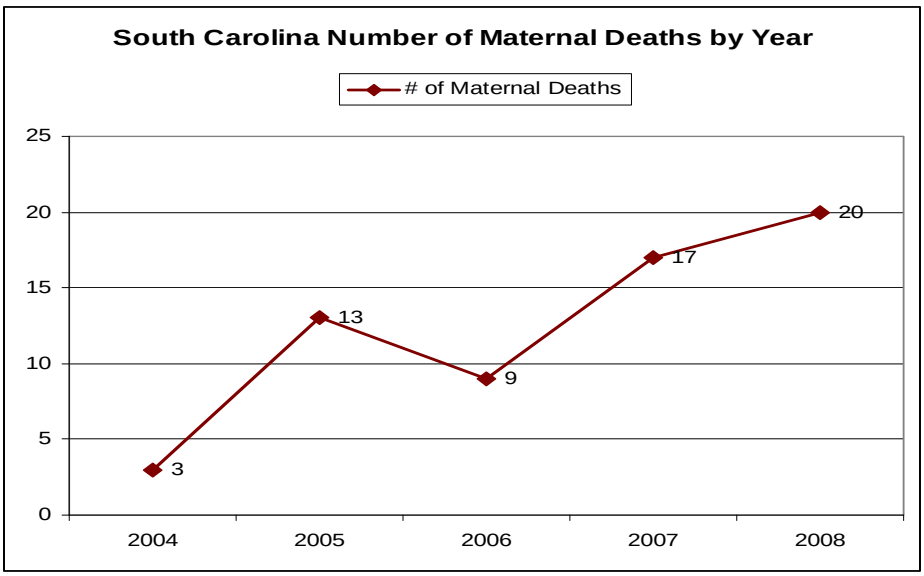


3.1 Pregnant Women, Mothers, and Infants

Maternal Mortality

Maternal mortality was identified during the assessment process as an area of great concern and interest of future activities. Selected members of the medical community and those sitting on the Commissioners OB Task force have expressed concern with the lack of an established review process at the state level. Maternal death continues to be an international standard by which a nation's commitment to women's health can be evaluated. Its primary measures are whether or not a woman can expect to survive complications that arise during pregnancy, delivery and post-partum. Despite great advancements in deaths from pregnancy related complications, studies indicate as many as half of all deaths due to complications during pregnancy could be prevented if women had better access to care, received better quality care and made positive changes in their health and lifestyle habits.

Figure 3: South Carolina maternal deaths by year, 2004-2008*



***Source: South Carolina Vital Records Annual Report**

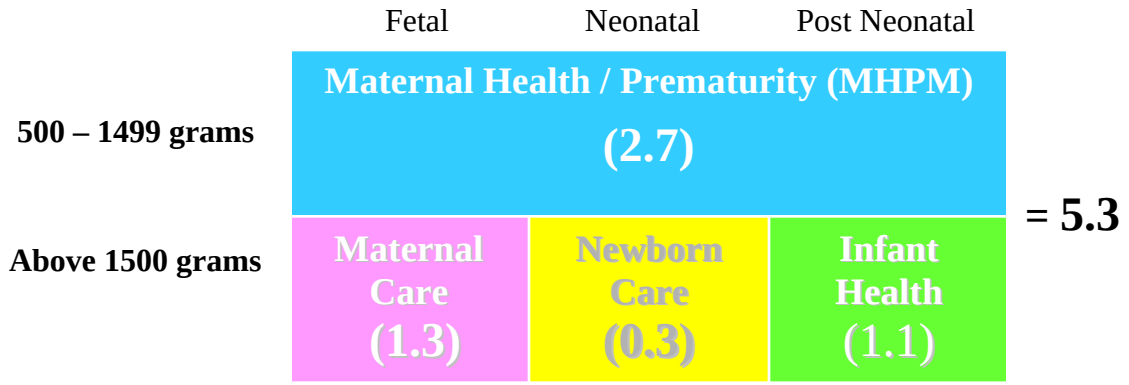
In 2008, there were approximately 20 maternal deaths identified under the current surveillance system with a rate of 3.2 maternal deaths for every 10,000 live births (Figure 3). This number has risen sharply over the past 2 years and is a cause of concern. Disparities in maternal mortality are more pronounced than what is observed among infant mortality rates. Black women are markedly more likely than white women. Significant changes in coding and definitions associated with maternal mortality make it impossible to determine any long-term trends. Having an established review process could provide valuable information related to long term trends and potential preventive recommendations.

Birth Outcomes

It is difficult to separate the health of pregnant women, mothers, and infants into distinct population groups to determine priority issues. The underlying health status of women before and during pregnancy can have a significant impact on birth outcomes and infant health. In addition, the lack of access to selected preventive and treatment health services can also influence the health status of all three groups. Therefore, the Perinatal Periods of Risk (PPOR) method of analysis was used to obtain a more comprehensive perspective of these relationships. PPOR partitions fetal and infant deaths into distinct periods of risk that share a common set of risk factors. Phase I of PPOR compares mortality rates in each period are compared to rates from a reference population (white women, over the age of 20 with more than 12 years of education) to identify “excess death rates” (Figure 4). Periods of risk with high excess death rates provide decision makers with useful information in targeting interventions to improve birth outcomes.

When compared to a reference population the overall state excess death rate was 5.3 deaths per 1,000 fetal deaths/live births.

Figure 4: Excess death rates per 1,000 fetal deaths/live births by period of risk, 2005



Maternal Health/Prematurity (MHPM)

Approximately half (2.7) of the overall excess death rates in the State occurred in the MHPM period, which represents all infant deaths with birth weights between 500-1499 grams. This period largely reflects the health status of the mother before and during pregnancy as well as the ability to access and adequately utilize health systems. Reducing excess deaths rates during this period is contingent on the ability to reduce racial disparities related to very low birth weight outcomes and improve the pre/inter-conception health status of all reproductive age women in South Carolina. In all 8 DHEC Public Health Regions, the MHPM period was the largest contributor to the overall excess death rate; however, the magnitude of the contribution differs by region.

Maternal Care

Approximately 25% of the overall state excess occurred during this period, which represents fetal deaths with fetal weight > 1500 grams. Cause of death information during this period is generally not very informative with half being classified as unknown. Addressing excess death rates during this period can be challenging. However, access to

early and adequate prenatal care, fetal movement awareness and monitoring, availability of high-risk obstetrics care, and appropriate referral systems represent opportunities to improve outcomes in areas with high excess death rates during this period.

Infant Health

Approximately 21% of the overall state excess occurred during this period, which represents post-neonatal deaths occurring among infants with birth weight >1500 grams. Excess death rates during the Infant Health period generally occur once the infant has been discharged and are often related to SIDS, injury, suffocation, sleep position, and other ecological risk factors. Existing infant safety programs in addition to community initiatives related to enforcement of safety seat laws, smoke alarms, safe childcare environments, and control of infectious disease are viable strategies to reduce excess death rates during this period.

Newborn Care

Approximately 5% of the overall excess death rate occurred during this period. Excess death rates during this period are largely reflective of access to quality pediatric care in hospitals for well and ill newborns that are not premature. Although excess death rates during this period are minimal, the importance of having a system assuring access to high quality pediatric care should not be overlooked. Maintaining the integrity of a strong perinatal regionalized system of care for infants is important for ensuring observed differences during this period remains minimal.

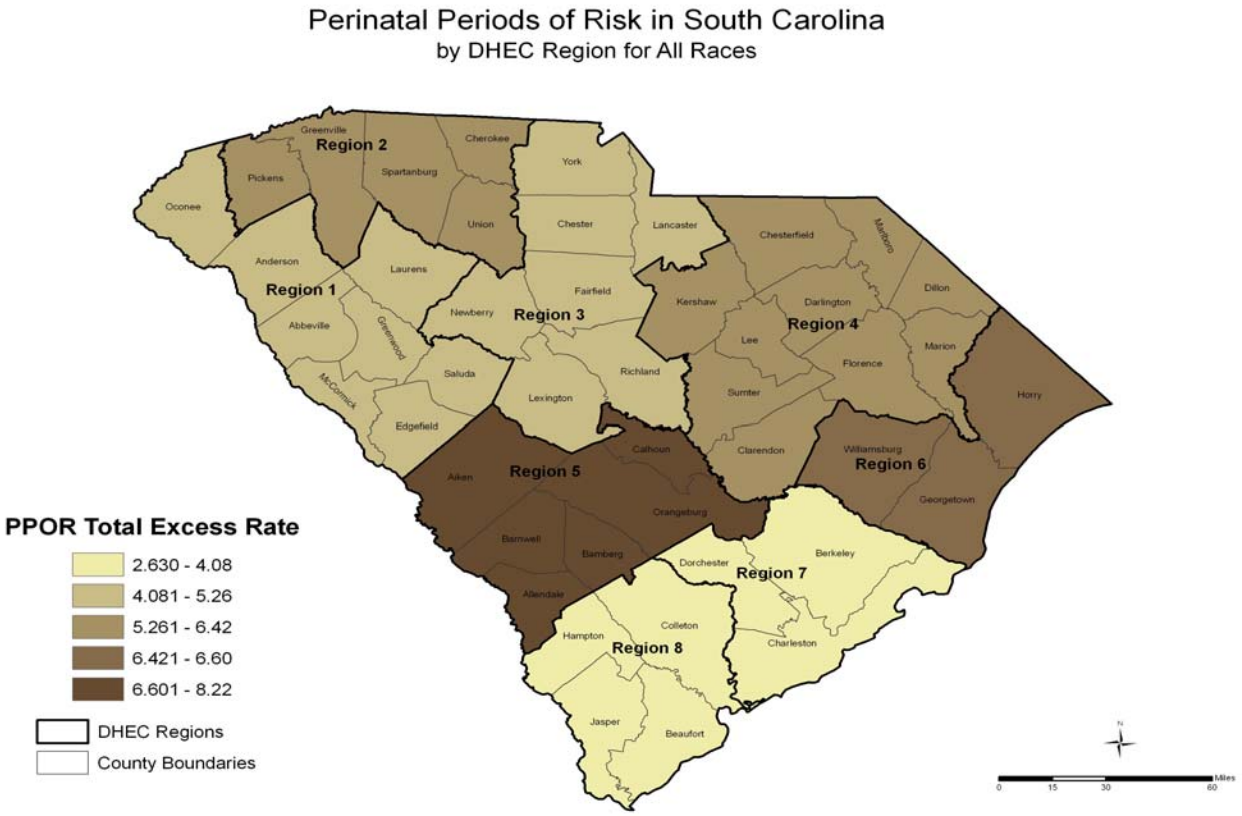
PPOR by Region

When compared to a reference population the overall state excess death rate was 5.3 deaths per 1,000 fetal deaths/live births. The distribution of the overall excess death rate

is not uniform and varies by DHEC region (Figure 5). Region 8, 7, 3 and 1 fell below the state excess death rate of 5.3 deaths per 1,000 fetal deaths/live births; however, regions 5, 6, 4 and 2 were above. Region 8 had the lowest overall excess rate (2.6), whereas Region 5 had the highest (8.2).

Approximately half of the state excess death rate can be accounted for during the MHPM period. In all 8 regions, the MHPM period was the largest contributor to the overall excess death rate; however, the magnitude of the contribution differs by region (Figure 6). Excess death rates for the MHPM period in region 8, 7, 3, and 1 were below the state excess rate of 2.7; however, regions 5, 6, 2 and 4 were above the state rate. Region 8 had the lowest excess death rate during the MHPM period (1.0) and Region 5 had the highest (3.6).

Figure 5: South Carolina excess PPOR death rate by region (2004-2005)



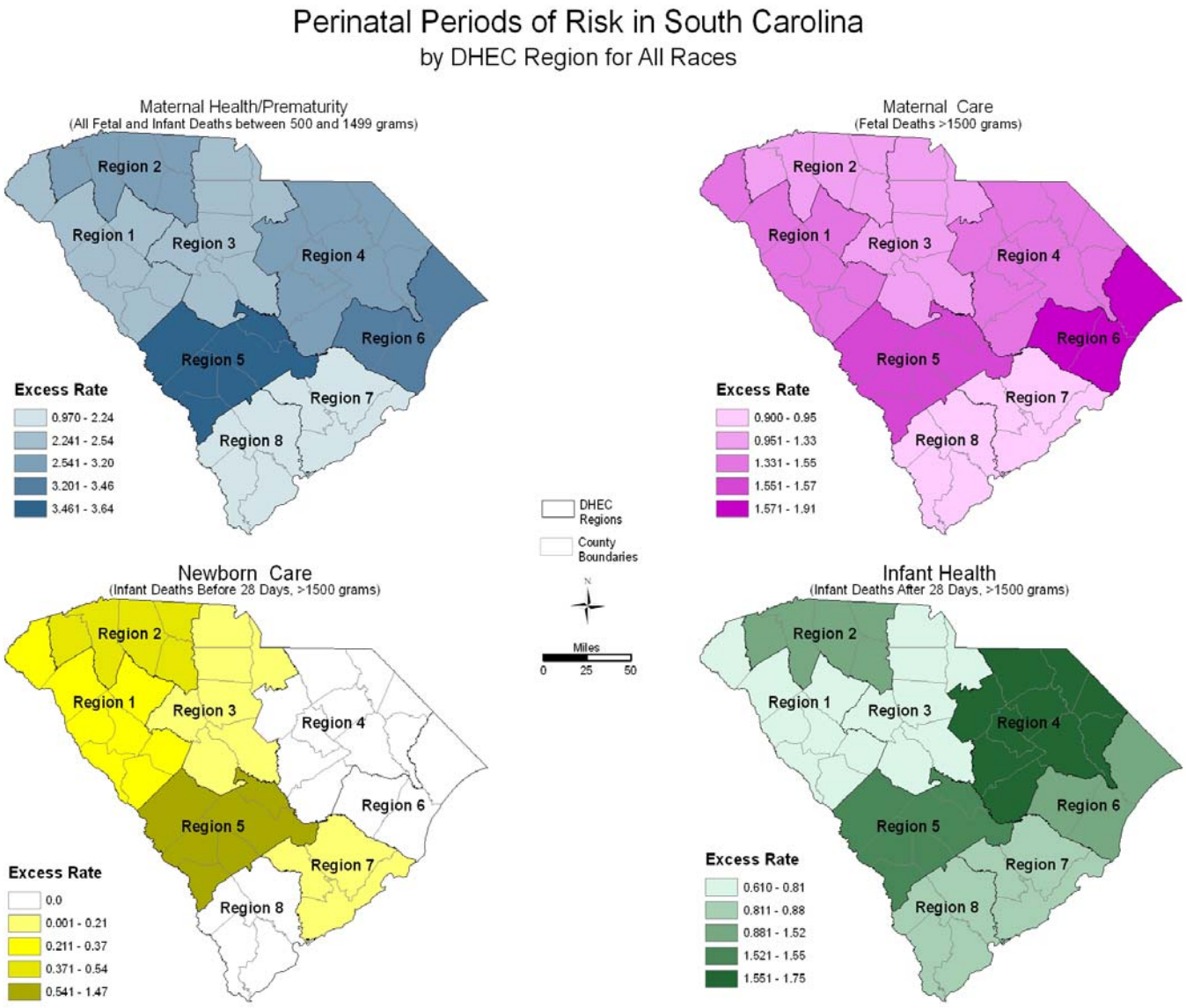
The Maternal Care period accounted for 25% of the overall state excess with a rate of 1.3 and the Infant Health excess death rate of 1.1 accounted for 21%. Within the regions the Maternal Care and Infant Health Periods ranked second and third respectively (Figure 6). Regions 4, 5 and 6 were above the state excess rate in both the Maternal Care (1.3) and Infant Health (1.1) periods. In addition, region 1 was above the state excess rate in the Maternal Care period and region 2 was above the state excess rate during the Infant Health period.

With an excess death rate of 0.3, the Newborn Care period accounted for 5% of the overall excess death rate. The period with the least significant contribution to the overall excess death rate in all 8 Regions was the Newborn Care period (Figure 6). Regions 8, 7, 6 and 4 had no excess death rates during this period and region 2 was below the state excess rate of 0.3; however, Regions 5, 2 and 1 were above the state rate.

PPOR Summary

All four periods of risk are important with each representing some aspect of a continuum stretching though the life course of women and infants. Results are not intended to diminish the importance of certain periods of risk, but to call attention to periods that provide the most opportunity for future reductions in fetal and infant deaths. Given the existing program capacity within Title V, the MHPM and Infant Health period of risk emerged as priority areas. Further analysis was conducted on aspects of these periods of risk to more accurately determine priority focus areas.

Figure 6: South Carolina excess death rates by period of risk and region (2004-2005)



PPOR Phase II

Maternal Health/Prematurity and Very Low Birth Weight

Further analysis using PPOR methodology indicated the need to further study factors contributing to VLBW outcomes. The Kitagawa formula was used to examine birth weight specific mortality rates (Figure 7) and the distribution of very low birth weight outcomes (Figure 8) relative to the established comparison group.

Figure 7: South Carolina birth weight specific mortality rates compared to reference group, 2004-2005

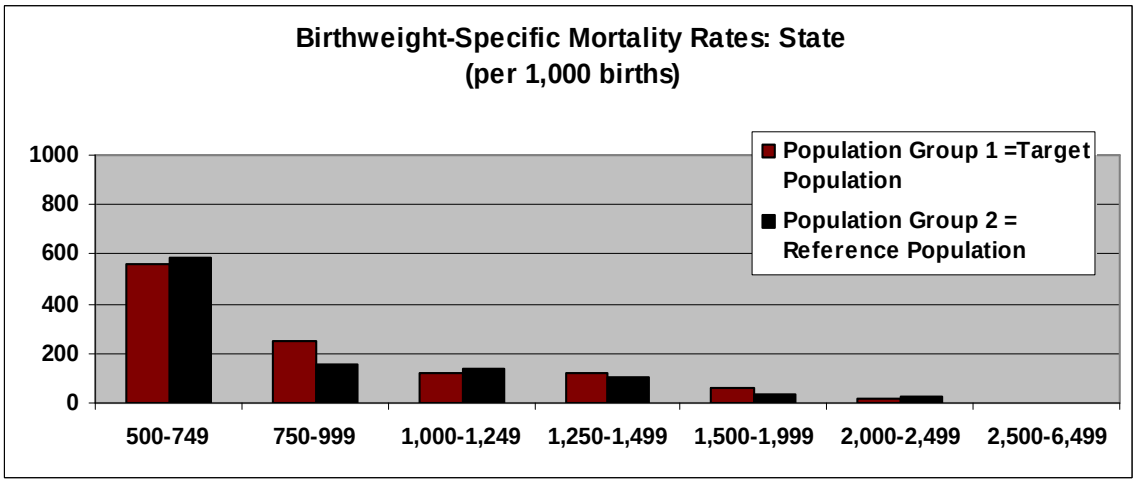
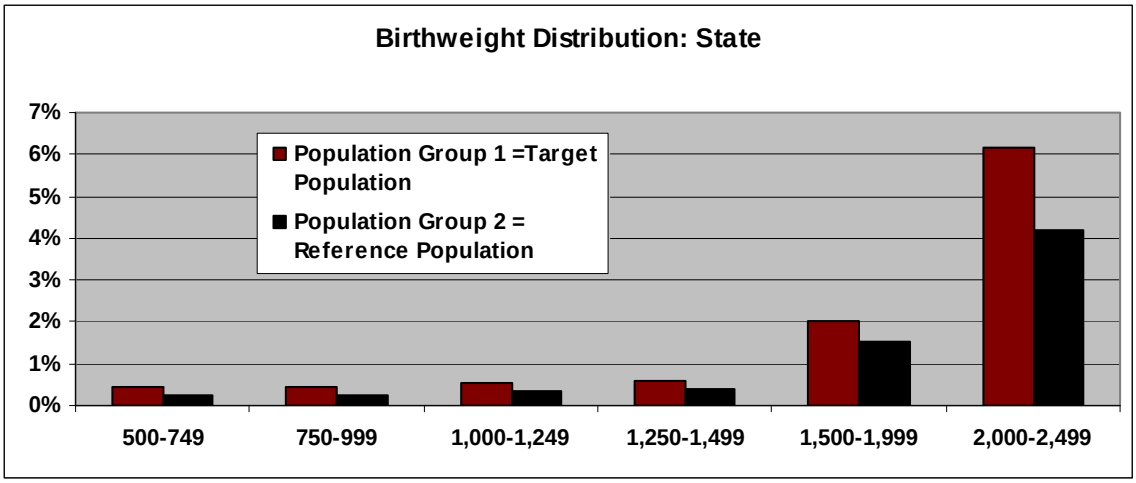


Figure 8: South Carolina birth weight distribution compared to reference population, 2004-2005



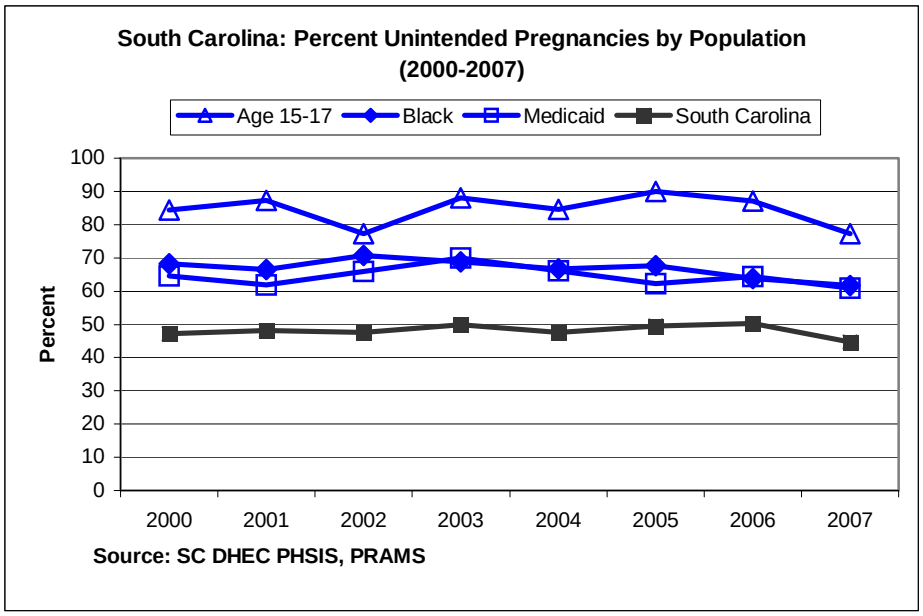
Results from the analysis indicate the majority of excess deaths during the MHPM period are primarily due to the birth weight distribution; rather, we have too many very low birth weight babies being born. The birth weight specific mortality for all infants is very similar to the reference population. This would indicate focus on preventing very low birth weight outcomes should be a priority for reducing the state fetal and infant mortality rates. Influencing risk factors associated with the health status of the women before, during, and between pregnancies (pre/inter-conception health) has been noted as a key strategy for reducing very low birth weight outcomes. Pre/Inter-conception health remains a priority area for improving women's and infant health. MCH epidemiology staff conducted further analysis on key variable and compiled information on several notable pre/inter-conception health variables. Selected indicators identified through quantitative and qualitative sources are provided below.

Selected Pre/Inter-conception Health Indicators

Unintended Pregnancy

Assessing the health and well being of pregnant women and mothers begins with a wanted pregnancy. Women with an unintended pregnancy are often in poor health status before pregnancy or engage in behaviors detrimental for both mother and baby. Unintended pregnancy remains a challenge in South Carolina with nearly half (44.7) of pregnancies being reported as unintended. Certain subpopulations are at greater risk of having an unintended pregnancy and include teens, minority women and women from lower socioeconomic backgrounds.

Figure 9: South Carolina unintended pregnancy by population and year, 2000-2007

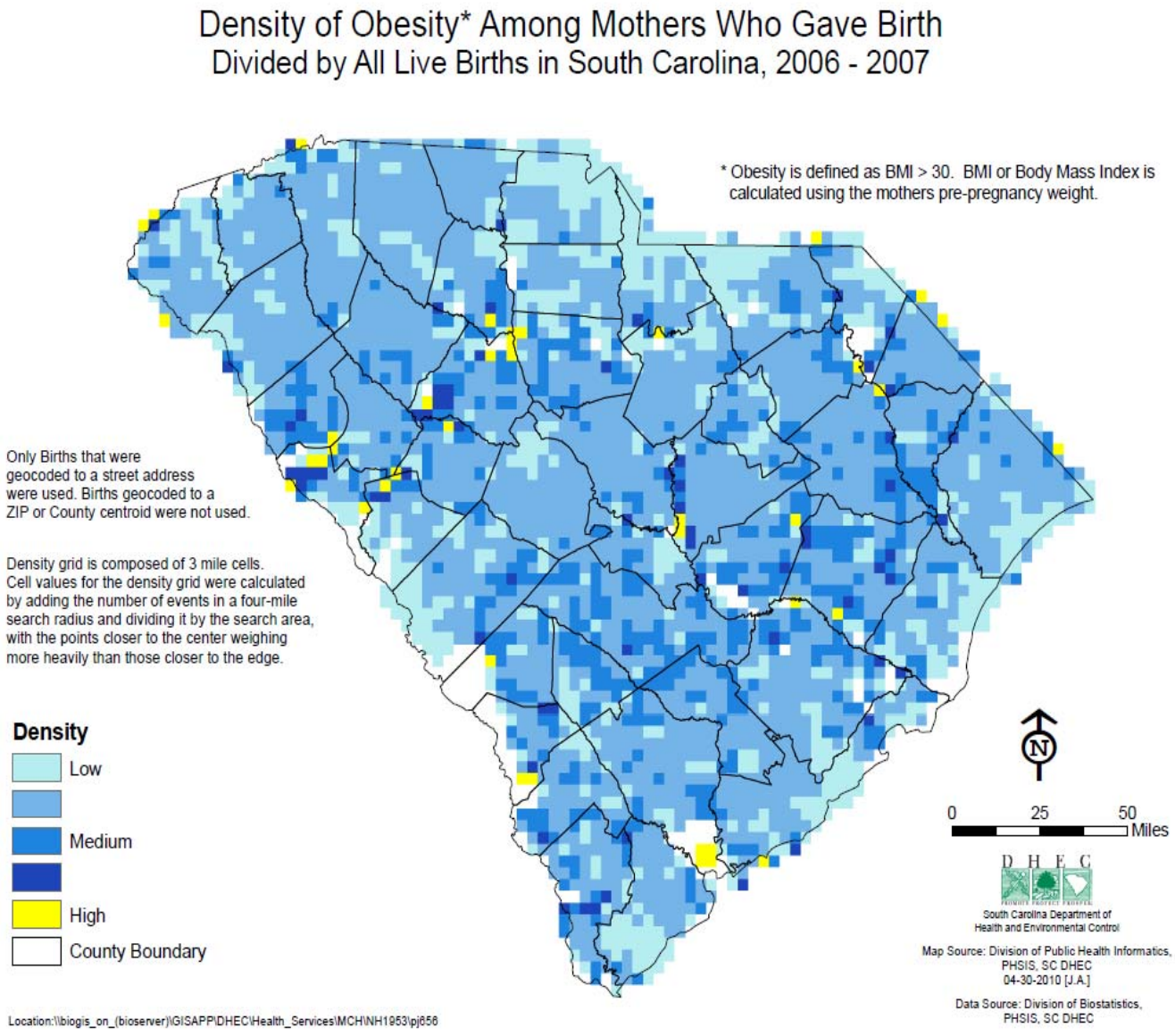


Chronic Conditions

Obesity

Obesity is an independent risk factor in numerous perinatal outcomes for both mother and infants and includes: preterm birth, LGA/SGA, birth trauma, cesarean delivery, and post-operative morbidity/mortality. Obesity remains an important health issue in the state with nearly half of women giving birth in 2007 being overweight or obese before pregnancy; 45.5% among white women and 61.9% among black women. Obesity was identified by the OB Task Force as a critical health condition impacting pregnancy. Moreover, the Pregnant Women, Mothers, and Infants multidisciplinary work group also noted obesity as a significant factor impacting the health of women and their offspring.

Figure 10: Density of women giving birth with a pre-pregnancy BMI > 30, 2006-2007 live births

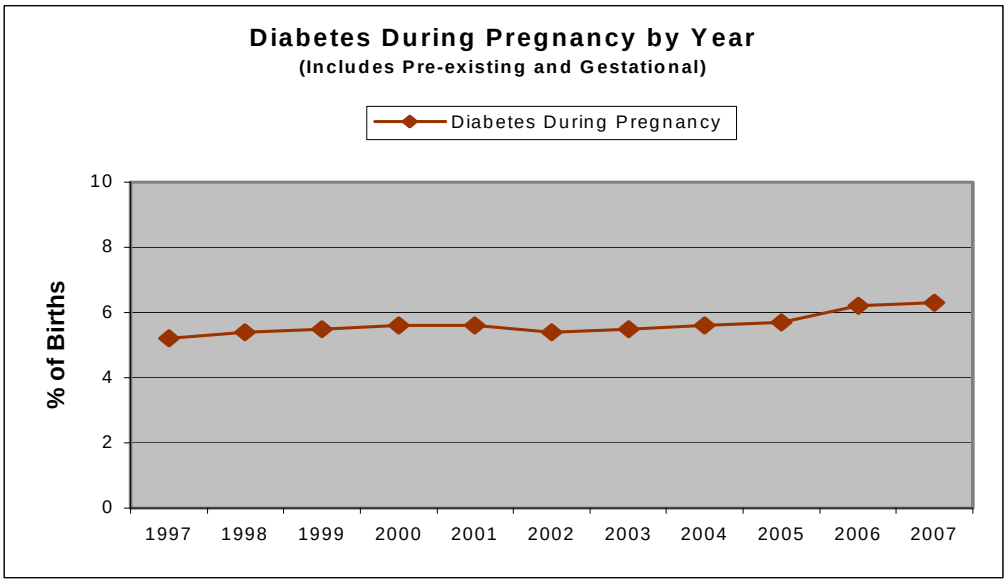


Diabetes

The proportion of pregnancies impacted by diabetes has gradually increased over the past 10 years. Gestational diabetes accounts for 70% of all diabetes occurring during pregnancy. Recent analysis by MCH epidemiology staff indicates the prevalence of diabetes during pregnancy is notably higher when linking birth certificate data to hospital

discharge records, and outpatient prenatal claims. The presence of pre-existing or gestational diabetes during pregnancy can have short and long term implications for mother and infant. Diabetes during pregnancy has been associated with numerous perinatal outcomes for both mothers and infants and includes: birth defects, inappropriate weight for gestational age, preterm birth, late fetal loss, hypertension/preeclampsia, cesarean delivery and subsequent morbidity and mortality. Women with gestational diabetes and their offspring are more likely to develop type 2 diabetes later on in life.

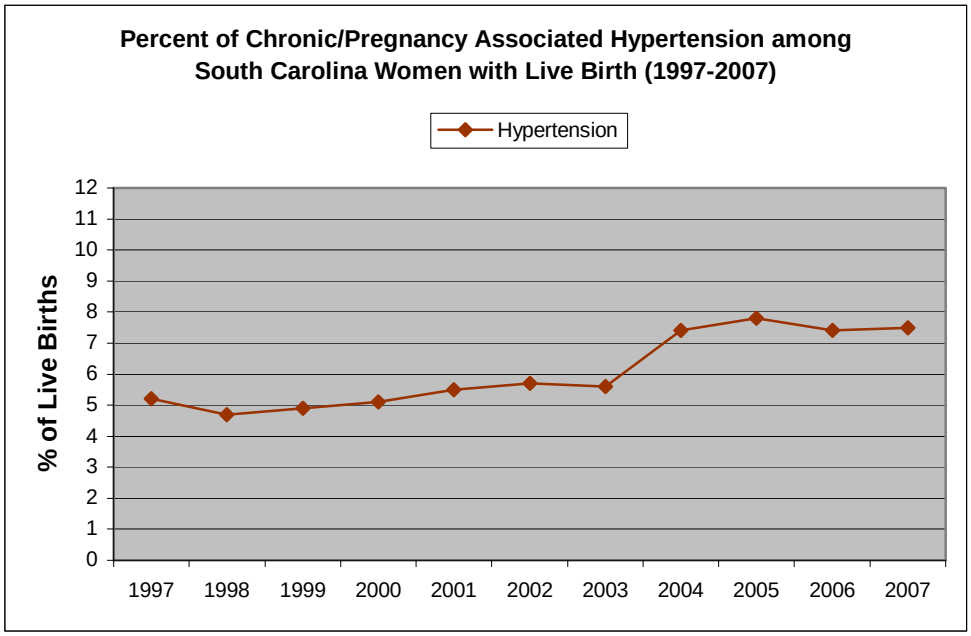
Figure 9: Diabetes among South Carolina women with a live birth, 1997-2007



Hypertension

Hypertensive disorders during pregnancy are a significant contributor to pre-mature births and disorders related to birth weight**.** Over the past 10 years the proportion of pregnancies impacted by hypertension has increased by 44%**.** Hypertension during pregnancy can also lead to more serious complications for the mother including pre/eclampsia.

Figure 11: Percent of live birth among South Carolina with pre/gestational hypertension, 1997-2007



Selected Health Behaviors

Tobacco Use

According to South Carolina PRAMS data from 2007, tobacco use remains an issue among South Carolina women. In 2007, 22.8% of women reported smoking during the 3 months before pregnancy. The distribution of tobacco use during pregnancy is not uniform with 30.2% among white women indicating they smoked during pregnancy compared to 15.0% among black women. Similar results are noted among those who smoked during pregnancy with 12.4% of women reporting smoking at least 3 months during pregnancy; 16.8% among white women and 8.5% among black women. The trend for both self reported smoking variables has remained relatively stable with slight decline in the past 2 years.

Alcohol Use

According to PRAMS data, nearly half (46.3%) of women reporting alcohol use in the 3 months before pregnancy, representing a 17.6% increase from 1997 (37.5%). Self reported alcohol use during the last 3 months of pregnancies has nearly doubled over the past 10 years from 3.6% in 1997 to 7.0% in 2007. Alcohol use during pregnancy is comparable among white and black women

Health Services Access and Utilization

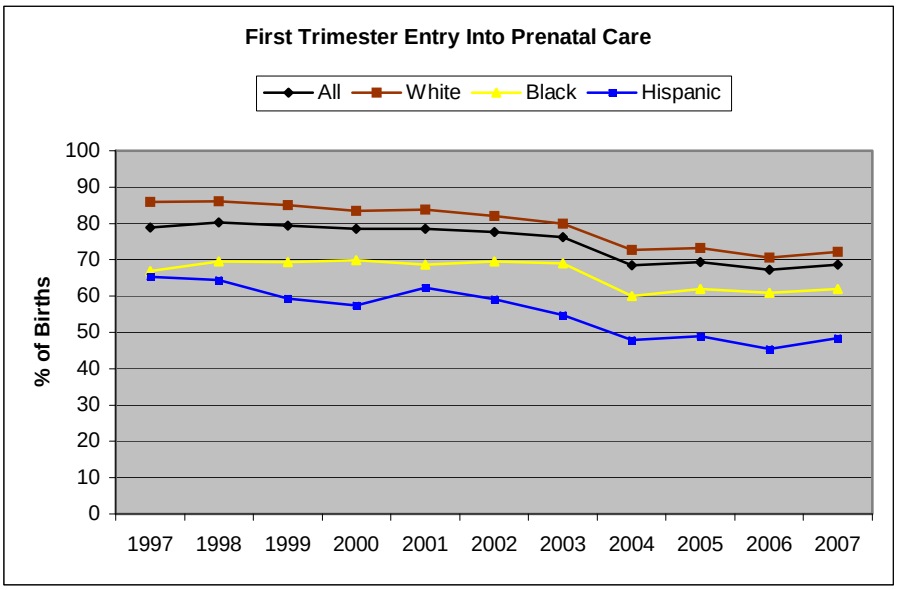
Family Planning Services

Access and utilization of Family Planning service remain a priority and key strategy for assuring all pregnancy are planned and wanted. Overall the DHEC Family Planning caseload has decreased over the past 5 years. This worrisome trend results in new initiatives and efforts to increase access and utilization of these services. In 2008, there was a slight increase in the caseload did increase. DHEC services have a significant impact on the overall need met for the state; therefore, efforts to continue increasing access to these services is an agency priority. Moreover, access to reproductive health services was the primary domain identified by the workgroup as one of the primary pre/inter-conception health issue that warrants significant attention.

Trimester of Prenatal Care Entry

Despite a decline starting in 2003, the percent of women entering prenatal care in the first trimester has been consistent over the past few years. Black women and those of Hispanic ethnicity are markedly less likely to receive prenatal care in the first trimester than their white counterparts

Figure 12: Percent of South Carolina women entering prenatal care during the first trimester, 1997-2007



Adequacy of Prenatal Care

Overall, the proportion of women receiving less than adequate prenatal care is increasing**.** Conversely, the proportion of women receiving adequate plus appears to be increasing slightly. This could largely be a reflection of an increase in higher risk pregnancies as more women enter pregnancy in poorer health status. Prenatal care utilization trends are similar for both white and black women. In 2007, 26.3% of white women received less than adequate prenatal care, compared to 31.8% among black women**.** It should be noted 42.9% of women of Hispanic ethnicity received less than adequate prenatal care in 2007. Expansion of Medicaid Managed Care and the auto enrollment process was noted as a key factor potentially impacting prenatal care utilization during both the key informant interview process with the OB Task Force as well as during the workgroup meeting. Additionally, lack of OB providers in rural areas was also noted as an important factor influencing prenatal care utilization.

Oral Health and Pregnancy

The important of oral health before and during pregnancy has gained traction over the past few years. According to 2007 PRAMS data, 87.7% of women had their teeth cleaned before pregnancy, 88.3% among white women and 84.7% among black women. A higher proportion of Black women reported having a dental problem during pregnancy (36.2%) compared to White women (25.4%). A lower proportion of black women reported visiting a dentist during pregnancy (32.0%) compared to 42.5% of White women.

Post Partum Contraception Use

According to 2007 PRAMS data, 86.8% of South Carolina women indicated post-partum birth control use. Approximately 88.3% of white women, 85.9% of black women, and 79.9% of women of Hispanic Ethnicity indicated some form of postpartum contraception use. Improving access and utilization of postpartum contraception methods remains a priority area.

Inter-pregnancy Interval

Approximately one of every four women has a birth interval of less than 24 months. Trends related to inter-pregnancy intervals of less than 24 months have remained constant over the past 10 years. There's no evidence of racial disparities related to inter-pregnancy interval, proportions are similar for white and black women.

Social and Emotional Support

Intimate Partner Violence

According to 2007 PRAMS data, 6.4% of all women reported being physically abused before pregnancy. Racial/ethnic differences in abuse are noted with 5.6% among white women reporting physical abuse compared to 8.3% among black women and 10.4

among women of Hispanic ethnicity. Approximately 3.4% of all women reported being physically abused during pregnancy; 1.9% among white women, 6.7% among black women and 3.7 among women of Hispanic ethnicity.

Social Stress

According to 2007 PRAMS data, 21.5% of all women reported experiencing high levels of stress during pregnancy with notable differences by race/ethnicity. Approximately 15% of white women indicated high level of stress compared to 35.2% of black women and 20.9% of women with Hispanic ethnicity. It should be noted black women twice as likely to indicate experiencing high levels of stress during pregnancy as white women. Emerging research has noted the link between high level of stress and birth outcomes.

Post Partum Depression

A Recent study of general health status of new mothers indicated South Carolina had the highest prevalence of women experiencing post partum depression among 16 states included in the analysis. PRAMS data from 2004-2005 indicate one of every five (19.1%) women experienced symptoms of post partum depression. Women between 20-29 years of age, black women, those less well educated, and those who experienced abuse during pregnancy are more likely to indicate post partum depression. Screening and access to mental health services remains a significant challenge in South Carolina. Workgroup members identified mental health services as an area of significant need.

Infants

Infant Mortality

The infant mortality rate is an important health outcome measure that is often used as a measure of the overall health status of a given population. It reflects the heath status of mothers and children, and is also indicative of underlying socioeconomic and racial disparities. Overall, the 2008 infant mortality rate is the lowest in the past 20 years. This is the 3rd consecutive year the infant mortality rate among black/other infants has decreased. Since 2005 the infant mortality rate among African American infants has dropped by 20%. The neonatal mortality rate is the primary period driving the reduction in mortality rates.

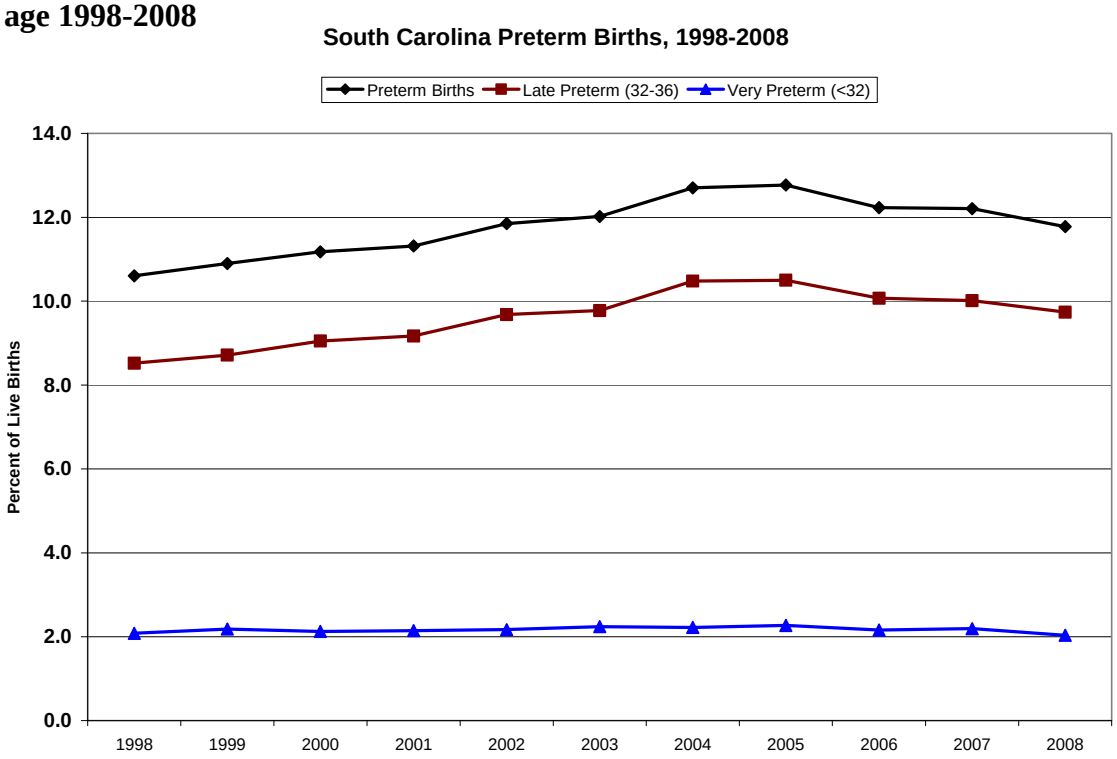
The most salient area of concern stemming from 2008 infant mortality rates stems from the 6.9% increase in post-neonatal mortality rates among all infants, with 19% increase among white infants. The notable increase in post-neonatal mortality rates can be attributed to a 23% increase in death due to SIDS, and a 39.5% increase in deaths due to maternal complications of pregnancy. In addition to SIDS deaths, a worrisome trend related to deaths due to accidental suffocation and strangulation in bed has also emerged. There is a considerable amount of effort put into assuring cause of death coding is accurate. During previous years staff suspected a significant number of SIDS deaths could be attributed to accidental suffocation and strangulation in bed. Efforts to improve coding were initiated and a significant increase in this cause of death classification was observed from 2006-2007. If this was primarily a coding issue, it would be reasonable to assume as deaths due to accidental suffocation and strangulation in bed increased, SIDS deaths should decrease. However, this was not the case. There was no notable decrease in

SIDS deaths; therefore the net effect of these two classifications remained on the rise. Similar patters are noted from 2007 to 2008. As noted above there was a 23.9% increase in SIDS deaths; moreover, the number of deaths due to accidental suffocation and strangulation in bed also increased from 2007 to 2008. Again, the joint effects of these two causes of death are continuing to increase, indicating the issue is not one of improved coding.

Pre-Term Births

Pre-term births remain the leading cause of death when considering prematurity as an underlying cause and account for 33%-35% of all infant deaths. In 2008, the number of pre-term births decreased from 12.2% to 11.8%. Decreases were noted within both late preterm births (32-36 weeks) and very preterm births (<32weeks). Late preterm birth remains an area of concern given the propensity for scheduled cesarean deliveries and potential complications with early inductions.

Figure 13: Percent of pre-term births among South Carolina women by gestational age 1998-2008



Birth Defects

Birth defects remain a significant contributor to infant death and subsequent morbidity. South Carolina has an active birth defects surveillance system that utilizes active surveillance for the identification and referral of birth defects for children birth through age 2. In 2008, approximately 945 occurrences of birth defects were confirmed through birth defects surveillance activities. Cardiac defects most prevalent in South Carolina, followed by those affecting the Central Nervous System.

Behaviors Impacting Infant Health

Infant Sleep Position

A primary correlate of deaths due to SIDS and accidental suffocation and strangulation in bed is that of infant sleep position. PRAMS data from 2006 indicates approximately 63.1% of South Carolina mothers put their infant on their back when sleeping. Black women and women who are less well educated were more likely to report putting their infants to sleep in a position that was not on their back (side/stomach). Placing the infant on it's when sleeping has been associated with a reduction on the likelihood of a SIDS death. Despite ongoing prevention messages, far too many women and caregivers to not adhere to AAP recommendation of placing infants on their backs when sleeping. Mortality information presented above, coupled with apparently poor adherence to safe sleep practices indicate a significant area of need within the scope and capacity of existing Title V efforts.

Smoking in the home

Tobacco use in the home has also surfaced as a key factor contributing to infant health and deaths due to SIDS. According to PRAMS, The proportion of infants exposed

to smoke in the home has decreased by 57% from 14.1% in 2000 to 6.1% in 2006. Despite the decrease, smoking during and following pregnancy remains a notable area of focus. Although significant progress has been made, there is still room for improvement, particularly since existing programs and efforts appear to have an impact.

3.2 Children

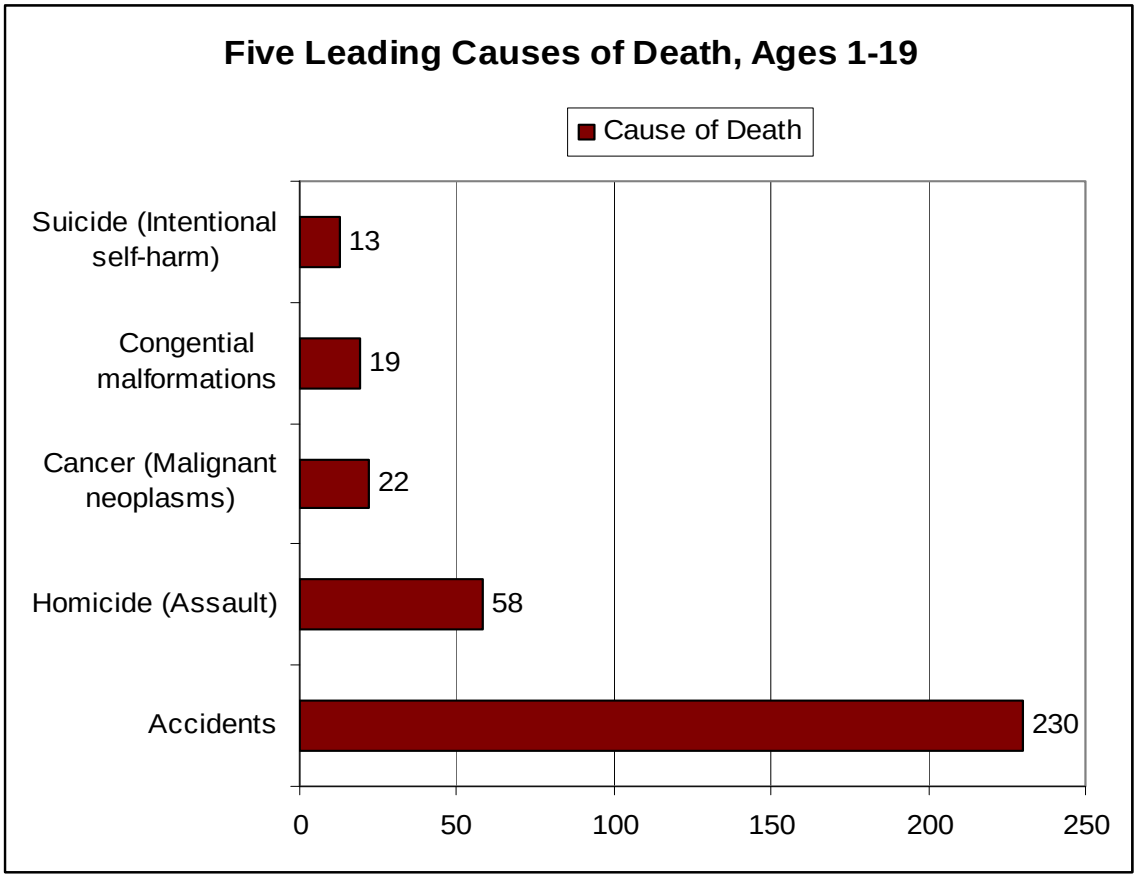
Approximately one in five children and adolescents under the age of 19 live in homes currently under the federal poverty line, with values ranging from 14%-50% by County. According to 2007 National Survey of Children's Health (NSCH), the proportion of children in South Carolina without health insurance has increased from 2003-2007 (9.8% vs. 6.5%). In addition, data from the State indicates an increase on the proportion of children without health insurance from 10.7% in 2008 to 12.8% in 2009. The general health status of South Carolina children seems to be consistent with the rest of the United States. According to 2007 NSCH data, 84.5% of parents report their children's health as excellent to very good; which is comparable to 84.4% among the Nation.

Child Death

Among South Carolina children between the ages of 1-19, accidents remain the leading cause of death accounting for half of all deaths in this age group. Homicide is the second leading cause of death accounting for 12.5% of deaths among this age group. Remaining causes of death include cancer, congenital malformation, and suicide.

- Among children 1-4, accidents are the leading causes of death followed by congenital malformations, homicide, and cancer
- Among children 5-9, accidents are the leading cause of death followed by homicide, cancer, and cancer
- Among children 10-14 and 15-17, accidents are also the leading cause of death, followed by diseases of the heart, cancer, and chronic respiratory distress
- Among children 18-19, accidents remain the leading cause of death, followed by homicide, and suicide

Figure 14: Top five leading causes of death among South Carolina children aged 1-19 years, 2007



Child Abuse/Neglect

South Carolina is among the bottom states when examining the overall health and well being of children. Kids Count Data from 2007 gave South Carolina a ranking of 46th in the overall health and well being of children. In SFY 2010, the South Carolina Department of Social Services identified approximately 6,700 cases of reported and substantiated child maltreatment. There is evidence of definitive geographic clustering related to this measure with high rates in the upstate and eastern border counties.

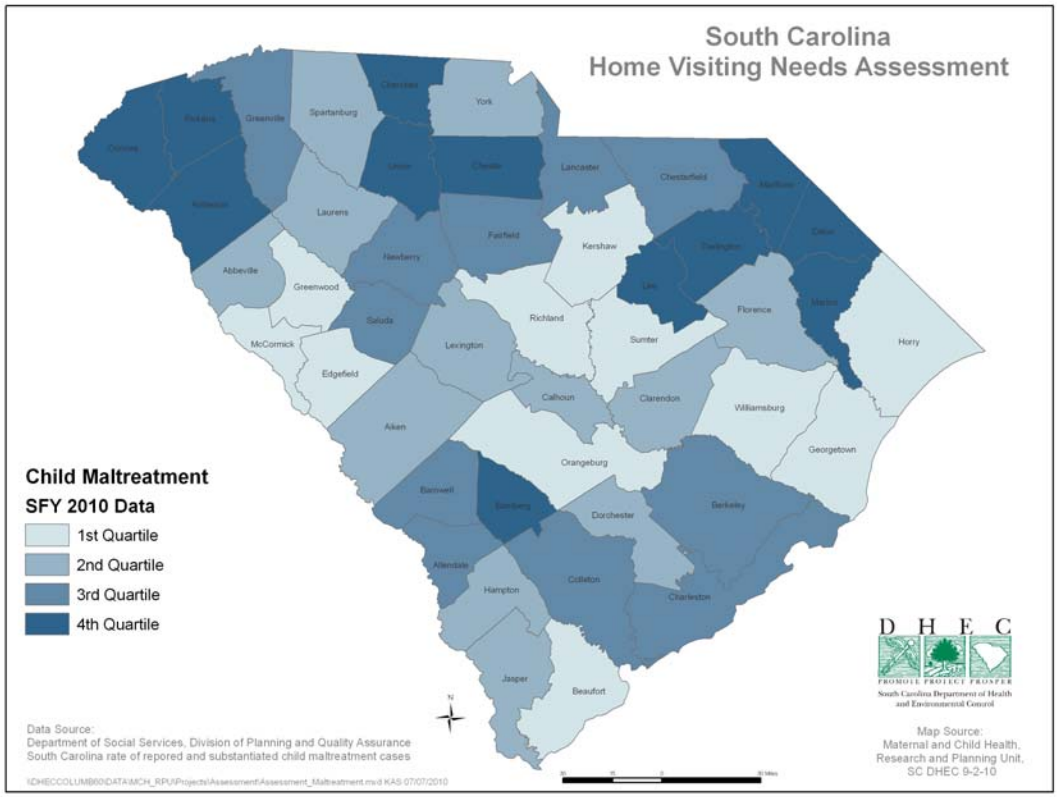
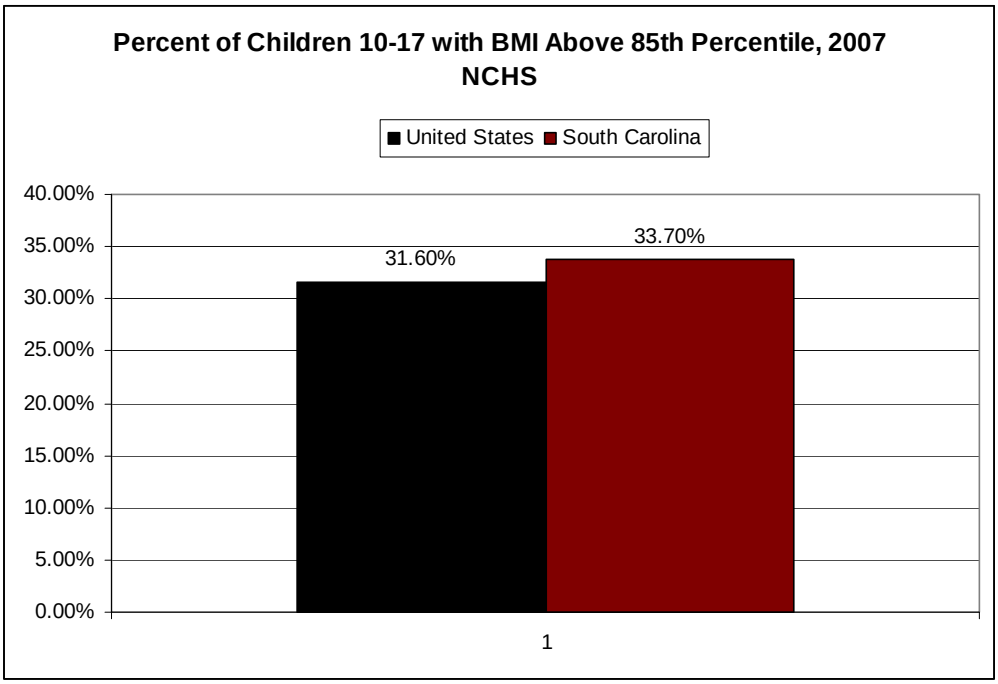


Figure 15: South Carolina Rate of reported cases of child abuse/neglect by county, 2009

Childhood Obesity

Obesity among children continues to be an emerging pubic health issue of concern. Data from the 2007 National Child Health Survey indicated a higher proportion of South Carolina Children between the ages of 10-17 age were above the 85th percentile (33.7%) compared to 31.6% among the rest of the United States. Moreover, data from the 2009 Youth Behavioral Risk Factor Survey (YRBS) of children grades 9-12 indicates 15.0% of children were overweight compared to 12.9% in 1999; and, 16.7% of children were obese compared to 11.7% in 1999.

Figure 16: Percent of South Carolina children 10-17 with a BMI above the 85th percentile, 2007



Asthma

According to data from the Office of Research and Statistics the number of hospitalizations due to asthma among children less than five years has declined by 28% decline over the past 5 years. Improved access to pediatricians and receipt of ongoing primary care within a medical home continues to be a key issue for improving asthma care in South Carolina. Although asthma has never been a covered diagnosis for DHEC purchase of services, supplies, equipment or pharmaceuticals, statewide preventive and family support services are available through Family Connection, which is a DHEC parent support services partner.

Behavior Issues

The Youth Risk Factor Behavior Surveillance System (YRBSS) is conducted through the South Carolina Department of Education. The YRBSS monitors several major categories of risk behaviors among children in grades 9-12. Specifically, behaviors that contribute unintentional injury and violence, tobacco use, alcohol and other drug use, sexual behavior, and health behaviors related to diet and exercise.

Unintentional Injuries

According to YRBSS 1 out of every 10 students (10.8%) never or rarely wore a seatbelt when riding in a car driven by someone else. This number has declined over the past couple of years compared to 17.8% in 2005. Approximately 1 in 4 students (27.4%) indicate they have been driven by someone who had been drinking and 10% indicated they drove a vehicle after drinking. Although this is an improvement from previous years, the proportion of students engaging in this behavior is far too high.

Violence

Approximately 1 in 5 students indicated carrying a weapon one or more times in the past 30 days. The majority of these (37.2%) being white males. One in every 3 (36.4%) students indicated being in a physical fight one or more times in the past 12 months, 12.1% of these occurred on school property. The majority of these altercations occurred among the younger grades with 44.7% occurring among students in grade 9. A much higher proportion of fights occurred among black students (45.8%) compared to 28.7% among white students. In addition, 15.1% of students indicated they had been bullied on school property in the past 12 months, 8.8% were threatened with a weapon on school property in the past 30 days and 6.5% did not go to school one or more times because of

feeling unsafe. Even more disturbing is the fact 16.1% of students reported being slapped, hit, or physically hurt on purpose by a boy/girlfriend in the past 12 months, and 8.6% reported being forced to have sexual intercourse.

Suicide

Approximately 25% of students reported experiencing symptoms of depression or considered/attempted suicide during the past 12 months, 12.7% seriously considered suicide, 10.5% made a plan to commit suicide, and 10.8 actually attempted to commit suicide. The 12.1% of students seriously considering suicide has declined considerably over the past 15 years from a high of 25.6%; however, this indicator remains troublesome.

Tobacco Use

Approximately 1 in 4 students (27.3%) used tobacco products on one or more of the past 30 days. The majority of tobacco use (29.4%) reported by students occurred among student 18 year or older. Males were more likely to use tobacco than females. However, cigarette use was the highest among white females. Overall, the proportion of students smoking cigarettes in the past 30 days (20.5%) has declined substantially from a high of 38.6% in 1997; however, the 2009 proportion is slightly higher than what was observed during the 2007 survey (17.8%).

Use of Alcohol and Drugs

Alcohol is the most common substance abused by high school students, with 69.1% of students indicating having at least one drink of alcohol. One in 3 (35.2%) students indicates having at least one drink in the past 30 days. Alcohol abuse is more common among white students than black students. Moreover, 1 in 4 white students (25.2%) report

binge drinking (5 or more drinks in a couple of hours) in the past 30 days. Marijuana use is the second most abused substance among students with 39.0% of students indicating some use in their lifetime with 1 in 5 (20.4%) using marijuana in the past 30 days. Overall, alcohol use has declined slightly; however, marijuana use appears to be slightly higher (20.4% in 2009 versus 18.6% in 2007).

Sexual Risk Behaviors

Approximately half (53.4%) of high school students have engaged in sexual intercourse, with 38.6% engaging in intercourse in the past 3 months. Nearly 1 in 5 students (19.7%) have had more than four partners during their lifetime, and 9.2% engaged in sexual intercourse before the age of 13. The highest proportion of students engaging in sexual intercourse was among black males (75.3%) and black females (59.4%) compared to 46.8% among while males and 44.9% among white females. Of those engaging in intercourse, approximately 60% used a condom and 19.7% used birth control pills to prevent pregnancy. The proportion of students engaging in sexual intercourse has increased slightly over the past couple of years from 51.5% in 2007 to 53.4% in 2009. The proportion of those engaging in sexual intercourse within the past 3 months has also increased from 35.9% in 2007 to 38.6% in 2009.

Body Image/Weight Management/Dietary Behaviors

The proportion of students who are overweight/obese continues to be a worrisome trend. In 2009 approximately 31.7% of students were overweight/obese compared to 29.6% in 1999. Nearly half of students (42%) indicated they were trying to loose weight. Only 14.7% of students indicated eating 5 or more fruits and vegetables during a day. However, juice and soda consumption remains prominent with half of all students

consuming fruit juice or soda at least once a day within the past 7 days. Consumption of energy drinks has also become popular with 52% of students reporting consumption of these beverages.

Physical Activity

One in 3 students were physically active for 60 minutes or more per day of 5 of 7 days, with higher proportions among males. Approximately 34.5% of students attended PE classes at least one day on average during the school week and only 16.8% attended daily PE classes. Nearly half of students indicated being on a sports team during the previous 12 months. The proportion of students attending PE classes has dropped from the 2007 survey. In 2009, 34.5% of students attended PE at least one or more days during a school week compared to 39.7% in 2007. Approximately 40% of students indicated watching 3 or more hours of TV on average during a school day.

Child Health Services

Immunizations

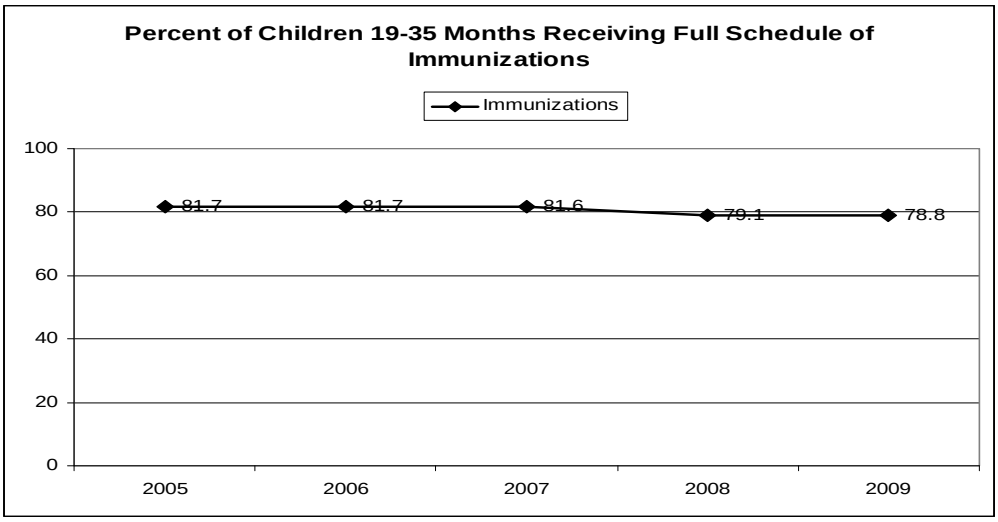
The proportion of children 19-35 months receiving a full schedule of immunizations has remained relatively stable over the past five years, with nearly 4 of 5 children (78.8%) being up to date. However, 1 of 5 children are not up to date. Recent activity to establish an immunization registry and expansions in electronic medical records usage will continue to support efforts in this area.

EPSDT

The proportion of Medicaid enrollees < 1 receiving at least on EPSDT has gradually increased over the past five years with nearly 90% of children receiving this service. This is a 23% increase from 2005 when only 72.6% of Medicaid enrollees received at least

one EPSDT visit. Continued work to promote primary care delivery through a medical home should continue to enable improvement is this area.

Figure 18: Percent of 19-35 months olds receiving full schedule of immunizations. 2005-2009



School Readiness/Achievement

School readiness remains a challenge in South Carolina. According to the 2009 South Carolina Kids Count report, approximately 20% of children assessed are not ready for 1st grade. Moreover, 5.2% of children failed the 1st grade with African American children are disproportionately burdened with higher failure than white children. Student achievement also remains a challenge. 2007 NSCH data indicates a much higher proportion of South Carolina children between 6-17 repeat a grade in school compared to the rest of the country (16.0% versus 10.6%). Likewise, 1 in 4 adolescents (24.5%) drop out of school between grades 8-12; 1 in 3 among African American males.

Further analysis on school readiness has been conducting using the linked data files from the South Carolina Office of Research and Statistics (ORS). Data files linking health, social services, and education information have identified three major risk groups

at risk of not being ready for school and subsequently testing below basic academic standards. These three groups are defined in terms of treatable risk factors causing their performance deficits rather than untreatable demographic descriptors such as gender, race, and income. These include:

- Low language/literacy- vocabulary, language skills, and literacy experiences developed primarily in their homes through interaction with their family members.
- Disability -primarily speech and language disorders but also mental, emotional, vision, hearing, and learning disabilities.
- Emotional/behavioral problems- externalizing and internalizing disorders of acting out conduct and oppositional-defiant behaviors or withdrawal, depression, and anxiety. Data for this indicator was derived from the Kindergarten SC Readiness Assessment rating and includes factors related to self-control, social problem-solving, interaction with others, and self-concept. These problems are caused by genetic, neuro- biological and family environmental influences such as abuse, neglect, and harsh, negative parenting.

Furthermore, data indicates these risk groups collectively comprise 41% of children in South Carolina. Approximately 31% having only one risk factor, 9% have two, and 1.4% having all three.

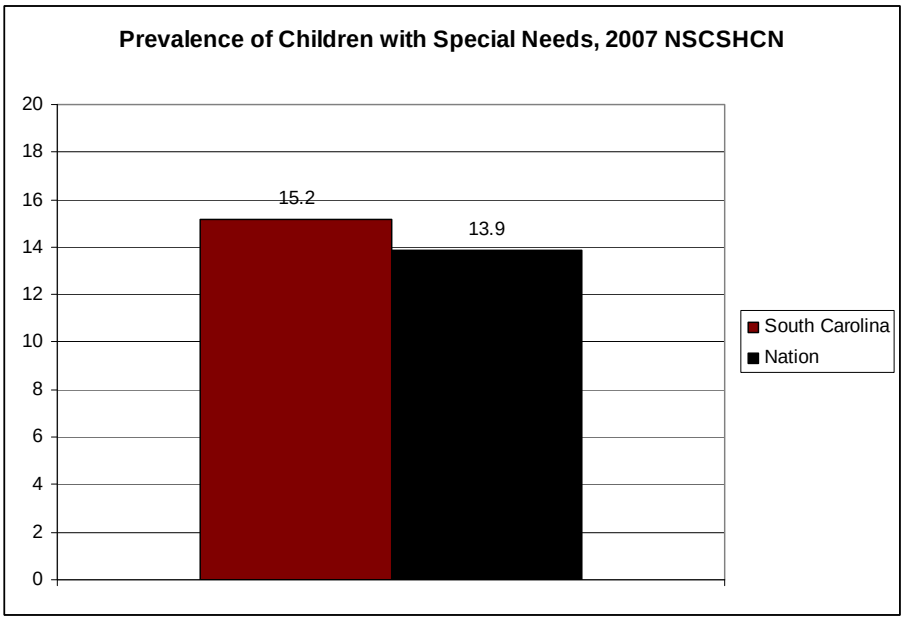
In addition to analysis conducted on school readiness and contributing factors, workgroup participants also felt strongly behavioral health among children and adolescents are a significant area in need of focus. Behavioral health remains a challenge for South Carolina. The workgroup noted a significant lack of state capacity to even skim

the surface of behavioral/emotional health issues impacting children and adolescents. The need for behavioral health services far outweighs existing capacity.

3.3 Children with Special Health Care Needs (CSHCN)

For this needs assessment, SC has relied on the the National Survey of Children with Special Health Care Needs for quantitative measures. For the most part, key indicators for CSHCN in South Carolina are consistent with national data. .In 2007, 15.2% of South Carolina children (157,801) have special needs, compared to 13.9% among the nation. However, there is considerable room for improvement on multiple levels.

Figure 19: South Carolina estimated prevalence of children with special health care needs, 2007

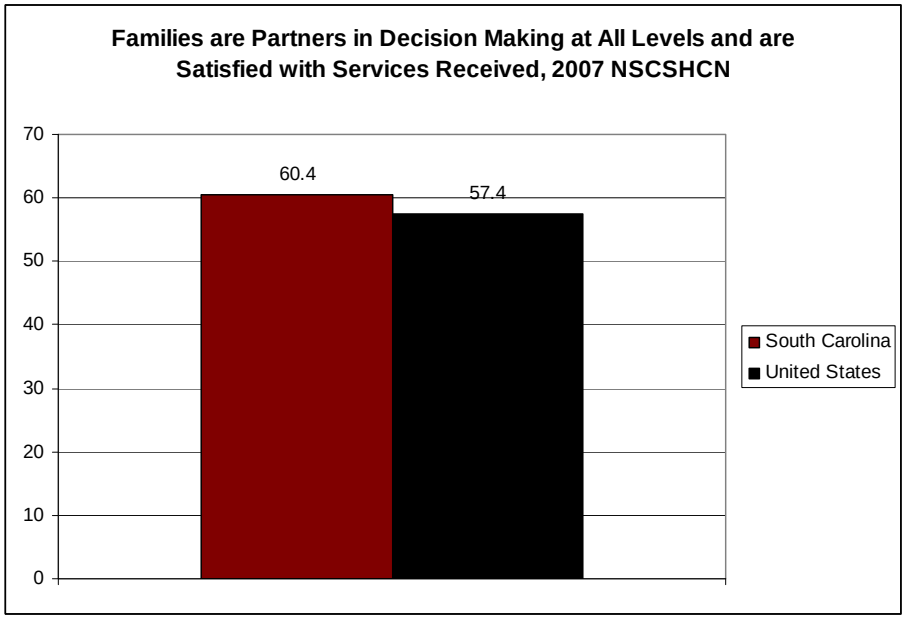


Partnering in Decision Making

Approximately 60% of South Carolina families' partner in decision making at all levels and are satisfied with services received compared to 57.4% among nation. Although results from South Carolina are consistent with the nation, the fact remains 2 of

5 families are not partnering in decision making and are not satisfied with services received. These frustrations were echoed in work group meeting that included family representatives. These parents expressed a considerable amount of frustration with a perceived lack of attentiveness to the ongoing needs of their children.

Figure 20: Percent of South Carolina families who partner in decision making and are satisfied with services received, 2007

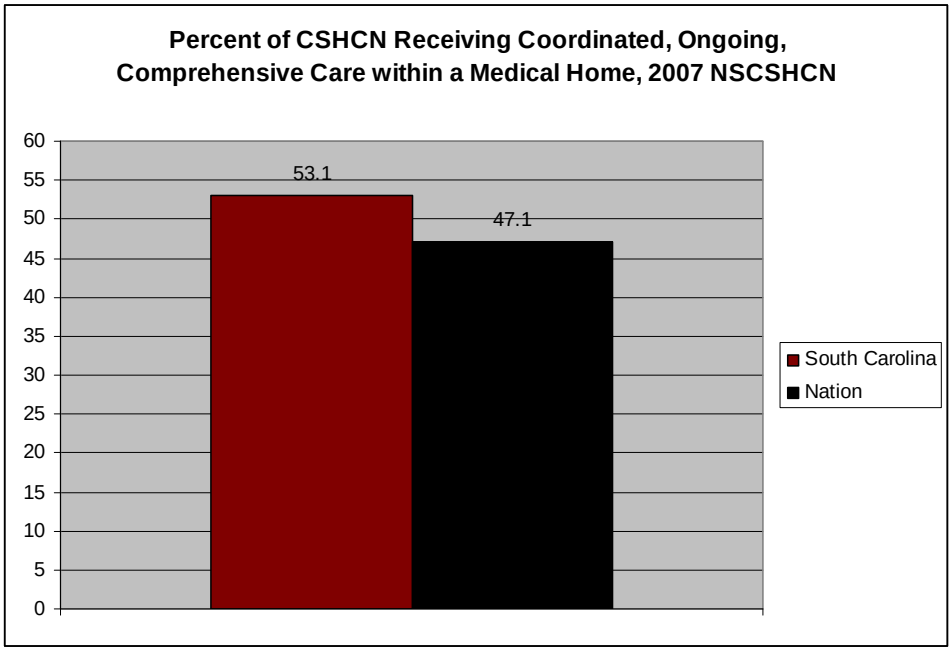


Coordinated, Ongoing, Comprehensive Care within a Medical Home

The proportion of South Carolina parents reporting receiving comprehensive, ongoing, coordinated care in a medical home (53.1%) is slightly higher than 47.1% of parents across the country. Parents and advocates participating in the CSHCN needs assessment workgroup discussed this issue at great length. The type and complexity of needs, having a consistent provider to provide care coordinate services is critical for this population. Parents expressed frustrations with a fragmented system of care and noted how difficult navigation of the system can be. These individuals expressed a need for

support related to service coordination beyond what is available under the current system. Again, the consistent message from stakeholder groups is the need for statewide, comprehensive care coordination services for families of CSHCN without regard for source of medical or other health care services.

Figure 21: Percent of South Carolina children with special needs receiving coordinated, ongoing, comprehensive care within a medical home, 2007

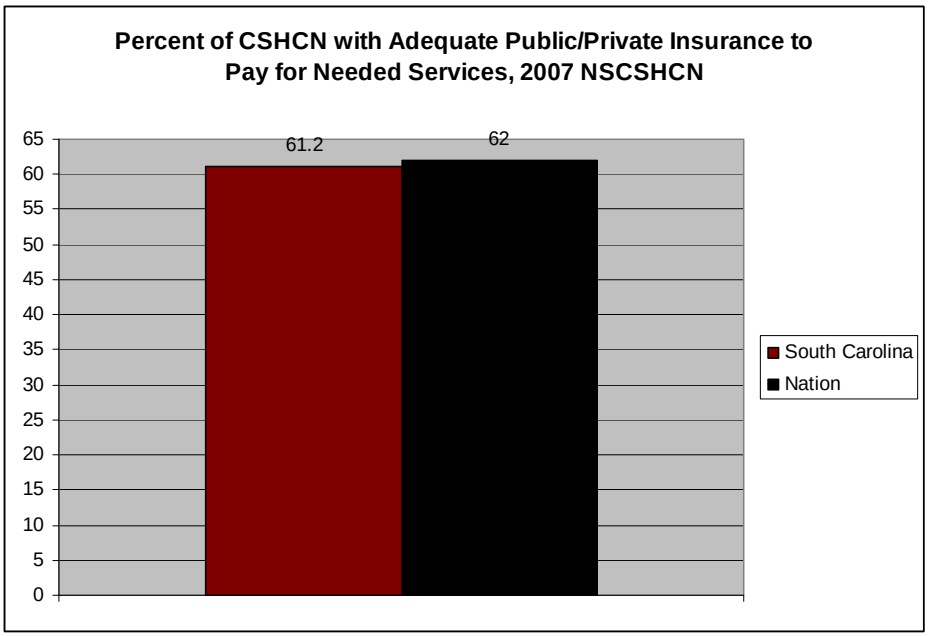


Public/Private Insurance to Pay for Needed Services

The proportion of South Carolina parents reporting adequate public or private insurance to pay for needed health services (61.2%) is comparable to 62.0% of parents across the country. Care for CSHCN can be expensive and many families not eligible for Medicaid but with lower incomes are particularly vulnerable. Moreover, certain aspects of medical care, including durable medical equipment and other services may not be covered by existing insurance policies. Reducing out of pocket expense for lower income families is certainly a need. The impact of health care reform on this need is unclear at

the present moment; however, more families with special needs children should have access to insurance coverage.

Figure 22: Percent of South Carolina families with adequate public/private insurance to pay for needed services, 2007



4. MCH Program Capacity by Pyramid Levels

In general, ongoing fiscal challenges have lead to significant losses on overall staffing and program capacity. State and local public health departments have been forced to eliminate positions or leave vacancies unfilled at all levels. The impact of fiscal challenges permeates all programs and activities and erodes the critical public health infrastructure in the state. Voluntary retirement incentives have been instituted as a cost containment measure. This has accelerated the departure of many seasoned public health professionals and further decreased agency capacity to meet basic needs.

4.1 Direct Health Care Services

Direct provision of health care services through clinics operated and staffed by DHEC personnel or contractors (and where DHEC bills for services provided), have been reduced considerably as a result of changing priorities and diminishing agency resources. Such services remains in selected locations where this is the most effective means of assuring access to pediatric sub-specialty services. More commonly, local partnership arrangements are in place to allow use of DHEC staff to support pediatric medical home practices and/or pediatric sub-specialty services provided by the states four children's hospitals. (See "Enabling Services".)

Camp Burnt Gin remains a unique MCH state agency service. Each year about 450 children attend sessions at this residential summer camp for children and young adults with chronic illnesses and disabling conditions that would rule participation in most summer camps. Camper services are designed to meet the needs of our target population, many of whom receive other DHEC services for CSHCN. Each year participating campers, parents and staff provide feedback regarding Camp services.

DHEC maintains active participation in the state IDEA Part C early intervention program, though no longer serves as lead agency. DHEC remains responsible for all system point of entry offices.

Another of the remaining direct services provided by MCH is the postpartum newborn home visit. This has been a longstanding Title V program supported by the Agency. In addition to physical examination of the infant and home environment, the program can help serve as a gateway into the pediatric care system. Overall agency capacity to provide these visits has been reduced due to staff shortages and reimbursement challenges associated with Medicaid emphasis on service through managed care organizations (MCOs). In state fiscal year 2009, 16,203 visits were made primarily to Medicaid clients, but DHEC was able to bill for only 14,174 (87%) of these visits. In areas with limited staff, high-risk criteria established by the MCH Bureau are used to determine those with the greatest need for newborn home visits.

4.2 Enabling Services

Enabling services remain relevant to CSHCN populations. A primary focus for CSHCN services over next five years is expanded and enhanced provision of care coordination services for CSHCN as needed, regardless of source(s) of medical services or income status. Over the past four years, the Division of CSHCN has received consistent feedback on DHEC services and population needs in multiple settings from key stakeholders, including physicians and families. The unmet need is for statewide access to high quality care coordination services has been reported by stakeholders at every opportunity. These services will fill gaps identified by pediatric offices that serve as medical homes, as well as by pediatric sub-specialists and children's hospitals. In

addition, the need for such assistance has been identified by individual families and by parent support organizations, including Family Connection, which is the state Family Voices agency. Care coordination services (assistance with identifying and obtaining needed health care services, beyond mere information and referral) are routinely provided to children receive financial assistance for services, supplies, equipment or drugs related to covered conditions, but are available to other children as local resources permit.

On-going enabling services include purchase of services (medical care, supplies, equipment and pharmaceuticals) for low income children in target population with selected medical conditions and diagnoses. This is the foundation for the long-established "CRS" programs. The need for such services is critical for families with limited resources for out-of-pocket expenditures for services. Budget cuts required elimination of these services for children with Medicaid coverage. Division of CSHCN and other MCH staff members have developed on-going working relationships with the Department of Health and Human Services (Medicaid agency) to facilitate payment for medically necessary services for Medicaid enrollees.

Other enabling services include oversight of five school based sealant programs providing sealants for over 7,000 children annually through the School Dental Prevention Program. In addition, the state WIC program provides food vouchers, nutritional education, and breastfeeding services to pregnant and postpartum women under USDA regulations and guidelines. Approximately half of women in the state received WIC services during pregnancy. During the part year efforts have been made to improve assessment and referral processes between WIC and Family Planning.

DHEC maintains longstanding contractual relationship with SC's largest statewide CSHCN family support agency (Family Connection), which also serves as the state Family Voices agency. Family Connection staff participates in regularly scheduled meetings with regional CSHCN staff (state and regional), and provides input on DHEC policies.

Among other enabling services, the School Dental Prevention Program maintains oversight of five school based sealant programs providing sealants for 7,194 children during the 08-09 school year. MCH also has capacity to provide certain enabling services to this population. WIC continues to be a very important program housed within the MCH Bureau. WIC provides food vouchers, nutritional education, and breastfeeding services to pregnant and postpartum women. Approximately half of women in the state received WIC services during pregnancy. During the part year efforts have been made to improve assessment and referral processes between WIC and Family Planning.

4.3 Population Based Services

MCH maintains several population based programs; however, maintaining the integrity of these programs remains challenging. The newborn metabolic screening program continues to provide screening and follow up for every infant born in the State. The program currently screens for 28 metabolic disorders recommended by the March of Dimes and the American College of Medical Genetics and an additional 24 secondary metabolic disorders also causing severe problems early in life. The program provides active follow up for about 100 infants last year. Lab fee increases for metabolic screening implemented during 2010 will allow the program to sustain the current level of screening.

The South Carolina Birth Defects Program has lost a significant amount of capacity over the past year; however, the program has been able to continue surveillance for 42 of 45 defects recommended for surveillance by the National Birth Defects Prevention Network. Program efforts to implement formal referral systems and provide epidemiologic reports from surveillance data have been severely undermined due to staffing capacity.

The Newborn Hearing Screening Program has improved and expanded capacity for surveillance and follow up activities. During the past year the program has been successful in streamlining the programs data system infrastructure to create a comprehensive record for each child screened and requiring follow up. This will provide more accurate program surveillance and follow up data.

Fetal Infant Mortality Review continues to be an agency priority but remains a challenge. Currently, 9 of 46 counties have active FIMR groups. To augment the lack of local FIMR capacity, the Bureau is moving forward with plans to implement a state-wide FIMR process to support local FIMR efforts.

4.4 Infrastructure Building

Infrastructure building remains a challenging priority area. As program capacity for more traditional services continues to dwindle, the need for infrastructure related to surveillance, evaluation, and reporting becomes much greater. Epidemiology capacity has been sporadic and programs are often forced to look outside MCH for support. Despite these challenges, MCH is working to improve capacity for providing epidemiological and program information to stakeholders. Efforts to integrate surveillance program data within existing web-based platforms have been successful. Birth defects surveillance and

newborn hearing data are both housed within the Birth Exchange Engine (BEE). During the past year, components of the newborn hearing program data system previously supported by separate applications were migrated to the BEE. This should improve the accuracy of surveillance and follow up activities for this program. In addition, a FIMR module is being created within the BEE. This will allow information obtained from FIMR abstractions to be integrated with infant birth records. Despite the positives,

The Division of Oral Heath has been successful in building infrastructure through the Oral Health Advisory Council and Coalition. During the past year the group produced recommendations/guidelines for oral health care and pregnant women. Postcards announcing the web-based resources for the recommendations and referral forms were sent to 260 obstetricians, family practitioners and midwives across the state. In addition, the Coalition's Early Childhood Workgroup produced oral health recommendations for young children and funding from the Academy of Pediatric Dentistry to develop Clinician and Early Head Start Parent Education toolkits as part of SC's Head Start Dental Home Initiative based on the recommendations. Much of the focus over the next five-year planning cycle will be to increase population based and infrastructure building services provided by MCH.

In addition to reimbursement for selected services through the CRS program, DHEC provides financial support to the Department of Pediatrics at USC and MUSC (two of the state's four children's hospitals) to facilitate access to pediatric sub-specialty services statewide and within the target area for each of these medical centers. Similar support is provided to MUSC School of Dentistry to support cranio-facial services in the MUSC service area. Division of CSHCN has tabled plans to extend this support to the remaining

children's hospitals (McLeod in Florence and north east part of SC, and Greenville Hospital Systems serving the upstate area), given current budgetary constraints. Other plans placed on "hold" due to state funding restrictions, include expanding support for cranio-facial teams that meet composition and performance standards of the American Cleft Palate-Craniofacial Association.

Infrastructure building activities within DHEC will include a complete review and updating of all policies related to implementation of existing programs and services for CSHCN. No reductions in the current level of service at any level of the pyramid are planned -- the focus will be on consistent implementation across regions, standardized performance measures, and uniform data collection for monitoring performance. Revised policies will be implemented on interim basis as completed, with release of new policy manual on or before July 1, 2011. Activities during subsequent years will include: consultation and technical assistance to regions on implementation; development or revision of methods to be used for data collection, analysis and reporting; and evaluation of revised policies.

5. Capacity Assessment

In addition to capacity related to existing programs, MCH also utilized components of the CAST-V assessment methodology to align existing capacity needs with core public health functions and essential services. As budgets continue to shrink and resources dissipate, it is necessary to examine the existing capacity and work towards setting an overall agenda or direction for the MCH Bureau. The ability to carry out the core public health functions (Assessment, Policy Development, and Assurance) and the 10 essential public health services are critical for ongoing and future MCH activities.

Ascertainment of capacity needs was derived through two primary methods. First, results from the population based workgroup meetings were summarized in the context of the 10 essential MCH services. Once existing needs were identified, workgroup members were asked what role MCH should play in addressing these needs. Although the provision of direct services inevitably surfaces, most understand MCH capacity to support these types of services is not consistent with existing capacity or future direction. Given the understanding direct services is not a viable option, workgroups identified several key roles they felt the MCH Bureau should be working towards.

- Assessing and monitoring maternal and child health status to identify and address problems
- Diagnose and investigate health problems and hazards affecting MCH populations
- Inform and educate the public, families, and policy makers about MCH issues and concerns
- Provide leadership in priority setting, planning, and policy development to support community efforts to improve the health and of MCH populations
- Evaluate the effectiveness, accessibility, and quality of personal health and population based health services

In addition to information obtained from the workgroup meetings, components of the CAST-V methodology were used examine existing capacity to perform these activities identified as important functions and determine what additional capacity is needed to meet these needs. Bureau leadership held a series of meetings with the two key divisions within the MCH Bureau to assess capacity using various components of the CAST-V

methodology: Children with Special Health Care Needs (CSHCN), and Women's and Children's Services (WCS).

Unfortunately, to a large degree the areas identified represent areas significantly lacking in capacity. MCH is well positioned to provide leadership in policy development activities; however, capacity for assessment and assurance remains a challenge. This issue is not due to a lack of access to quality data; rather, limited staffing capacity to fully develop capabilities in these critical areas. Improving capacity related to assessment and assurance surfaced as a primary capacity need throughout the process.

6. Selection of Priority Needs

6.1 List of Potential Priorities

Historically, South Carolina is a poor, rural state with considerable health and health care issues that warrant consideration as a priority area of need. Several potential priority needs were identified throughout the assessment process. A comprehensive listing of all potential priority needs identified during the assessment process is provided in Appendix C. Several potential priority areas reflecting long standing areas of need in South Carolina are already being captured through existing national outcome and performance measures. Birth outcomes, health disparities, systems of care for CSHCN, access to preventive health services among children and pregnant women remain relevant areas of need in South Carolina in need of improvement. Existing national outcome and performance measures already incorporate these potential areas of need. The increasing prevalence of chronic conditions among adolescents and reproductive age women also surfaced during the assessment as a potential priority area. However, MCH does not house the expertise or program capacity to address these issues directly. When

establishing the final priority needs, MCH leadership focused on developing capacity to address these longstanding issues using core public health functions and essential services.

6.2 Identified Priority Needs

1. Improve overall pre/inter-conception health status of South Carolina women (Infrastructure Building Service)
2. Reduce the annual rate of maternal deaths (Infrastructure Building)
3. Reduce the number of infant deaths due to SIDS/Unsafe sleep environments (Population Based Service)
4. Increase knowledge of appropriate child social-emotional development among parents and early childhood service providers (Enabling Service)
5. Improve systems for obtaining parental involvement in the planning, implementation, and evaluation of DHEC programs and services for CSHCN (Infrastructure Building Service)
6. Promote and support regional based planning of MCH programs/initiatives (Infrastructure Building Service)
7. Increase the degree to which MCH is actively engaged in ongoing assessment and assurance activities (Infrastructure Building Service)
8. Improve planning and coordination of activities related to existing national performance measures (Infrastructure Building Service)
9. Invest in building existing MCH workforce leadership competencies and skills related to data analysis and program evaluation (Infrastructure Building Service)

6.2 Methodology for Selecting Priorities

MCH Bureau leadership selected the priority needs based on the cumulative input from quantitative data, key informant interviews, population workgroups, and regional site visits. Several planning meetings with the MCH Division leadership and key program staff were held to review and discuss findings from all aspects of the assessment and gain program input on potential priorities and measures. MCH Bureau leadership considered this information met to discuss and prioritize potential priority areas. Focus was placed on identifying cross-cutting themes emerging throughout the process and determining what role MCH and Title V should play in addressing these issues. MCH Bureau leadership felt is was important for priority needs and performance measures identified to be within the scope of MCH influence. Moreover, given ongoing fiscal challenges and declining workforce capacity, focus was also placed on determining how best to address existing needs in the context of core public health functions.

The MCH Bureau Director worked in conjunction with the Assistant Director and Division Directors to establish the final list of priorities. The final list of priority needs largely reflective the need to build capacity and sustain/improve operations around existing needs and performance measures. Over the next five years it is critical for MCH to re-build an eroded infrastructure. This will likely not be accomplished through the hiring of additional staff. Therefore, much of what is reflected in the priority needs is designed to maximize the span of influence by building collaborative partnerships, focusing on improving existing priorities established by MCHB, and investing in our existing workforce.

6.3 Priorities Compared with Prior Needs Assessment

The previous priorities include:

1) Improve data and surveillance systems (Infrastructure building)
2) Improve access to a coordinated system of care through a systems approach (Infrastructure building)
3) Increase access to a coordinated system of care through comprehensive medical home partnerships
4) Decrease health disparities through the utilization of cost effective strategies monitored through a performance management system (Infrastructure building)
5) Reduce unintended pregnancies (Enabling service)
6) Increase the application of public health research findings to public health program planning, implementation, and evaluation (Infrastructure building)
7) Increase implementation of fetal and infant review processes (Population based service)
8) Increase initiation and duration of breastfeeding (Enabling service)
9) Increase access to developmental screening for children (Population based service)
10) Improve access to comprehensive risk assessments (Population based service)

The concepts of the previous priorities were well-intentioned; however, none will be carried forward to the next needs assessment cycle in their current format. The premise of previous priority needs is appropriate. Certainly, improved surveillance, reducing unintended pregnancy, and working to develop medical home partnerships remain relevant issues in the current environment. However, the ability to operationalize

previous priority needs and establish reliable performance measures never fully materialized. Three of the ten associated performance measures were moved to inactive status due to the lack of an established measure. Of the remaining seven measures, only 1 had an established data source (post-partum newborn home visitation). The rest either used proxy measures, or measures with no functional meaning or application. Previous measures were of limited utility in guiding state performance or measuring success in meeting priority needs; therefore, will not be carried forward.

Priority needs identified during this needs assessment cycle have some similarity in theme; however, there are major differences. First, the scopes of priority needs identified during the 2010 assessment process are largely reflective of the current capacity within the agency and MCH. Priority needs and plans to address those needs are within the current scope of existing capacity. Of the existing priority needs and performance measures, only two uses a traditional population based health measure. The remaining needs focus on capacity building in the context of core public health functions and essential services. The new priorities reflect a fundamental sense of the need to re-build an eroded infrastructure and modify Bureau operations to enhance working relationships within and outside the MCH Bureau. Although the new priority need areas focus a great deal on capacity building, each does have a quantifiable performance measure to monitor performance. A list of priority needs and corresponding performance measure are provided in Appendix D.

6.4 Priority Needs and Capacity

As previously noted the majority of priority needs relate to capacity building. MCH has limited capacity to initiate and support new programs. In the context of the MCH

pyramid, none of the priority areas involve the provision of direct health care services. Priorities related to reducing infant deaths due to SIDS and unsafe sleep environments as well as increasing knowledge of appropriate social-emotional development would be considered enabling services. The remaining priorities related to pre/interconception health, maternal deaths, promoting and supporting region based planning activities, improving parental involvement in CSHCN, investing in workforce development, and improving performance around existing measures are all infrastructure building activities. All of these reflect areas in which MCH can build capacity by expanding our sphere of influence and providing core public health functions and essential services. Addressing these priority areas is within the scope of existing capacity and reflects a movement away from direct services towards infrastructure building activities.

6.5 MCH Population Groups

The existing priority needs address specific needs from all three MCH population groups. Priorities related to pre/interconception health, maternal deaths, reducing deaths due to SIDS/Unsafe sleeping conditions, region based planning, and improvement planning on existing performance measures will all directly relate to preventive and primary care services for pregnant women, mothers, and infants. Priorities related to knowledge of social-emotional development, promoting regional based planning, and improvement planning on existing performance measures will all directly relate to providing preventive and primary care services for children. Finally, increasing paternal involvement in CSHCN decision making processes, region based planning, and improvement planning on existing performance measures directly relate to services for CSHCN.

6.6 Priority Needs and Performance Measures

1. Improve overall pre/inter-conception health status of South Carolina women (Infrastructure Building Service)

Needs assessment activities identified pre/inter-conception health as a primary health need that warrants serious attention. This particular need was identified through quantitative analysis, key informant interviews, population workgroups, and all 8 regional site visits as a primary area of need. There is universal agreement across the state pre/inter-conception health is a primary area in need of improvement. Although there is universal agreement on need, addressing the issues is much more complicated. Pre/inter-conception health is a broad topic that is slightly different that health needs we are accustomed to dealing with. At the moment, there are 11 domains and over 45 specific indicators that constitute the umbrella of pre/inter-conception health. Although certain aspects of pre/inter-conception health are more amenable to public health intervention, the fact remains this is a broad area of need with several potential target areas.

Rather than attempting to deploy specific programs targeting a single aspect of pre/inter-conception health, MCH will focus on addressing this issue by building local infrastructure to enable programs and initiatives within selected geographic areas of the state. MCH will accomplish this by organizing and supporting a pre/inter-conception health coalition in each of the four Perinatal regions. These coalitions will be a multidisciplinary group and will be charged with: 1) conducting an initial assessment of pre/inter-conception health needs in each respective region, 2) developing a regional plan to address the issue, 3) implementing programs/initiatives to target need, and 4) evaluating the process and provide feedback to stakeholders. Regional activities will be

rolled up into a state wide plan for improving pre/inter-conception health. These plans will also be used to support ongoing multi-state initiatives to address pre/inter-conception health issues.

Performance measure: Increase the number of perinatal regions with an established pre/inter-conception health coalition that completes an assessment of regional pre/inter-conception health needs, develops a plan to address identified issues, implements at least one program targeting identified needs, and evaluates the process, providing feed back to stakeholders.

Measurement: A scaling measure will values ranging from 1-6 will be used to monitor progress towards this objective. Scaling values will correspond to the following index:

1) No coalition or activity
2) Established pre/inter-conception health coalition meeting regularly
3) Completion of assessment
4) Development of a plan
5) Implementation of a program
6) Evaluation and feedback to stakeholders

Numerator: The aggregate mean scale value of all four coalitions in a given year.

Denominator: Full implementation with a scale value of 5 will serve as the denominator

2. Reduce the annual rate of maternal deaths (Infrastructure Building Service)

One specific priority need identified during the assessment process in need of improvement in this area relates to maternal mortality. Selected members of the medical community and those sitting on the Commissioners OB Task force have expressed concern with the lack of an established review process at the state level. Maternal death

continues to be an international standard by which a nation's commitment to women's health can be evaluated. Its primary measures are whether or not a woman can expect to survive complications that arise during pregnancy, delivery and post-partum. Despite great advancements in deaths from pregnancy related complications, studies indicate as many as half of all deaths due to complications during pregnancy could be prevented if women had better access to care, received better quality care and made positive changes in their health and lifestyle habits.

In 2007, there were approximately 20 maternal deaths identified through vital records reporting with a rate of 3.17 maternal deaths for every 10,000 live births. The number of maternal deaths has risen sharply over the past several years. However, significant changes in coding and definitions associated with maternal mortality make it impossible to determine any long-term trends using existing data sources. Establishing a formal review process can provide valuable information on long term trends and potential preventive recommendations.

To address this particular issue, MCH will engage in the core public health function of assessment. A multi-tiered process will be used to establish a State wide maternal mortality review process. First, MCH will work with vital records to establish a protocol for any exchange of data that will need to occur throughout the process. Second, a medical record abstraction tool that captures appropriate medical information will be developed. Third, a review process will be established in each of the four Perinatal Regional Centers. These centers care for high risk mothers and babies; therefore, a review process among these centers would capture a significant number of maternal

deaths. Finally, the regional review process till be rolled up into a state-level review inclusive of all hospitals and maternal deaths in the state.

Performance Measure: Reduce the annual rate of maternal deaths

Numerator: Annual number of maternal deaths (<42 days, ICD-10 codes A34; O00-O95; O98-O99)

Denominator: Annual number of live births

3. Reduce the rate of infant deaths due to SIDS/Unsafe sleep environments (Population Based Service)

As noted under the pregnant women, mothers, and infants assessment, a worrisome trend in post-neonatal mortality rates is emerging. The 2008 post-neonatal infant mortality rate has increased by 6.9% from 2007, and a 19% increase was noted among white infants. Increases in deaths due to SIDS are the primary driver of the post-neonatal mortality rate. Disentangling deaths due to SIDS compared to deaths due to accidental suffocation stemming from an unsafe sleeping environment can be a challenge. SIDS is an exclusionary diagnosis which can make consistency in coding an issue when monitoring deaths due to these two causes. Regardless of coded nuisances, it is evident the net effect of both causes of death continues to increase. Rather, we are seeing an increase in the number of deaths due to both SIDS and accidents stemming from unsafe sleeping environments.

To reduce the number of infant deaths due to SIDS/Positional asphyxiation, MCH plans to utilize the core public health function of informing and educating the public, families, and child care providers on AAP approved prevention messages related to SIDS, with particular focus on safe sleep environments. Specifically, MCH plans to

target child care providers. Child care providers can be influential in modeling behavior for parents and serving as an information resource for parents. Several strategies will be used address this priority. MCH will utilize contacts within DSS (who licenses child care centers) to discuss the need for ongoing SIDS education among child care providers. MCH will attempt to work with and through DSS to provide educational curriculums to child care providers related to SIDS prevention. Existing educational curriculums have been developed through Palmetto Richland Hospitals Cribs for Kids Program and can be expanded and adapted for this purpose. The established curriculum has basic evaluation tools to assess increases in knowledge before and after implementation. This project will be mutually beneficial. Child care providers will be able to obtain free education on an important subject which can improve the quality of child care provided to families. MCH will be providing a very important service that will also enable improvements the quality of child care being provided.

Performance Measure: Reduce the percent of combined infant deaths due to SIDS and Accidents due to unsafe sleeping environments

Numerator: Total number of deaths coded as SIDS and Accidents related to unsafe sleep environments

Denominator: Total number of live births in a given year

4. Increase knowledge of appropriate child social-emotional development among parents and early childhood service providers (Enabling Service)

Improving the prevention and treatment of behavioral/emotional health issues among children has been identified as a modifiable risk factor that can improve school readiness and academic achievement. Parents and early childhood caregivers continue to struggle

with the understanding of how to prevent and address emotional/behavioral health issues. At the national level early child care and education providers report behavior/social skill problems are among the greatest challenges they face. Provider's report preschoolers with emotional/behavioral problems are expelled at a rate three times that for school age children. Delayed development and low academic achievement can have a significant influence on the life trajectory of children.

Assessment activities and recent data analysis indicate social-emotional issues among young children continue to worsen. As noted in the assessment of children, emotional/behavioral problems are one of three major risk groups placing children in a disadvantageous position for school readiness and achievement. Moreover, emotional/behavioral health was identified by the Pediatric Advisory Council and child assessment workgroup as a critical area of need that warrants attention.

To address this particular area of need, MCH plans to increase the knowledge of parents and early childhood caregivers related to the prevention and treatment of social/emotional health issues by providing education and using modules developed by the Center on the Social and Emotional Foundations for Early Learning (CSEFEL). CSEFEL is a national resource center for disseminating research and evidence-based practices to early childhood programs across the country. These modules are designed to be useful in addressing the social-emotional needs of young children. The content of the modules is consistent with evidence-based practices identified through a thorough review of the literature. Target audiences are early care, health, mental health and education providers, and parents. Training will include:

- Promoting the social and emotional development of children as a means of preventing challenging behaviors
- Promotion of skill building with enough intensity to affect change
- Individualizing interventions to meet children's and families' unique interests, strengths and needs
- Implementation of strategies in the context of naturally occurring routines and environments
- Modification of strategies to meet the cultural and linguistic diversity of families and children
- Dissemination of best practices

MCH and ECCS will contract with the USC School of Education to deploy and utilize these modules.

Performance Measure: Increase the percent of parents and early childhood service providers trained in the Center on the Social and Emotional Foundations for Early Learning (CSEFEL) curriculum related to social/emotional development

Numerator: # of parents and early childhood service providers trained in curriculum

Denominator: 320 (# parents, service providers, professionals targeted for training)

5. **Improve systems for obtaining parental involvement in the planning, implementation, and evaluation of DHEC programs and services for CSHCN (Infrastructure Building Service)**

Having an established system in place to obtain parental perspective on important policy decisions impacting programs and services for CSHCN delivered through MCH will become increasingly more important. The needs assessment workgroup devoted to

CSHCN focused specifically on methods of obtaining parental involvement. There was universal agreement this is a significant area in need of improvement. Of the ideas generated from the workgroup meeting, the notion of establishing a broad based advisory council to the Division of CSHCN to include parents is one MCH feels is obtainable and can lead to meaningful parental input. The Division of CSHCN will convene a broad-based advisory group to include parents, with consideration of subcommittees to focus on parental input to the Division, Camp Burnt Gin operations and other specific issues as determined necessary. This group will serve as a standing advisory group and will eliminate the need for use of ad hoc groups as issues arise. The advisory group members will be drawn from existing councils or committees to assure on-going links to stakeholder groups.

Objective: Increase the number of parents or caregivers participating in the planning, implementation, and evaluation of DHEC programs and services for CSHCN

Performance Measure:Number of parents or caregivers participating in the planning, implementation, and evaluation of DHEC programs and services for CSHCN

Measurement: Ratio of parents of children with special heath care needs serving on council established for the Division of CSHCN to entire council membership.

6. Promote and support regional based planning of MCH programs/initiatives (Infrastructure Building Service)

Promote Region Based Planning of MCH Activities

Geographically, South Carolina is not a large state; however, there is significant variability across the related to population demographics, culture, health needs, and heath system capacity. Each DHEC public health region is subject to a number of required

MCH programs and activities that includes high risk infant follow up, postpartum newborn home visiting, and intake for children with special health care needs. Beyond these required activities, regions have flexibility to deploy additional programs relative to the needs of their respective populations. MCH leadership intendeds to foster the Agency value of "local solutions to local problems" by promoting region based planning of MCH programs/initiatives. Each of the 8 DHEC public health regions will be expected to develop and maintain targeted programs around 4 established MCH population groups beyond the existing required activities. These populations include: Reproductive age and pregnant women, mothers and infants, children and adolescents, and children with special health care needs.

Performance Measure: Increase the percent of DHEC public health regions who plan, implement, and evaluate programs at least one optional program in each of four established MCH population groups

Measurement: Submission of annual plan to Central Office

Numerator = # of plans submitted for each of the 4 populations in each of the 8 public health regions

Denominator = 32 plans

Support Region Based MCH Planning of MCH Activities

To support region based planning efforts, MCH central office must also improve the quality of enabling assistance currently provided to regional staff. During needs assessment site visits, regional staff often commented on frustrations associated with balancing competing program demands and conflicting expectations. Inherently, regional staff must work with multiple central office program staff from multiple Bureau's and

programs. However, improved coordination from central office to support region based MCH activities should improve the quality of support provided and minimize frustration. MCH central office will make a coordinated effort to establish a framework for regional plans, provide data and aid in identifying regional need, provide technical assistance for program planning and evaluation, and monitor progress through the planning cycle. MCH Bureau leadership will take responsibility for improving the quality of support provided to the regions. The MCH Bureau will improve cross division/program interaction by increasing the frequency in which staff meets, changing the structure of these meetings to promote cross division/program discussion, and increasing coordination of regional site visits by include representatives from multiple divisions/programs.

Performance Measure: Increase regional satisfaction with the quality of technical support provided by central office MCH

Measurement: A scaled survey of current level of satisfaction with the quality of central office support and coordination of efforts will be developed and used to monitor this measure.

7. Increase the degree to which MCH is actively engaged in ongoing assessment and assurance activities (Infrastructure Building Service)

The changing landscape of health care at the national level coupled with the movement move away from the provision of direct services provides valuable insight into the future role of public health. As more women and children obtain access to needed health care services, it is prudent to re-examine the role of MCH and Title V within the current health care environment. To remain relevant, MCH must be in a position to provide assessment and assurance functions within the state. Specifically, MCH should

be monitoring the health status of women and children, diagnosing and investigating health and health system issues impacting population health, informing families and the public about health issues, and evaluating the effectiveness, accessibility, and quality of personal health and population based maternal and child health services.

MCH is in a unique position to provide these services. MCH maintains many established partnerships and venues for staying current on health and health system issues impacting the MCH population. In addition, MCH has direct access to many data sources that can be utilized to quantify, monitor, and evaluate current health and health system issues impacting MCH populations. As health care evolves, the ability to assess changes in population health and assure services are being provided will be a critical role for MCH. It is imperative MCH capitalizes on these resources and fills this critical role as the landscape of health care evolves as reform legislation is implemented.

Performance Measure: Increase the number of epidemiological reports completed, distributed, and available to agency leadership and partners

Measurement: A total of four epidemiological reports completed, distributed, and available to agency leadership and partners has been set by MCH leadership. A scaling measure with values ranging from 1-4 will be used to monitor progress towards this objective.

Numerator: Actual number of epidemiologic reports completed, distributed, and available to agency leadership and partners

Denominator: Target of 4 per year

8. Improve planning and coordination of activities related to existing national performance measures (Infrastructure Building Service)

HRSA MCHB provides 18 national performance measures for which all Title V agencies are responsible. As capacity continues to decrease the need to focus on coordinating efforts related to existing HRSA MCHB has surfaced as a critical need. It is not uncommon for multiple staff and programs to be engaged in activities that can have an impact on existing measures. However, these efforts are not consistently coordinated and considered as a collective strategy for improving performance around a specific measure.

To address this issue, MCH plans to establish formal improvement plans around each of the performance measures that include measurable goals, objectives, and benchmarks to evaluate progress. Multi-disciplinary workgroups will be formed and charged with developing this process. These workgroups will devise strategies for improving each respective measure, setting goals and objectives, and develop logic a model to capture program activity and evaluate progress. This will allow MCH to improve coordination of activities and more accurately account for the body of work devoted to each measure.

Performance Measure: Increase the percent of national performance measures with a formal improvement plan that includes measurable goals, objectives, and benchmarks to evaluate progress towards improvement.

Numerator: The number of formal work plans as evidenced by a logic model

Denominator: 18 (national performance measures)

9. Invest in building existing MCH workforce leadership competencies and skills related to data analysis and program evaluation (Infrastructure Building Service)

Individuals working in MCH are very dedicated professionals who continually strive to improve the health and well being of women and children in the state. Over the past several years, public health and MCH has shifted away from a medical model of providing direct services to individuals to more of a public health model with a focus on population based assessment, policy development, and assurance roles. The extent to which transitioning out of direct care has created a void in services among vulnerable populations is debatable. However, the fact remains MCH is increasingly being called on to provide services consistent with the public health model. MCH is expected to have a comprehensive, fundamental knowledge of health and health services issues impacting MCH populations, provide leadership in mobilizing partners to derive solutions to issues, and assure services are being provided to our constituents. Inherently, this transition requires a focus on leadership and skills related to epidemiology, health services research, and program evaluation. Traditionally, these represent areas of limited capacity for the MCH Bureau. Maintaining full time positions within the MCH Bureau to support program activities related to these areas is difficult. Given these realities, it is incumbent on the MCH Bureau to build capacity in these areas by investing in workforce development in these critical areas. MCH will make a concerted effort to provide all staff with the opportunity to build additional knowledge, skills, and abilities.

MCH plans to explore existing MCH leadership training and educational opportunities related to data analysis, epidemiology, and program evaluation. The agency has been working with the Arnold School of Public Health at the University of South Carolina to develop skill building courses around data analysis and program evaluation. These courses will be general and apply to all public health workers. MCH leadership

will review these materials to determine the extent to which these opportunities meet the existing needs of MCH staff. To supplement these opportunities, MCH leadership will also explore the possibility of providing skill building application workshops that focus on the application of skills to existing MCH data sources and programs. Gaining additional knowledge, skills, and abilities is important; however, the application of these principles to existing programs is the primary need.

Given the current lack of established programs and formal measurement, no specific performance measure is provided at this time. However, it is important to establish this particular issue as a critical need and devote effort to improving this particular capacity issue. As skill building activities, courses, and training opportunities become more concrete, a performance measure will be added.

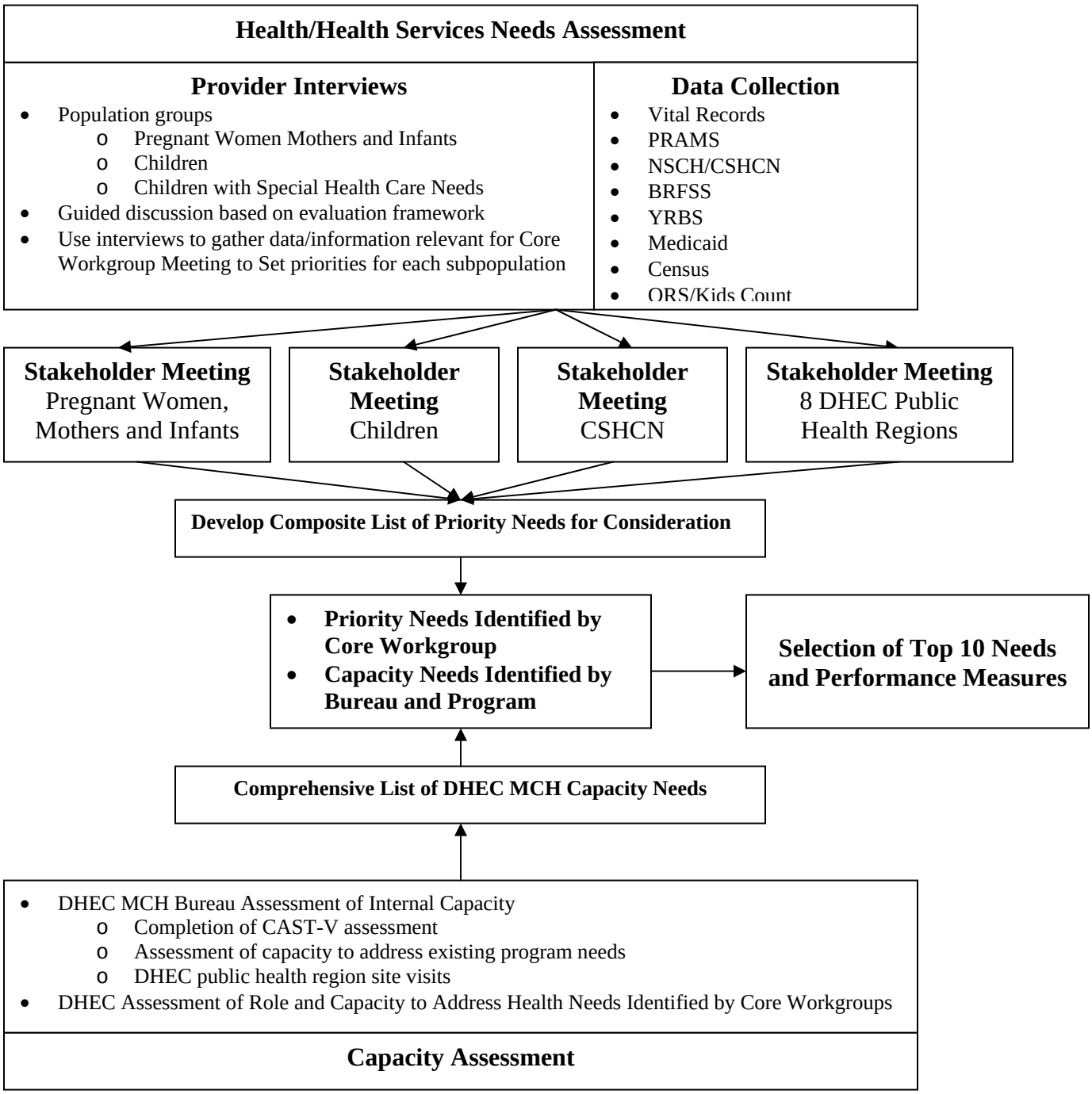
7. Outcome Measures

The impact of collective efforts to address certain outcomes measures is becoming more evident. The State has seen notable improvements in infant mortality rates over the past few years, particularly among African American/Other infants. The 2008 infant mortality rate of 8.0 per 1,000 live births is among the lowest rate in recent history. Moreover, the infant mortality rate among African American/Other infants (11.4) has declined for 3 consecutive years and is the also at an all time low. This reduction has also lead to a narrowing of the black/white infant mortality ratio. The primary factor influencing the reduction in the overall infant mortality rates stems from reductions in the neonatal mortality rate. Reductions in the proportion of very low birth weight outcomes and premature births, particularly among African American infants are a significant factor in the observed decrease in infant mortality rates. Certainly ongoing activities

around existing national performance measures have been influential on the observed results, which includes newborn metabolic follow up, efforts to reduce teen pregnancy, improve access to prenatal care, reduce prenatal smoking, increase breastfeeding rates, and assure all infants have access to high quality sub-specialty providers. Although progress is being made, increasing obesity and chronic co-morbidities including hypertensive disorders and diabetes continue to adversely impact pregnancy outcomes. In addition to the existing national performance measures, additional state performance measures related to improving pre/inter-conception health and improved planning will continue to support reductions in these critical areas.

Although gains have been made in reducing infant and neonatal mortality rates, post-neonatal mortality rates remain a challenge. The 2008 post-neonatal infant mortality rate represents a 6.9% increase from the 2007 rate, with a 19% increase among white infants. Increases in deaths due to SIDS and deaths stemming from unsafe sleeping conditions are the primary driver increases observed during the post-neonatal period. These data are alarming and have certainly influenced the selection of priority needs and performance measures over the next 5 year planning cycle. State priority needs and performance measures will focus on addressing this important issue.

Appendix A: Title V Needs Assessment Conceptual Framework



Appendix B: Names and Affiliations of Work Group Participants

Pregnant Women, Mothers, and Infants

Megan Branham, March of Dimes
Virginia Berry White, Low Country Healthy Start
Julie Smithwick Leone, PASO's, University of South Carolina
Beth DeSantis, DHEC Region 6
Jeanie Breshear, McLeod Medical Center
Lib Henson, DHEC Region 7
Breana Lipscomb, DHEC Central Office
Vicky Green, DHEC Region 5
Sara Fellows, DHEC Central Office
Karen Johnson, Palmetto Health Start
Ted Holland, DHEC Division of Injury and Violence Prevention

Children

Baron Homes, Kids Count
Rosemary Wilson, DHEC Central Office
Jan Blackwell, DHEC Region 3
Ashley Talon, DHEC Region 4
Mary Lynn Diggs, Head Start
Christine Veschusio, DHEC Central Office
Stephanie Bobak, DHEC Region 2
Kandi Fredere, DHEC Region 1
Jodie Mishoe, DHEC Region 6
Leigh Bollick, DSS
Joan Hoffman, Children's Trust

CSHCN

Jackie Richards, Family Connections
Sherry Larson, Parent, Family Connections
Maggie Michaels, Children's Hospitals Alliance
Pamela Sloat, Parent
Jennifer Buster, DDSN
Berry Sullivan, DHEC Region 3
Carole Scott, DHEC Region 4
Karen Warren, DHEC Region 7
Kathy Thomashitis, DHEC Central Office
Leanne Bailey, DHEC Central Office
Cheryl Waller, DHEC Central Office
Susan Luberoff, MD, DSS/DHEC Central Office

Appendix C: Comprehensive List of Health and Health Service Issues Identified

2010 MCH Needs Assessment: Pre/Inter-conception Health Framework

Determinants (Structure) → **Behavior/Environment (Process)** → **Outcomes**

Population Characteristics

- Age
- Education
- Poverty
- Race/Ethnicity
- Access to health food
- Access to safe environment/exercise facilities
- Social/emotional support
- Health kowledge/value

Personal Health Practices

- Physical activity
- Adequate/optimal nutrition
- Folic acid/multivitamin Use
- Sexual practices/behavior
- Healthy relationships

Evaluated Health Status

- Obesity
- Diabetes
- Asthma
- Pregnancy interval
- Maternal Mortality
- Anxiety/depression
- Sexually transmitted Infections

Health Care Access

- Family planning capacity
- Mental health capacity
- Primary care capacity
- Obstetrical capacity
- Oral health capacity
- Health insurance
- Family planning waiver
- Dental insurance

Health Services Utilization

- Contraceptive services
- Routine provider visit
- Dental cleaning
- Routine PAP testing
- HIV testing
- Preconception counseling
- Anxiety/depression Screening
- Flu Shot
- Prenatal care
- Post-partum visit/screening

Health Services Quality

- Planned pregnancy
- Controlled chronic conditions
- Contraceptive failure
- Postpartum contraception use
- FP unmet need

2010 MCH Needs Assessment: Infant Health Framework

Determinants (Structure) → **Behavior/Environment (Process)** → **Outcomes**

Population Characteristics

- Age
- Education
- Poverty
- Race/Ethnicity
- Social/emotional support
- Parental health knowledge/Value

Personal Health Practices

Maternal

- Pre-conception health
- Abuse/addictions
- Controlled chronic conditions
- Sexually transmitted infections
- Physical/mental abuse
- Sleep position

Evaluated Health Status

- Preterm births
- SIDS
- Accidents/Injury
- Birth Defects
- Abuse/Neglect
- Infections

Health Care Access

- Primary care/Pediatrician capacity
- Health insurance
- Medicaid eligibility guidelines
- Access to sub-specialty NICU care
- Local health department capacity

Health Services Utilization

- EPSDT
- PPNBHV
- Discharge Follow up Visits
- Newborn transfer to RPC

Health Services Quality

- Eligible receiving EPSDT
- Immunization coverage
- Eligible receiving PPNBHV
- Medical home
- NICU admissions

2010 MCH Needs Assessment: Child Health Framework

Determinants (Structure) → **Behavior/Environment (Process)** → **Outcomes**

Population Characteristics

- Age
- Education
- Poverty
- Race/Ethnicity
- Social/emotional support
- Health knowledge/value

Personal Health Practices

- Physical Activity/nutrition
- Parental Skill/coping
- Chronic condition management
- Physical/mental abuse

Evaluated Health Status

- Unintentional injury
- Obesity
- Asthma
- Dental caries
- Emotional/behavioral health
- School readiness

Health Care Access

- Primary care/Pediatrician capacity
- Health Insurance
- Medicaid eligibility guidelines
- Mental Health capacity
- School Health Policy

Health Services Utilization

- EPSDT
- Developmental screening
- Preventive dental visits/sealant use
- Emotional/behavioral screening

Health Services Quality

- Hospitalization due to ACS
- Medical Home
- Dental Caries/untreated

2010 MCH Needs Assessment Adolescent Health Framework

Determinants (Structure) → **Behavior/Environment (Process)** → **Outcomes**

Population Characteristics

- Age
- Education
- Poverty
- Race/Ethnicity
- Social/emotional support
- Health knowledge/value

Personal Health Practices

- Physical Activity/nutrition
- Substance abuse/addition
- Risk taking behavior
- Initiation of sexual activity
- Contraception utilization
- Parental skill/coping
- Physical/mental abuse

Evaluated Health Status

- Teen pregnancy
- Teen repeat pregnancy
- Anxiety/depression
- Chronic conditions
- School achievement
- Sexually transmitted infections
- Suicide

Health Care Access

- Primary care/Pediatrician capacity
- Health insurance
- Mental health capacity
- Family planning waiver
- Family planning capacity

Health Services Utilization

- Primary Care Visits
- Emotional/Behavioral Screening
- Family planning utilization

Health Services Quality

- Hospitalization due to ACS
- Medical home

2010 MCH Needs Assessment: CSHCN Services Framework

Determinants (Structure) → **Behavior/Environment (Process)** → **Outcomes**

Health Care Access

- Primary care/Pediatrician capacity
- Health insurance
- Medicaid eligibility guidelines
- Mental health capacity
- Durable medical equipment
- Special education
- Early intervention

Health Services Utilization

- Primary care visits
- Emotional/behavioral screening
- EPSDT
- Immunizations
- Referral and follow-up
- Pharmaceutical
- Dental care
- Respite care
- Counseling

Health Services Quality

- Parent/Patient Satisfaction
- Families partnering in decision making
- Unmet need
- Coordinated/ongoing Care

Barriers

- Available/affordable insurance
- Out of pocket expense
- System navigation
- Transportation
- Transitioning

Barriers

- Cultural competence
- Family centered care
- System navigation
- Family input into policies
- Transitioning

Appendix D

State Priority	State Performance Measure	Measurement		Data Source(s)
		Numerator	Denominator	
(1) Improve overall pre/inter-conception health status of South Carolina women (Infrastructure Building)	(1.1) Percent of perinatal regions with an established pre/inter-conception health coalition that: ▪ Completes regional assessment ▪ Develops a plan to address identified issues; ▪ Implements at least one program targeting identified needs; and ▪ Evaluates the process, providing feed back to stakeholders	The aggregate mean scale value of all four coalitions in a given year	Full implementation with a scale value of 5 will serve as the denominator	Self-reported
(2) Reduce the annual number of maternal deaths (Infrastructure Building)	(2.1) Annual maternal mortality rate per 10,000 live births	Annual number of maternal deaths	Annual number of live births	Vital Records
(3) Reduce the number of infant deaths due to SIDS/Unsafe sleep environments (Population Based)	(3.1) Percent of infants deaths due to SIDS and accidental suffocation/strangulation in bed	Annual number of combined deaths due to these causes	Annual number of live births	Vital Records
(4) Increase knowledge of appropriate child social-emotional development among parents and early childhood service providers (Enabling Servcie)	(4.1) Percent of parents and early childhood service provides trained in the Center on the Social and Emotional Foundations Early Learning curriculum related to social/emotional development	# of parents and early childhood service providers trained in curriculum	320 (# parents, service providers, professionals targeted for training)	Self-reported
(5) Improve systems for obtaining parental involvement in the planning, implementation, and evaluation of DHEC programs and services for CSHCN	(5.1) Ratio of parents of CSHCN serving on advisory council participating planning, implementation, and evaluation of DHEC programs for CSHCN	Number of parents or caregivers on CSHCN Council	Total number of council members	Self-reported

(Infrastructure Building)				
(6) Promote and support regional based planning of MCH programs/initiatives (Infrastructure Building)	(6.1) Percent of DHEC regions who plan, implement, and evaluate at least one optional program in each of the four MCH population areas* (6.2) Perceived quality of technical assistance provided to DHEC Regions from the MCH Bureau*	# of plans submitted for each of the 4 populations in each of the 8 public health regions**	32 plans	Self-reported
(7) Increase the degree to which MCH is actively engaged in ongoing assessment and assurance activities (Infrastructure Building)	(7.1)Percent of targeted epidemiological reports completed	Annual number of epidemiologic reports completed	Target of 4 per year	Self-reported
(8) Improve planning and coordination of activities related to existing national performance measures (Infrastructure Building)	(8.1) Percent of existing national performance measures with formal improvement plans	The number of formal work plans as evidenced by a logic model	18 National Performance Measures	Self-reported
(9) Invest in building existing MCH workforce leadership competencies and skills related to data analysis and program evaluation (Infrastructure Building)		TBD	TBD	TBD

*Measurement tool is under development

**Populations Include: Reproductive Age Women; Pregnant Women/Infants; Children; CSHCN

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