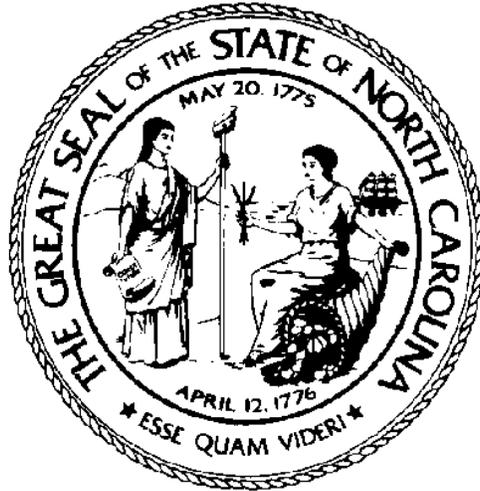


North Carolina Title V Needs Assessment



North Carolina Department of Health and Human Services
Division of Public Health
Women's & Children's Health Section
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1. Process for Conducting Needs Assessment

- **Goals and Vision:** The Women’s and Children’s Health Section (WCHS) conceives of priority-setting as a continuous process, in which useful data, both quantitative and qualitative, relevant to the broad mission of the Section are continuously being gathered and analyzed with an eye to adjusting the priorities and the activities of the Section as appropriate. In addition to these day-to-day “micro” analyses of relevant inputs, the Section utilizes formal needs assessment processes, such as the five year needs assessment process, to review and titrate Section priorities and activities.
- **Leadership:** To conduct the Title V comprehensive needs assessment, the WCHS formed a Needs Assessment Team (NAT) which was directed by the State System Development Initiative (SSDI) Project Coordinator; however, it truly was a collaborative work of the entire Section to complete the assessment. The NAT was comprised of staff members representing each of the five branches in the section: Children and Youth, Early Intervention, Immunization, Nutrition Services, and Women’s Health. The team began meeting during the winter of 2008 to plan the assessment. Data collection occurred between 2006 and 2010. The team broke up into subgroups working on the three different population groups covered by Title V – pregnant women and infants, children, and children and youth with special health care needs (CYSHN). Where necessary, team members contributed information to more than one population group.

The NAT communicated as necessary with the Section Management Team (SMT) on the progress of the needs assessment. The SSDI Coordinator worked with SMT on the selection of priority needs and state performance measures and was also responsible for making the final edits and corrections to the drafts of the documents generated by the three subgroups.
- **Methodology:** The overall needs assessment methodology was propelled through the work of the NAT members, particularly the SSDI Coordinator. Her position responsibilities include the coordination of the annual Title V grant application and annual report, thus the NAT member activities are directly interfaced with the writing of the MCH Block Grant. Once a draft of the needs assessment was completed by the team, it was shared with members of the SMT for comments and review. The SMT met with the SSDI Coordinator to determine priority needs and establish state-negotiated performance measures. Annual targets for National and State Performance Measures are set by the SSDI Coordinator in collaboration with the Title V Director during the preparation of the annual MCH Block Grant Application. Weekly SMT meetings are held in which Branch Heads discuss ongoing activities addressing priorities, allocating resources, and monitoring progress. Stakeholders were included in the needs assessment in a variety of ways, primarily through electronic surveys, but also through focus groups and group interviews
- **Methods for Assessing Three MCH Populations:** Each population subgroup approached the task differently. For pregnant women and infants, the NAT representatives worked with a team of staff from the Women’s Health Branch to identify data and analyze needs and capacities. With both the children and children with special health care needs (CSHCN) population groups, the NAT members took the lead on collecting data and writing the narrative, asking for input as necessary from other Children & Youth Branch (C&Y Branch) members and key partners including representative family members.

Pregnant Women, Mothers, Infants, and Women of Reproductive Age Methodology

In order to assess the needs of women of pregnant women, mothers, and their infants, it was decided to apply a broader view and look additionally at the women in North Carolina (NC) who might potentially become pregnant. Family Planning programs which are located in our Title V agency help prepare women for healthy and safe pregnancies; therefore, adding women who might become pregnant seemed a sensible decision.

During FY04, the WCHS implemented an outcomes-oriented planning process resulting in logic models for a consensus set of eleven core indicators defined by the SMT to be used to communicate the value of the work done by the WCHS with policymakers, stakeholders, and the general public. At the same time, the NC Department of Health and Human Services (NCDHHS) decided to implement performance-based contracting using logic models as a component of performance-based management. Thus, during FY04, the SMT members were responsible for leading work groups to create logic models for each of the indicators. Regional and central office staff, members of the Family Council (FC) for CSCHN, the Commission for CSCHN and other invited partners contributed to the models. The WCHS Core Indicators are as follows:

- Reduction of Infant Mortality
- Improved Health of Women of Childbearing Age
- Prevention of Child Deaths
- Elimination of Vaccine-Preventable Diseases
- Increased Access to Care for Women, Children, and Families
- Prevention of Birth Defects
- Improved Health of Children with Special Needs
- Improved Healthy Behaviors in Women and Children and Among Families
- Healthy Schools and Students who are Ready to Learn
- All Newborns Screened for Genetic and Hearing Disorders
- Provision of timely and comprehensive early intervention services for children with special developmental needs and their families.

While there has not been an expectation from the WCHS office to maintain use of these logic models in the past few years, many of the branches have continued to use them. This portion of the health status assessment is organized by the major outcomes of the two logic models prepared by the Women's Health Branch (WHB): Reduction of Infant Mortality and Improved Health of Women of Childbearing Age. A needs assessment based on this logic model process provides the WHB with reinforcement for its stated goals and objectives. This needs assessment seeks to link the logic models and their stated goals, activities, and objectives with the MCH National Performance and Outcome Measures. In addition to the MCH National Measures, other data were examined. When possible, data by race, ethnicity and region were used.

The standard geographic regions used within the state were the Perinatal Care Regions (PCRs). The NCDHHS divided the state into six PCRs beginning in 1974 to facilitate a more systematic response to the infant mortality crisis in the State. Each PCR is designed to provide universal

access to high-risk prenatal and neonatal intensive care to patients residing within each region. The analyses of demographic, morbidity, mortality, and other data in the needs assessment will focus primarily on these regional perinatal designations, which have remained unchanged since their inception.

Figure 1
Perinatal Care Regions



Source: State Center for Health Statistics

In addition, the state was compared with national data and data from the southeast region of states (Region IV), which, in addition to NC, is composed of the following states: Alabama, Florida, Georgia, Kentucky, Mississippi, South Carolina, and Tennessee. The data source most often used for comparison data about the southeastern region of states and the nation is the Region IV Network for Data Management and Utilization (RNDMU) data book created annually by the Cecil G. Sheps Center at the University of NC at Chapel Hill. Data are taken from the annual report released in September 2009 that cites data from 1998 to 2007.

The NAT members writing the health status assessment for this population group was multidisciplinary, as well as multi-program, with input from the entire WHB, as well as other WCHS representatives. Staff members included a nutritionist, nurse consultant, social marketing consultant, sickle cell program manager, and both perinatal health and family planning program evaluators. Regional as well as central office staff members were involved in the analysis and determination of issues.

Additional data used in the health status assessment were obtained from the following sources: Vital Statistics, NC's Health Services Information System, Pregnancy Nutrition Surveillance Survey, Behavioral Risk Factor Surveillance Survey, WIC data, SCELL (Sickle Cell Reporting Database), Pregnancy Risk Assessment Monitoring System (PRAMS), and Communicable Disease Reports, as well as qualitative data sources such as Baby Love Plus, Sickle Cell key informant interviews, and personal information from county and state program managers.

Children Population Group

The 2010 needs assessment for this population group was built around outcome, agency performance, health status and health services indicators related to child well-being that are contained in the:

- MCHB performance and outcome measures; and
- Selected national indicators of child well-being included in the Federal Interagency Forum on Child and Family Statistics annual monitoring report: *America's Children: Key National Indicators of Well-Being*.

There is great importance placed on collaboration and coordination across agencies responsible for children's services by providers, families, and legislative and executive branch officials in the state. This has resulted in improved coordination between state agencies responsible for:

- Primary and preventive health care;
- Early Childhood Health System;
- Adolescent Health;
- Uninsured and underinsured children;
- Child abuse and neglect prevention (Strengthening Families);
- Genetics and newborn screening;
- Family Involvement;
- Emotional and behavioral health;
- Child protection services;
- Justice and crime prevention; and
- Education.

As a result, each relevant state agency has taken a broader view of children's health and welfare. A number of formal and informal interagency working groups are ongoing or were developed or strengthened to address:

- System linkages for children and their families;
- Improving data collections and analysis;
- Child abuse and neglect prevention; and
- Improved community-based service systems for at-risk children.

The WCHS contribution to these efforts is designed to increase awareness of health and related services that can directly or indirectly contribute to outcomes of other services providers (e.g., juvenile justice, education). In addition, WCHS staff members have become more aware of opportunities to incorporate other services, related to shared indicators of child health, into primary and preventive health care services for children and adolescents.

The range of indicators included in this section of the North Carolina needs assessment reflects the priorities described above. Use of these measures (or comparable measures currently tracked within WCHS) will:

- Create an expanded collection of indicators that can be easily updated annually to assess progress and emerging issues within the state; and
- Be used to provide ongoing county-level child health data summaries for use by families, local health departments and other child health providers to build capacity and set priorities within each community.

Children and Youth with Special Health Care Needs Population Group Methodology

An assessment of statewide initiatives, perceived needs, and the capacity of both public and private agencies to develop an action plan for meeting areas of identified need was undertaken. Most of the assessment was centered around the five National Performance Measures (#2-6) that focus on CSHCN. In addition to looking at the state and national results of the National Survey of Children with Special Health Care Needs results, quantitative data from a variety of other sources was incorporated (e.g., NC Child Health Assessment Monitoring Program, Youth Risk Behavior Surveillance System, etc.) Qualitative data was obtained in several different ways. The Child Health Needs Assessment Surveys for Families and Providers were made available on-line. Surveys were distributed to school health nurses at conferences. Targeted discussions were held with members of the Commission of Children with Special Health Care Needs and with the Family Council to gain input on the status of several of the National Performance Measures. In addition, focus groups were held with Latino families with CSHCN to obtain input on their needs and opinions. As a recipient of the LAUNCH (Linking Actions for Unmet Needs in Children's Health) grant, the state completed an in-depth needs assessment for the state for early childhood services (children birth to eight years). Statewide data has been used to update the logic model for CSHCN on a regular basis. The State has also moved to a performance based model with outcome measures for each area of service. All State services have a common reporting system that is available to the public and to providers. Outcomes are updated annually and available to measure progress across all child health services.

- **Methods for Assessing State Capacity:** The NAT was instrumental in assessing the State's capacity to provide services across the levels of the MCH pyramid. When doing the health status assessment, each NAT group also assessed the capacity of WCHS to respond to the identified needs. Therefore, in the Capacity Section of this document, the service levels are expounded upon for each population group in addition to several issues that extend over WCHS as a whole.

- **Data Sources:** Many different data sources were used in the Needs Assessment. These included (not an exhaustive list):
 - a. Vital Statistics (e.g., birth and death files)
 - b. National Survey of Children's Health (NSCH)
 - c. National Survey of Children with Special Health Care Needs (NS-CSHCN)
 - d. Behavioral Risk Factor Surveillance System (BRFSS)
 - e. Youth Risk Behavior Surveillance System (YRBSS)
 - f. Pregnancy Risk Assessment Monitoring System (PRAMS)
 - g. US Census Data
 - h. North Carolina Composite Linked Birth File - Since 1985, North Carolina has linked Medicaid newborn hospitalization records to live birth certificates to identify which births were to families enrolled in Medicaid. After 1985, various other linkages have been added to promote data analyses related to maternal and child health. This file is sometimes referred to as the "Baby Love" file, since much of it was developed initially for evaluations of the Medicaid expansions after 1987, collectively referred to as the Baby Love Program in North Carolina. Data that are now linked annually to the live birth file include: Medicaid newborn hospitalization records, Medicaid maternal delivery records, Medicaid maternity case management records, child service coordination records, prenatal WIC records, records of prenatal visits at public health clinics, infant

death records, a summary of Medicaid newborn costs in the first 60 days of life, and a summary of Medicaid infant costs in the first year of life.

- i. Health Services Information System (HSIS)/Health Information System (HIS) – The initial implementation of HIS which is ongoing through 2010 will replace the functionality of the current HSIS that has been operational since 1983. The HIS will provide an automated means of capturing, monitoring, reporting, and billing services provided in local health departments, Children’s Developmental Service Agencies (CDSAs), the State Laboratory for Public Health and Environmental Lead Investigations for the Division of Environmental Health in the Department of Environment and Natural Resources (DENR). The HIS will allow for the exchange of data with local vendor software systems via a common interface.
- j. North Carolina Child Health Assessment Monitoring Program (NC CHAMP) - A surveillance system that collects information about the health characteristics of children and adolescents from birth to age 17 in North Carolina. Implemented annually since 2005, CHAMP is designed to meet the following goals:
 - Goal 1:** Monitor the status of child health (ages 0–17) and identify child health problems in North Carolina.
 - Goal 2:** Measure parents’ perspectives on child health issues.
 - Goal 3:** Provide accurate and valid data to inform evidence-based decisions, strategies, and policies to improve child health.
 - Goal 4:** Assess relationships between parent health and child health, and inform family-centered approaches to improve child health.
- k. North Carolina’s Pregnancy Nutrition Surveillance System (PNSS) – PNSS links data from the WIC program, public maternity clinics, birth certificates and fetal death certificates. These data are collected at the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC Program) and prenatal clinics funded by the Maternal and Child Health Services Block Grant) to the State of North Carolina and the Eastern Band of Cherokee Indians. The PNSS collects prenatal and postpartum information about these women and outcome information about their infants. North Carolina’s annual PNSS report is usually published about a year after the reported calendar year due to the late availability of the birth/fetal death files. The PNSS report consists of a summary, state profile, facts in brief, detailed graphs, tables, methodology and definitions.
- l. Region IV Network for Data Management and Utilization (RNDMU) – This data book is the result of a collaborative project of the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill; the Maternal and Child Health, Family Planning, and Women’s Health Program Directors in the US DHHS Region IV Office; and the Maternal and Child Health, Family Planning, and Women’s Health Programs and the state statistical agencies in each state in USDHHS Region IV.

Sources of data for the tables include: Vital records (birth, fetal death, adult death, abortions); Surveillance (PRAMS and BRFSS); Program administrative files (Prenatal, WIC, Medicaid Births, Women <150% FPL served by Title X, Selected Infectious Disease reports); Family Planning Annual Report (FPAR); Population estimates (US Census); Estimates of women in need of publicly funded family planning services (Guttmacher).

- m. North Carolina State Laboratory of Public Health Laboratory Information Management System (LIMS)
- n. NC HIV/STD Prevention and Care Branch, Epidemiology and Special Studies Unit Surveillance Reports and Epidemiologic Profiles
- o. North Carolina State Data Center (SDC) - This is a consortium of agencies cooperating with the US Bureau of the Census to provide the public with data about the state and its component geographic areas. The SDC lead agency is located in the Technology and Data Services Section of the NC Office of State Budget and Management, where it provides extensive resources for retrieving statistical information. Three state-level coordinating agencies work closely with the lead agency: State Library of North Carolina; Odum Institute for Research in Social Science; and the
- p. WCSWeb – Known as the Women and Children Services Website, this new web-based computer system is used by both the Newborn Hearing Screening Program and the Sickie Cell Program to track and monitor services provided to their clients. Currently, 57 birthing facilities, 2 midwifery practices, and 93 audiologists utilize this system for reporting hearing screening and follow-up results. The Sickie Cell Program services tracked by the web-based data system include prophylactic penicillin data, genetic and trait counseling, education sessions, medical referral services, case management, and child service coordination. The database system also provides demographic, medical, and financial information.
- q. WIC Program Data
- r. Title V CSHCN Help Line - The CSHCN Help Line is housed in C&Y Branch and serves as a toll-free resource where families, health care, and other professionals can obtain information about all public programs that serve CSHCN. The Help Line data tracking system captures demographic and content/need-related information about each call received.
- s. NC Institute of Medicine (NCIOM) Task Force on Adolescent Health Report – Through funding from the Duke Endowment and the North Carolina Metamorphosis Project, the NCIOM was asked to convene a Task Force on Adolescent Health. There were 53 members of the Task Force and Steering Committee, including staff members of WCHS. The Task Force met 12 times from May 2008 to September 2009 and released a final report at a Summit in December 2009. The Task Force made 32 total recommendations, 10 of which were designated as priority.
- t. The NCIOM, in collaboration with the NC DPH, convened a Task Force to develop a *Prevention Action Plan* for the state. The NCIOM Task Force on Prevention was convened at the request of North Carolina’s leading health foundations, including the Blue Cross and Blue Shield of North Carolina Foundation, The Duke Endowment, the Kate B. Reynolds Charitable Trust, and the North Carolina Health and Wellness Trust Fund. The Task Force consisted of 50 members, some of whom were staff members of the WCHS. The Task Force identified 10 preventable risk factors that contribute to the

leading causes of death and disability in the state: 1. Tobacco use; 2. Diet and physical inactivity, leading to overweight or obesity; 3. Risky sexual behaviors; 4. Alcohol and drug use or abuse; 5. Emotional and psychological factors; 6. Intentional and unintentional injuries; 7. Bacterial and infectious agents; 8. Exposure to chemicals and environmental pollutants; 9. Racial and ethnic disparities; and 10. Socioeconomic factors. The *Prevention Action Plan*, which was released in October 2009, includes evidence-based strategies that, if followed, will improve population health in the state.

- u. There were a number of additional NCIOM Task Forces in which state and national literature was reviewed, expert content speakers presented, and priority recommendations were developed that contributed to the State priority needs definitions and were used in this needs assessment. These include task forces on the following subjects:
 - Successful Transition for Persons with Developmental Disabilities
 - Military Health
 - Implementing Health Care Reform in North Carolina
 - Access to Health Care
 - Behavioral Health
 - Child Health and Health Care
 - Consumer Health Care Choices
 - Dental Health
 - Health Literacy
 - Latino Health
 - Uninsured and Safety Net
 - Women's Health and Health Care
- v. Qualitative data sources including:
 1. Through funding from the State Systems Development Initiative, the WCHS contracted with the North Carolina Healthy Start Foundation to conduct focus groups and key informant interviews and to write a final report based on the study findings for four different topic areas: Latina Infant Mortality Awareness, Latino Families with Children with Special Health Care Needs, Latina Teen Pregnancy and Acculturation, and Pregnancy Intention.
 2. Surveys conducted through North Carolina's Healthy Start projects (BabyLove Plus)
 3. Key informant interviews with staff and stakeholders (e.g., with the Family Council, the NC Commission on CSHCN, etc.)
 4. Satisfaction surveys at health departments and on delivery of services by C & Y staff.
 5. 2009 Child Health Needs Assessment Survey for Providers and 2009 Child Health Needs Assessment Survey for Physicians – These online surveys were distributed through the North Carolina Pediatric Society, the North Carolina Medical Society, a number of electronic newsletters and list serves, and also through the DPH network of nurses, physicians, physical therapists, occupational therapists, speech and language therapists, audiologists, nutritionists and other providers. Providers were asked to:
 - name the top three health priorities for children by three different age groups (0 to 5 years, 6 to 11 years, and 12 to 21 years),
 - state areas of critical emerging needs and gaps in services for children,

- describe what would assist with implementing medical homes in their practices,
 - describe the three biggest barriers in the transition process for CSHCN, and
 - state areas of critical emerging needs and gaps in services for CSHCN ages 0-21
6. Child Health Needs Assessment Survey for Families – These online surveys were completed in 2009 after families had been notified of the survey through a flyer distributed by members of the Family Council. Families were asked to report the need for improvement (high, moderate, or low) in each of the five National Performance Measures related to C/YSHCN. They were also asked to state specific unmet needs or barriers to service for each measure. In addition, respondents were asked to answer the following question: What do you consider to be the most critical emerging health needs of and gaps in services for children with special health care needs?
 7. School Health Nurse Surveys – These surveys were conducted at the 2007 and 2008 Annual School Health Nurse Conferences. Paper surveys were included in the conference packet, and respondents completed and returned surveys at the conference. The survey topic in 2007 was behavioral health and in 2008, the topic was care coordination for children with special health care needs.
 8. Limited English Proficiency (LEP) Survey – In the summer of 2009, staff members from the C&Y Branch surveyed professionals who serve clients with LEP with the objective of identifying provider priorities for children and children with special health care needs and guiding resource allocation and program planning. The survey was distributed by email and list serves by the NC Health Check/Health Choice and Minority Outreach coordinator. Given the difficulty of reaching members of diverse groups with LEP, those who serve LEP clients and who have contact with clients who speak many different languages were surveyed.
 9. The Integrated, Collaborative, Accessible, Respectful and Evidence-Based (ICARE) Partnership Survey - ICARE Partnership is an integrated care collaborative made up of agencies that are dedicated to the medical and mental health well being of North Carolinians. The Implementation Partners for the ICARE Partnership include: NC Foundation for Advanced Health Programs; NC Academy of Family Physicians; NC Pediatric Society; NC Psychiatric Society; Southern Regional AHEC; and The Sheps Center. This survey was intended to gather information about experiences in providing behavior healthcare services to patients. 250 health care providers responded to the online survey in October 2008.
 10. A series of meetings with the Commission for CSHCN and Family Council to discuss reduction recommendations.
- **Linkages between Assessment, Capacity, and Priorities:** The WCHS went through a process in 2003 to define a consensus set of core WCH Indicators to be used to communicate the value of the work done by the WCHS with policymakers, stakeholders, and the general public. While the WCHS understands the importance of the formal five-year needs assessment process, the priority areas of the Section have been firmly established for some

time, and, as they were intentionally conceived, are quite broad, so it is unlikely that the Needs Assessment is going to radically change these priority areas. Instead, the assessment of strengths, needs, and capacity is used to improve current practices and guide or refocus activities within these priority areas.

- **Dissemination:** In addition to involving stakeholders during the development of the Needs Assessment, the WCHS plans to disseminate the completed Needs Assessment to a broad audience by posting it on the WCHS website and sharing the site with interested partners such as, but not limited to, the NC Pediatric Society, the Commission on CSHCN, the Child Fatality Task Force, the NC Healthy Start Foundation. Staff members within the WCHS will be encouraged to write a personal message to the partners that they work with in order to disseminate the Needs Assessment more widely.
- **Strengths and Weaknesses of Process:** The major strength of the current needs assessment process is the broad representation of WCHS staff in women's and children's health, social, emotional, and environmental boards, committees, task forces and meetings that provides current and updated information from key partners, families and providers. A second major strength is the use of the NAT. Having members of different branches working together on the project allows staff members a time to share ideas and experiences across disciplines and enriches the finished product. It is imperative to have a team leader to coordinate the work of the group and keep the process going, but the individual differences in how the team members approach the tasks makes the process more valuable. One major weakness is the sheer volume of information that must be represented and condensed for the needs assessment covering a very broad spectrum of health and related services. Another is identifying the time to devote to this task when most staff members are dealing with significant budget reductions that impact ongoing services and resources and have added significantly to current workloads.

2. Partnership Building and Collaboration Efforts

Pregnant Women, Mothers, Infants, and Women of Reproductive Age Population Group

The Women's Health Branch has a good relationship with other programs and organizations that provide care and support services for women and their infant children. In 2003, the State Center for Health Statistics conducted a survey of community based organizations (CBOs) and local health departments (LHDs) to find out the strengths, benefits, challenges and barriers of the relationships between CBOs and LHDs. Over 80% of LHDs report their on-going relationships with CBOs to be strong or very strong, while about 70% of CBOs report similar findings. Typical ways the community based organizations reported collaboration with local health departments were: working together on projects, carrying out joint community education projects, planning events and programs, and community health fairs and joint events. (<http://www.schs.state.nc.us/SCHS/pdf/LHDCBOSurveyweb.pdf>)

Within DPH, collaboration is strongly encouraged. The recent economic downturn has affected all levels of government, as well as community based organizations, charities, and advocacy groups. This has meant that all programs have to share resources and work closer together.

Internally, the branches within Women's and Children's Health Section vary in their degree of collaboration, based on the nature of their responsibilities and scope. In the Family Planning and Reproductive Health Unit (FPRHU), collaboration with the School Health Unit is strong, while in the Perinatal Health and Family Support Unit, the linkages between the Nutrition Services Branch are strongest.

The WHB uses various methods to build external partnerships, such as mini-grants, local coalitions around various issues, and advisory boards. These groups fulfill various roles, from legislative advocacy, to policy and program direction, to advice on best practices in various fields, to allowing the public to comment and question state decisions and policies.

The largest of the advisory groups to the WHB is the NC Council on Sickle Cell Disease and Related Disorders, appointed by the Governor and composed of family members, service providers, and advocacy groups. This group serves to give direction to and as a liaison with the legislature on Sickle Cell. In contrast to the formal advisory nature of the Sickle Cell Council, the Sickle Cell Consortium is a client-led group composed of mostly sickle cell patients, family members, and care providers. Their focus is more to learn about new treatment options and research and to discuss family and client issues around sickle cell treatment and case management. The Sickle Cell Consortium meets quarterly. Lastly, volunteer support groups for sickle cell patients are scattered throughout the state. Sickle Cell Counselors and staff work to assist these support groups with information and training as they need it.

The NC Healthy Start Foundation (NCHSF) continues to be a valuable partner. With funds from the NC General Assembly and in partnership with the NCDHHS, the NCHSF continues its statewide efforts to decrease infant deaths by promoting healthy pregnancies and child health insurance through the media, public awareness and public education campaigns and by advising policy-makers. The Foundation airs radio and television commercials and public service announcements, displays billboards, and prints advertisements. The Foundation obtains television coverage to educate the public about ways to reduce infant deaths and disability and to promote access to child health insurance. In addition, through funding from the State Systems Development Initiative, the WCHS contracted with the NCHSF to conduct four qualitative research projects.

The Healthy Start Baby Love Plus project partners with a variety of organizations in order to gain input and support and to share resources. These organizations include: the Community Child Health Research Network at East Carolina University, the National Healthy Start Association, and local infant mortality coalitions in Pitt, Forsyth, and Guilford Counties.

The Teen Pregnancy Prevention Initiatives (TPPI) of the FPRHU work in close partnership with the Adolescent Pregnancy Prevention Campaign of North Carolina (APPCNC), which is a non-profit agency that provides education, consultation, and advocacy for agencies and professionals working to prevent teen pregnancy in North Carolina. TPPI and APPCNC also co-sponsor a teen pregnancy prevention conference annually. TPPI staff foster collaboration with stakeholders across the state by serving on various statewide committees and workgroups including the North Carolina State Advisors on Adolescent Sexual Health, the North Carolina Sexual Violence Prevention Team, the North Carolina Fatherhood Development Advisory Council, the Safe

Surrender Advisory Committee, the Healthy Youth Act Collaborative, and a collaborative of major funders with the North Carolina Center for After School Programs.

The Schools of Public Health, Nursing, and Medicine at the University of North Carolina at Chapel Hill all play vital roles in advising and planning with the WHB. The Public Health Collaborative is a group that is made up of representatives of the School of Public Health (especially those in the Maternal and Child Health Department), the School of Nursing, the School of Medicine, and staff from the WHB. This group serves as an advisory committee in the development of enhanced-role training for the Family Planning and Maternal Health curriculum provided to local health department staff. In addition, the Sheps Center for Health Services Research at the university provides the WHB with vital resources for evaluation and analysis of women's health issues. In addition to producing the bi-annual Women's Health Report Card, the Sheps Center conducts the evaluation of the Healthy Start Baby Love Plus program.

Until budget cuts forced termination of contracts in October and November 2009, the Perinatal Outreach Coordination Program provided a rich source of partnership and collaboration. The focus of this program, which was in existence for about 30 years, was on identifying needs and providing the needed educational support to enhance the knowledge, attitudes, and skills of healthcare providers serving women of childbearing age, infants through the first year of life, and their families. The twelve outreach coordinators ensured that the most up-to-date "best practice" standards of care educational and clinical techniques were disseminated to all segments of the healthcare community in order to maintain a high level of consistency in clinical practice and referral standards. During FY09, the outreach coordinators reached 9,241 healthcare providers through educational programs (39%) and consultative services (61%). The Perinatal Outreach Coordinators were housed at area health education centers, universities, and tertiary centers throughout North Carolina.

The Perinatal Outreach Coordinators were a vital link to a number of supporting perinatal health programs and services, including:

- Tobacco Cessation Training - Provided tobacco cessation training for the DPH. There is no other free tobacco cessation program that emphasizes women's health and infant mortality prevention.
- Women's Health Training Collaborative - This enhanced role nurse training program was a sub-component of the program. The Perinatal Outreach Coordinators provided training, skills check-off and one-year quality assurance support.
- Breast-feeding - Supporting partner for the WIC Breastfeeding Initiative. Provided support in the development of the Breastfeeding Regional Centers and training of healthcare providers.
- Resuscitation and Stabilization - Tertiary centers and local hospitals throughout the state relied upon the Perinatal Outreach Coordination Program to provide training in resuscitation and stabilization. All of the neonatal outreach coordinators were Neonatal Resuscitation Program certified regional trainers.
- Non-Local Health Department Liaison - Served as WHB liaison to private providers, local community hospitals and tertiary centers.

To the extent possible, the WHB will continue the training, consultation, and technical assistance provided by Perinatal Outreach Coordination Program. Staff and fiscal limitations will require that efforts concentrate on local health department partners.

In addition to active community partnership and outreach, the WHB also maintains a website to support the activities of local partners and care providers. The website can be found at <http://whb.ncpublichealth.com/>.

Nutrition Services Branch

The Nutrition Services Branch (NSB) administers the WIC Program, the Child and Adult Care Food Program, the Summer Food Service Program for Children, the Nutrition Education and Training program, the WIC Farmers' Market Nutrition Program, the WIC Breastfeeding Peer Counselor Program, and the North Carolina Pediatric and Pregnancy Nutrition Surveillance Systems.

Activities of the NSB promote sound nutrition habits among infants, children and women in their child-bearing years. Branch staff work with county, state and private agencies to improve health status by reducing the incidence of nutritional risk factors, improving pregnancy outcomes, promoting and supporting breastfeeding, and hastening recovery from illness and injury through the provision of technical assistance and support, training and education, and supplemental foods.

Children Population Group

The C&Y Branch staff members interface in a wide variety of ways with all other child and family service providers including public and private entities. This is accomplished through ongoing and regular meetings both individually and through committees with key partners to identify and address potential barriers and opportunities affecting both services and capacity. During most of the last five years, the Branch has consisted of approximately 100 staff positions. With cumulative reductions, positions have shrunk to about 80 with an anticipation of further losses. The majority of partnerships for planning, information gathering, and evaluating/modifying services are obtained through our widespread participation in committees, task forces, councils, commissions, workshops and conferences. Our staff members represent a broad range of disciplines including clinical specialists, consultants, managers and administrators. Each staff member is responsible for establishing a network of public and private partnerships to assure ongoing collaboration, information exchange and coordinated planning, implementation, and monitoring. Unit managers assure that this representation encompasses every possible child/family health system that influences healthy development and family/child interactions.

The C&Y Branch also maintains a strong informal collaboration through every possible means allowed by the travel restrictions that have been imposed for the past four to five years. The Branch supports web based technology (Adobe Connect) that allows members to meet, train and provide group interactions even if they are not often in person and of course, phone, email,

meetings, and other methods are utilized to maintain a network to assure open and timely communication.

The Division of Medical Assistance (DMA) plays an important role in policy development for services that are reimbursed by Medicaid. Issues that require negotiation are addressed through a monthly “Issues Meeting” that involves Division Directors and appropriate Branch Heads in DPH and DMA. The C&Y Branch is constantly in touch with the DMA because many of the services for children and families are directly affected by Medicaid policies. The Pediatric Medical Consultant attends and is actively involved in the Physician’s Advisory Group that reviews and approves health, mental health, and social policies for women and children.

For the last two years, DMA has been focused on restructuring the various case management programs into one system. DMA invited stakeholders and parents to represent the various existing case management programs and asked the C&Y Branch Head to co-chair the Services Definition committee. A thorough set of recommendations resulted from that committee for consideration by the DMA and NCDHHS. The state programs and North Carolina families are waiting for a final decision from the Department. The system reorganization has resulted in a tremendous amount of anxiety and concern from parents, consumers and providers. The impact will be far reaching for families wanting case management services provided through State waivers and for children and adults with mental health, social/environmental, maternal, medical and developmental concerns or who are at risk for poor outcomes.

Fortunately in North Carolina, our organizational structure promotes easy interaction with our MCH partners. Dr. Kevin Ryan, Title V Director and WCHS Chief, supervises the Immunization Branch (IB), Early Intervention (EI) Branch, NSB, WHB, and C&Y Branch, including the CSHCN Director. He holds weekly management meetings to assure internal communication and coordination occurs on a regular basis. This provides the section with a format to stay current on all MCH activities and to plan together in a proactive environment.

DPH also houses the Chronic Disease and Injury Prevention Section which includes the SCHS, Injury Prevention and Control Branch, the Physical Activity and Nutrition Branch and a wide range of chronic disease prevention programs. The section chiefs, including the Title V Director, meet weekly in a management team to co-plan and discuss issues of overlapping responsibilities and strategies for service improvement. Title V is involved in committees and meetings with all of the groups listed above. The Epidemiology Section is also a part of the Division and the C&Y Branch primarily works together with them in the areas of school health and children’s health that are affected by communicable disease or planning concerning emergency responses.

Linkages with the Department of Public Instruction (DPI) are primarily through our school health, nutrition, early intervention, Office on Disability and Health, Child and Family Teams, immunization and Healthy Schools initiatives. The C&Y Branch subcontracts for about 18% of the school nurse positions located in health departments, schools, or hospitals, but the Branch is responsible for planning, training and consulting with all 1,223 of them. The State School Nurse position is located in our Branch and works directly with the Lead Education Agencies to coordinate school nursing services across the State. The Healthy Schools Initiative CDC grant in North Carolina focuses on improving and linking the DPH and DPI Infrastructure. The Branch directly provides funding to 27 school health centers and strongly coordinates with the remaining

28 centers in the State. Center management requires a coordinated effort with DPI, the community and the Branch to assure appropriate services are available to school aged children.

We have other strong linkages with the Division of Child Development (DCD), Division of Mental Health/ Developmental Disabilities and Substance Abuse Services, Division of Social Services (DMH/DD/SAS), Office of Rural Health (oversight agency for Community Care of North Carolina) and the Department of Juvenile Justice and Delinquency Prevention.

Our state level infrastructure is designed to promote early child wellbeing in North Carolina, but it is characterized, as in many other states, by categorical funding streams and categorical programs. Historically, state programs are limited in their ability to deliver health care, educational, and social service programs in a way that is seamless at the local level. Two initiatives that include all of the Divisions and many other agencies in service change include work done through the Early Childhood Comprehensive Systems (ECCS) grant and the Alliance for Evidence-Based Family Strengthening Programs which have helped state agencies see the benefits of a more collaborative approach, although major challenges relating to categorical funding and categorical thinking, remain. The state has dedicated significant resources to support early childhood wellness promotion, including the nationally recognized Smart Start and More at Four initiatives. Recognizing the need for a commitment to evidence-based practice and a less “silo-based”, more integrated, approach to supporting the environment of early childhood, a public-private partnership of funders of early childhood initiatives (the Alliance For Evidence-Based Family Strengthening Programs) has been established. Viable mechanisms for statewide replication of evidence-based practices have also been developed, including the Alliance and Community Care of North Carolina, a nationally recognized network of primary health care providers with a track record of piloting and then implementing statewide quality improvement and cost-containment strategies in primary care. Both ECCS and the Alliance are more fully described in the Capacity Assessment for Children Section (4.D.5. Infrastructure-Building Services).

The Pediatric Society is very strong in North Carolina. They have used Commonwealth funds to implement a model, “*Assuring Better Child Health and Development (ABCD)*” to promote best practices among all primary care physicians serving children in the State including: use of valid developmental screening tools; effective communication of results; and appropriate referral and follow-up to ensure the family receives needed care. Designed to support the social and emotional development of young children birth to three years old, ABCD is an intervention in primary care settings, with the goal that all children receive appropriate developmental screenings and referrals in the context of the medical home. While pediatricians championed this practice in private practices, Title V staff utilized the same model to improve care in the health department setting, many of which provide primary care 24/7 and serve as a medical home. During the past five years we have also worked closely with the Pediatric Society on development of the Covering Kids initiative, a study for linking children in foster care with medical homes, implementation and strengthening of medical homes for all children, a recent Children's Health Insurance Program Reauthorization Act grant to use the kindergarten health assessment information to expand enrollment in Health Check (Medicaid for Children) and the State Child Health Insurance Program for Children (SCHIP, NC Health Choice).

Title V staff have partnered with the Office of Rural Health, DMH/DD/SAS and private practitioners to implement a model of care that adds a mental health provider to the Community Care of North Carolina physician network in order to assist pediatricians and other primary care providers that serve uninsured children and/or children on Medicaid in the use of appropriate behavioral health screening tools and to promote appropriate referral of children who show signs of problems to a well trained mental health provider who has demonstrated positive outcomes.

Insurance for children in North Carolina is addressed through a variety of groups. The C&Y Branch has lead responsibility for managing services for children with special needs enrolled in NC Health Choice. In developing and implementing services for this program, DPH works closely with: DMA, which has overall lead responsibility for the NC Health Choice Program for Children; Blue Cross and Blue Shield of North Carolina, which is the claims processing contractor; NC Pediatric Society; a range of service providers who meet every two months as part of the Provider's Group; Value Options, utilization review agency for behavioral health services; the WCHS FC for CSHCN; and the statewide Coalition for Advancement of Health Insurance in NC which focuses on effective outreach strategies. Priorities are jointly set and reviewed within these organizations on a regular basis.

Child Care Health Services is addressed through a combined effort of DPH, DCD, NC Partnership for Children, Smart Start local agencies, Head Start and the University of North Carolina at Chapel Hill. For the past several years these agencies have focused on institutionalization of a training curriculum for health professionals preparing to work as child care health consultants. A pooling of funds from DPH, DCD, and local Smart Start agencies has provided a foundation for success in this effort to make child care health consultants available in the majority of communities. Using the *Blueprint for Action*, public health, in conjunction with key partners, fosters higher immunization rates, improved access to medical homes, more inclusive child care environments, better nutrition, earlier identification and referral of children at risk, better worker health, and stronger health and safety policies at the state and community levels. The primary role of the local child care health consultants is to improve the health and safety of children in out-of-home-child care. They provide consultation and training for child care providers, parents and children. The local, regional and state consultants focus on activities that will decrease the mortality and morbidity of children in out-of-home child care by encouraging and supporting DCD licensing regulations as well as the national health and safety standards.

The NCIOM facilitated a Task Force on Adolescent Health during 2008 and 2009 in order to heighten awareness among policymakers, practitioners, the media and the general public about the issues and conditions facing adolescents in our state and the various opportunities to provide support for this population. The Adolescent Health Task Force was a joint effort of the North Carolina Metamorphosis Project (NCMP); the University of North Carolina at Chapel Hill School of Medicine and Gillings School of Global Public Health; the North Carolina Multisite Adolescent Research Consortium and Coalition for Health; the NCIOM; DPH; and Action for Children North Carolina. The NCIOM Task Force on Adolescent Health heard presentations from state and national experts on health and safety issues facing adolescents and young adults in North Carolina and evidence-based and promising practices and interventions to improve the health of young people between ages 10 and 20. The Task Force members, including legislators,

state and local agency officials, educators, primary care providers and other health care professionals, consumers, and other interested people dedicated approximately one day a month for over a year to develop a total of 32 recommendations to improve adolescent health in North Carolina. One recommendation was for the C&Y Branch to develop a Center for Adolescent Health and utilize a matrix approach to move an adolescent agenda for health forward. The C&Y Branch is in the initial planning process for implementation of this recommendation.

In addition to the Task Force on Adolescent Health, the NCIOM has a series of Task Forces during the past five years involving subject experts and providers in developing recommendations for legislative and agency action. These include behavioral health, substance abuse, transition of adolescents with developmental disabilities, prevention, access to care and dental care. The working groups for each Task Force come together annually to measure progress and update priorities. WCHS has been very fortunate to have this mechanism for obtaining and providing information with persons most involved in these major service areas. Task Force meetings are open to everyone and, therefore, include family members as well as providers.

School health programs are coordinated through a matrix model, which focuses on the development, and implementation of a comprehensive school health system of care, including collaboration with key partners in school health, both within the DPH and DPI and with other agencies to improve the health status of students. The Matrix Team allows the DPH to effectively utilize staff across Branch and Section lines to create a multi-disciplinary, multi-agency focus on school health. The Section Chiefs for Oral Health, Chronic Disease and Injury, and WCH provide overall guidance in program planning, marketing and implementation of services and to help build capacity for school health services. The Matrix Team also includes key individuals from DPI and DEH.

An additional avenue for coordination and system integration is through the Community Care of North Carolina program. This program builds community health networks organized and operated by community physicians, hospitals, health departments, and departments of social services. By establishing regional networks, the program establishes the local systems that are needed to achieve long-term quality, cost, access and utilization objectives in the management of care for Medicaid recipients. The North Carolina Office of Rural Health and Community Care is the administering office. The program office is sponsored by the Office of the Secretary, DMA, and the North Carolina Foundation for Advanced Health Programs, Inc and works closely with other State agencies including the DPH. A distinguishing feature of the Community Care of North Carolina program is the emphasis on population-based health management and quality improvement initiatives. The Community Care of North Carolina networks are responsible for the delivery of targeted case management services that will improve quality of care while containing costs. Case managers play a central role in helping the networks achieve this goal. They are primarily responsible for helping to identify patients with high risk conditions or needs, assisting the providers in disease management education and/or follow-up, helping patients coordinate their care or access needed services, and collecting data on process and outcome measures.

A Best Practices Unit was developed in the C&Y Branch by redirecting positions so that there is a strong internal group to consider all of the child related data in decision making and priority setting. This Unit assists the Branch in evaluating our efforts and providing information to redirect unsuccessful programs and to identify promising and evidence based practices to guide our work. A Branch system for assuring quality improvement has been developed. The Unit members partner with the SCHS and, in fact, have a SCHS staff member located in the Best Practice Unit for ready assistance in data analysis and planning.

The C&Y Branch consistently approaches collaboration with key partners by including representatives from communities serving young children as well as school age children to address a persistent and unproductive disconnect between those communities using the following parameters:

1. Adopt a public health framework so that success is measured by improvements in population-based indicators and strategies that span the promotion, prevention, early intervention and treatment continuum rather than by separate program performance measures;
2. Use the science of child development to guide decision making so that policies and programs reflect an understanding that multiple risk and protective factors interact to affect outcomes/wellness; that developmental domains are intertwined and that development happens over time on a trajectory that can be influenced, particularly through early interventions;
3. Pay attention to the emerging evidence on the effectiveness of interventions as well as the data about what is required for communities to implement interventions with fidelity and use that to guide resource allocation decisions; and
4. Address system level issues including policy development; leveraging funding; coordinating messaging; supporting family leadership efforts; aligning standards and efforts to meet those standards; and monitoring progress collectively.

Working with all of the resources described above has provided excellent information sources for the five year needs assessment. In addition to the formal and informal arrangements to receive information, discussions, recommendations and assess needs the C&Y Branch also utilize focus groups, surveys to family members, physicians, health departments, providers and community groups to obtain input and information to reassess our priorities and outcome goals. Each county in North Carolina completes a needs assessment every four years under the guidance of Healthy Carolinians which is available on line for county specific information. Community input from counties is assured through the C&Y Branch health department and school health center monitoring system which is completed for each county every other year. Prior to the site visit, county specific information is compiled and distributed, and the health department invites key community partners, including parents, to review the statistics and discuss priority needs for their county. Through Agreement Addenda, health departments have some discretionary funds which they can use to target the highest need areas for their county.

This outline of collaborative activities is meant to demonstrate the approach to services that is routinely addressed by the C&Y Branch and is in no way is an exhaustive list. Planning for services, policy development, and implementation also includes a strong family component through our FC which is described below.

Children with Special Health Care Needs Population Group

The C&Y Branch has lead responsibility for CSHCN from birth to 21 years, and works closely with the EI Branch who provides services to the birth to three year old population of children with developmental disabilities. The FC for CSHCN is very strong, with a mother of a child with special needs employed to provide guidance and direction for family/provider interaction, collaboration, and input. The managers of the C&Y Branch have traditionally partnered with families in many of our program efforts. The FC meets quarterly to discuss issues of concern or discuss priorities and planning. The Council members review our MCHB annual plan, offer feedback and decide on our level of success in the Block Grant related to effective family involvement. Members are expected to outreach to families in the communities they represent on almost every level of services. Based on requests from families to expand our relationship, in 2009, in the midst of all the budget reductions, the C&Y Branch managed to shift funds to the reimbursement contract for families to double their support. A grid of all the services, priorities and outstanding issues was prepared and FC members were requested to indicate where they or another family would like to be involved in planning, review, implementation, training, or evaluation and a formal interactive relationship with providers delivering service in the area of their interest was begun. Both family members and professionals have been trained on how to deliver effective co-presentations.

In addition to the partnerships and collaborations mentioned above for all children, there are specific partnerships and collaborations that occur around CYSCHN including case management, CSHCN call line, Innovative Approaches grants, early mental health grant, school nurses, the FC, the Commission on CSHCN, legislative oral health committee to study services for CSHCN, Office on Disability and Health, and newborn screening programs. North Carolina has made a great deal of progress in effectively involving families in policy, planning, evaluation, and educational activities directed toward children birth to 21 years of age. This is an area we continue to emphasize and use as a priority in our work. Reaching the goal of true family professional partnership takes collaboration, communication, and ongoing efforts to negotiate for success.

The Commission on Children with Special Health Care Needs is a Governor-appointed advisory group whose purpose is to monitor and evaluate the availability and provision of health services to all CYSCHN in the state, with a specific focus on NC Health Choice. The eight-member group includes two parents, a psychiatrist, a psychologist, a pediatrician, a local health director, a representative from a children's hospital, and an educator providing services to CYSCHN. The Commission meets every other month to consider a variety of health issues for CYSCHN. Since its inception, the Commission has modeled active parent-professional partnership by including active family leaders among its membership. The work of the Commission is also described elsewhere in this document (Section 4.E.4. Infrastructure-Building Services).

One additional partnership that promotes the health and wellness of people with disabilities is the North Carolina Office on Disability and Health (NCODH). The NCODH receives primary funding from the Centers for Disease Control and Prevention (CDC) as a collaborative endeavor

between DPH and the Frank Porter Graham Child Development Institute at the University of North Carolina at Chapel Hill. The goals of the NCODH are:

- To increase awareness and understanding of the health related needs of individuals with disabilities;
- Improve access and inclusion;
- Develop health promotion programs and educational materials for consumers and professionals;
- Conduct and report on research and data collection; and
- Affect disability policy related to these areas.

The Program Director for the NCDOH is employed and housed in the C&Y Branch. At this time, there is an interim director, the Best Practices Unit Supervisor. The Project Director, Women's Health Coordinator, and Recreation and Physical Activity Coordinator all work at UNC-Chapel Hill.

The CSHCN Help Line is a service that assists the C&Y Branch in identifying needs of CSHCN and serves as a toll-free resource where families, health care, and other professionals obtain information about all public programs that serve CSHCN. Over the last five years, the help line has received approximately 10,000 calls, during which time 70% of the children discussed were identified as having special health care needs. Potential public programs, demographic and needs-related information are collected and documented on each child discussed in the help line database. If it is determined that the child's needs cannot be met through public programs, then the help line consultant will assist the family in finding potential resources that can meet those specific needs. Tracking trends in unmet needs identified most often by callers serves as a valuable tool in program planning and collaboration with other agencies and organizations.

The C&Y Branch maintains an ongoing system of customer satisfaction surveys to continuously gather information from families and other customers to help us improve our services. For example, the CSHCN Help Line asks every 5th caller to complete a family satisfaction survey and our genetic counselors, physical therapists, nurses, managers, and consultants distribute customer satisfaction surveys to all of their clients.

The EI Branch serves as the state lead agency to carry out Part C of the Individuals with Disabilities Education Act (IDEA). The federal legislation was reauthorized in late 2004, and has been renamed the Individuals with Disabilities Education Improvement Act.

The EI Branch works in concert with other programs for women, children, and families, and has a particular focus on very young children (infants and toddlers under the age of three years) who have developmental disabilities or delays or have established conditions that are very likely to result in developmental delay. This focus positively impacts collaboration with the Maternal and Child Health focus on children with special health care needs, as well as on the many initiatives that are preventive in nature, particularly those that are preventive of developmental delays or disabilities.

Effective FY06, the EI Branch had to provide a State Performance Plan to the federal granting agency. This requirement includes a six-year plan, with annual goals and reporting on thirteen

compliance areas as well as continued stakeholder input into planning, goal-setting, and results. Stakeholder input is primarily attained through the state Interagency Coordinating Council, the WCHS FC, the Commission for Children with Special Health Care Needs, and the Commission for Health Services as the rule-making body for the program. The policy issues are complex in their impact on the infants, toddlers, and families referred to and/or enrolled in the program, and the management of multiple and ongoing public commenting process has both ethical and legal implications for the management of the program in addition to best practice and quality issues for the staff employed or contracted within the program, including community based early intervention service providers.

The State Performance Planning and Annual Reporting requirement is required to take place within the context of interagency collaboration. The EI Branch is required by federal law to engage with other state and local agencies, and is required to have an advisory board, the State Interagency Coordinating Council (NC-ICC). Membership on the NC-ICC is set by the federal legislation, and members are appointed by the Governor. The work of the NC-ICC is accomplished through sub-committees. The NC-ICC structure allows greater participatory involvement state-wide and increases the successful completion of committee work plans. Members are well aware that the importance of their service is to improve the lives of families and children. Committee efforts as well as work plans reflect the dedication to that mission. Committee members are appointed by the co-chairs within a month of the annual meeting. Five standing committees make up the NC-ICC. They are as follows: Executive Committee; Children & Families Committee; LICC Committee; Transitions Committee; and Professional Education Committee. The EI program is responsible for the NC-ICC, both fiscally and through the provision of staff time and management skills to the work of the Council. Therefore, the EI Branch not only has the responsibility of monitoring its Children's Developmental Services Agencies (CDSAs), but also of informing the State councils and assuring performance change in response to requirements at local, state, and federal levels.

The EI Branch has 915 DPH employees and an additional 250+ contract employees. The Branch Management Team includes the Branch Head and three direct reports. These direct reports in turn directly supervise 3-15 positions, which may themselves supervise various hierarchical structures of management staff. Information on these units is given below.

Quality Improvement Unit

- The Quality Improvement unit manager has seven direct reports, two of whom supervise other positions.
- The Quality Improvement unit manager also serves as the federally designated Part C Coordinator for the state. This responsibility extends to the assurance that federal grant application requirements, policy requirements, and regulation requirements are met. The Part C Coordinator represents the statewide early intervention program at all federal committees and technical assistance meetings.
- Overall, the Quality Improvement unit is charged with implementation and evaluation of the monitoring and supervision system under the federal legislation. Outcome indicators have been delineated by the federal granting agency, and outcome measurement must be developed and implemented within this unit, using evidence-based practices.

- Data base management for both child data and billing data must be used routinely and must be improved as technology advances and federal and state requirements increase. Data collection is performed at the CDSA level, and the data is analyzed, summarized, and used for program evaluation and decision-making at the statewide and regional level based on these analyses and summaries. Data is critical to the accountability mechanisms and outcomes delineated by the federal granting agency, as noted above.

Resource and Information Unit

- The Resource and Information unit has three direct reports to the unit manager. The Resource and Information unit is charged with providing technical assistance to directors and other staff of the CDSAs regarding public reporting and the gathering of public comment and stakeholder input. Recent guidance from the federal granting agency has shown that this public reporting is critical to the continued application for and receipt of federal grant funds. Further, the EI Branch receives resources from the General Assembly in the form of state dollars and positions which results in a critical need to be able to accurately and thoroughly report data publicly.
- The unit is responsible for responding to the many general requests regarding the early intervention program and public awareness documents that are developed and published from the EI Branch.
- The unit also is responsible for communication with interagency partners, and frequently represents the Branch and/or the Branch Head in these interagency endeavors.

CDSA Unit

- The CDSA unit manager directly supervises 14 EI Branch direct employed CDSA directors that in turn supervise 5-8 positions directly and 50-90 employees per CDSA; thereby totaling organizationally to 886 employees.
- The position also supervises a Public Health Program Consultant who is the contract administrator for the 250+ employees in contract CDSAs. These CDSAs have hierarchical organizational structures similar to the EI Branch direct employed CDSAs.
- Employee work standards within the CDSA unit and the CDSAs themselves are required for the direct services basis for the accountability required by the federal granting agency regarding compliance as well as quality indicator areas.
- Setting, revising, and monitoring work standards require setting outcomes with directly supervised staff for development, planning, and implementation statewide to assure general supervision and accountability at all levels for the early intervention program.

3. Strengths and Needs of the Maternal and Child Health Population Groups and Desired Outcomes

A. Pregnant Women, Mothers, Infants, and Women of Reproductive Age Population Group

Description of the State

Demographics

The state of NC covers 52,175 square miles including 48,710 in land, and 3,465 in water. The 100 counties that compose the state stretch from the eastern coastal plains bordering the Atlantic Ocean, continue through the densely populated piedmont area, and climb the Appalachian Mountains in the west. These diverse geographical features pose a number of challenges to the provision of health care and other social services. In the sparsely populated western counties, there are vast areas of rugged terrain, which make travel difficult especially during the winter months and contribute to the isolation of the rural inhabitants. In the coastal plain counties, which cover almost a quarter of the State, swamp lands, sounds, and barrier islands also contribute to isolation and complicate transportation problems. Moreover, because most local health departments have maintained their single-county autonomy, rural departments are often under-funded and have difficulties attracting sufficient staff and operating efficiently. Although the state is becoming more urban, 64 of the 100 counties are still considered rural.

As of July 2008, NC maintained its position as the tenth most populous state in the nation with an estimated population of 9,222,414. This is an increase of more than three-quarters of a million people in the past 5 years, a 9.6% increase. Data from the 2000 Census indicate that more than one out of every four individuals in the state is a member of a minority group. African Americans are the largest minority (21.4% of the population), while the combined minorities -- Hispanics (4.7%), Native Americans (1.2%) and Asian/Pacific Islanders (1.4%) -- represent a much smaller percentage. Corresponding percentages for the United States are 68.9% white, 12.9% African American, 12.5% Hispanic, 0.8% Native American, and 2.9% Asian/Pacific Islander. NC is one of seven states in the nation in which African Americans make up over 20% of the population. In addition, NC has the eighth largest Native American population in the United States (US Census Bureau, Census 2000). There are eight tribes that are recognized by the state; however, only the Federal Government recognizes the Eastern Band of Cherokees.

Because of the importance of agriculture in NC, many seasonal and migrant farm workers are employed in the state. Estimates of these individuals vary depending on the source of data. The Employment Security Commission estimates that there were 37,315 migrants and 24,365 seasonal workers in the state in 2007. Analysis of employment security data indicates that the number of migrant workers and seasonal farm workers has decreased steadily since 2004. Of migrant workers, 98% are Spanish-speaking.

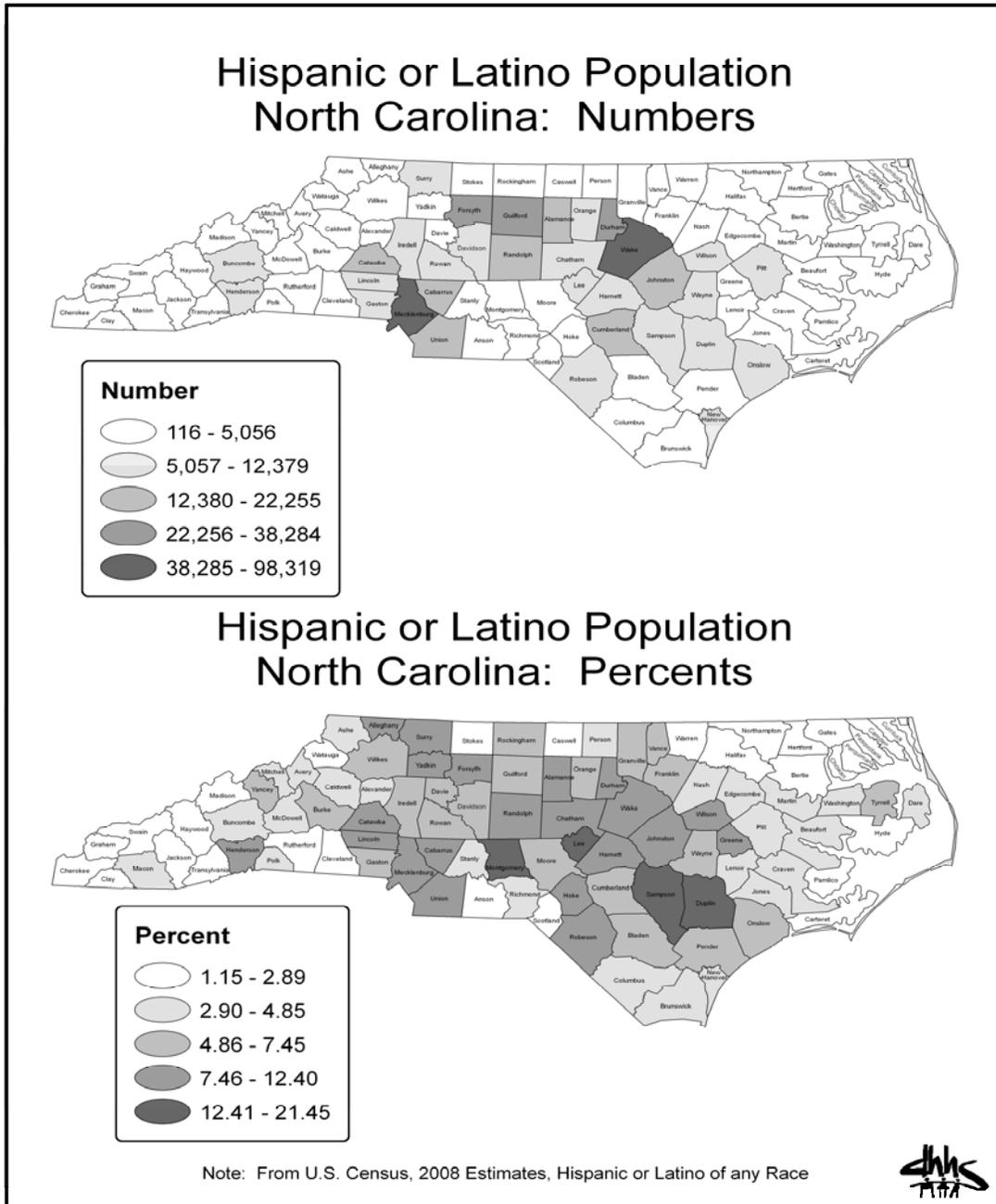
According to US Census data, in 1990, there were 76,726 persons of Hispanic/Latino origin in NC, but by 2000, the number had grown to 378,963 persons – almost a five-fold increase. By 2007, the US Census Bureau reported that NC had 638,444 persons of Hispanic and Latino ethnicity, a 56 percent increase since 2000. This estimate amounts to just over 7% of the total population in NC in 2007, compared to a national rate of almost 15%. As North Carolina's Hispanic population is disproportionately young and most of the female Hispanic newcomers are in their peak childbearing years, the potential for continued growth of the state's Hispanic population is great. Seventy-one percent of North Carolina's 2007 Hispanic population is under age 35 whereas only 46 percent of the state's non-Hispanic population is in this age range. According to the United States Census Bureau's 2005–2007 American Community Survey, the median age of the state's Hispanic population was 25.6 years, compared to 40.1 years for the white non-Hispanic population of the state. Given the younger age distribution of the Hispanic

population, there are unique health issues for this group (Health Profile of North Carolinians: 2009 Update – May 2009).

According to US Census data, of all the states, North Carolina had the second highest percentage increase in Hispanic population between July 1, 2007 and July 1, 2008 at 7.4%. Only South Carolina's increase was higher at 7.7%. (Hispanic Americans: Census Facts, Infoplease, August 2009)

The following figure presents the number and percentage of Hispanics living in each county in North Carolina in 2008 per estimates from the US Census Bureau. It can be seen that while the highest number of Hispanics are in Wake and Mecklenburg counties, the highest percentages relative to the total population in the county are located in Montgomery, Lee, Sampson, and Duplin counties.

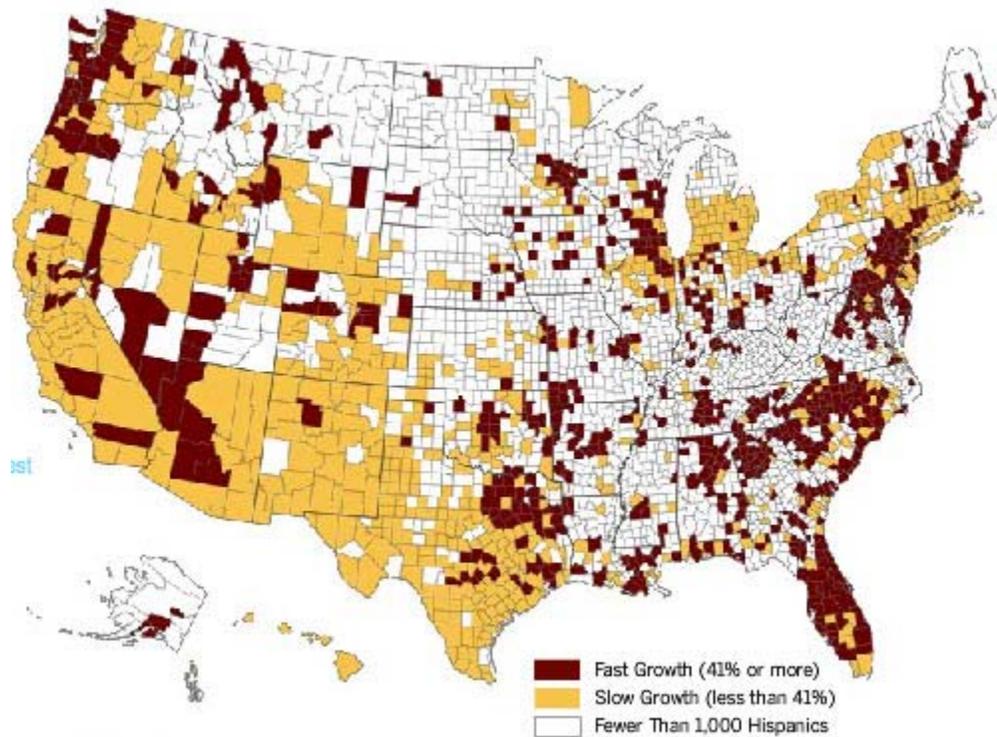
Figure 2



Source: NC Vital Statistics, SCHS, 2008

The following map of the United States shows that many of the counties with the fastest growth in the Hispanic population throughout the nation are in North Carolina.

Figure 3
Hispanic Growth by County, 2000-2007



Source: Pew Hispanic Center

Although the recent downturn in the economy and the post September 11 restrictions on immigration may have slowed down the Hispanic/Latino migration to the state, the relative youth of the population, their high fertility and birth rates, and the increasing numbers of seasonal workers choosing to settle down, indicate continuing significant growth in this population. Their impact on the public health system, particularly on maternal health, family planning and child health programs, will be even more significant in the near future. In the last five years, the number of Hispanic/Latino patients as a proportion of the total family planning patients of the Statewide Family Planning Program has risen to 21%. Similarly in 2008, the proportion of Hispanic/Latino prenatal patients in local maternity clinics was 21.3%. (Health Services Information System Data, 2009) In addition, NC Hispanic births have increased from 2% of the state's births in the early 1990s to 17% in 2007. (Vital Statistics, NC State Center for Health Statistics) Other data on the health status of the Hispanic/Latino population are discussed in the appropriate sections of the needs assessment.

Women of Childbearing Age

According to results from the 2007 NC Behavioral Risk Factor and Surveillance System, over half of the North Carolina women age 18 to 44 are overweight or obese, almost 47 percent don't get the physical activity they need and another 24 percent use tobacco. In addition 26 percent report poor mental health and 11 percent report alcohol misuse. High blood pressure affects 10

percent of these women and at least 3 percent have diabetes. Complicating their access to care, over 25% of women in this age group do not have health insurance. Many of these risk factors not only affect the women themselves, but can negatively impact their pregnancies as well. These risk factors and conditions can increase the risk of delivering a preterm and/or low birth weight baby. Premature infants are more likely to have health problems throughout their lives. In addition, women with some of these risk factors are more likely to deliver a baby born with birth defects or other serious long-term medical conditions.

The state's total infant mortality rate in 2008 was 8.2 deaths per 1,000 live births, 3.5 percent lower than the 2007 rate of 8.5. National figures are not yet available for 2008 data, but North Carolina is currently ranked 44th among the 50 states and the District of Columbia, with an average rate of 8.5 over 2005 and 2006. The national infant mortality average for that same time period was 6.5 deaths per 1,000 live births. In 2008, North Carolina's minority infant mortality rate was 13.5 deaths per 1,000 live births, nearly a 3 percent drop from the 2007 rate of 13.9 and the lowest rate in the state's history. There were 37,530 live births to minority mothers, and 508 babies of minority race died before the age of 1 during 2008. The state's white infant death rate also fell in 2008, from 6.3 deaths per 1,000 live births in 2007 to 6.0 in 2008, a 4.8 percent drop. There were 93,228 births to white mothers in 2008, and 558 deaths of white babies under age 1.

Population Growth

Between April 1990 and July 2007, NC's population grew by approximately 2,406,925 people (36.1%). (Office of Budget and Management, State Demographer's Office) During the decade from 1990-2000, the state's population was expected to increase by approximately 810,000 people to 7.55 million (13.9%). The actual growth was nearly twice the projected number. The largest factor in this growth has been people moving into the state. Between 1990 and 2005 these net in-migrants totaled 1.4 million. (*NC Atlas Revisited*. www.ncatlasrevisited.org)

According to data from the 2000 US Census, the age distribution of the female population of NC mirrors that of the nation. Females in NC and in the US are also aging at approximately the same rate. Based on July 2008 population estimates from the NC State Data Center, the median age in NC is 36.5 years; for women it is 37.9 years. In 2008, it was estimated that both age groups 35-44 and 45-54 each made up 14.4% of the female population. The number of women in NC in their prime reproductive years (ages 15-44) is 1,913,603 or 41.9% of the total female population. In ten years, the proportion of women of childbearing age will comprise only 38.8% of the total female population with a median age projected at 38.5 years.

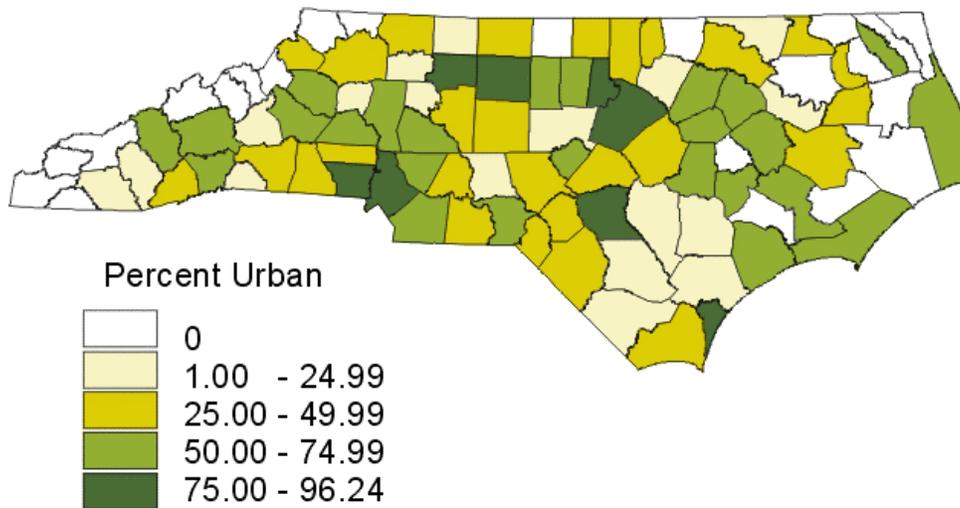
There are other indications of the potential impact the changing age distribution may have on the delivery of maternal health services. The total number of first order births to mothers age 40-44 increased from 195 in 1998 to 347 in 2007, a 78 percent increase (NC SCHS, Basic Automated Birth Yearbook, 1998 and 2007).

Location of Population

Based on the 2000 US Census, 60.2% of the NC population is considered urban. The Census Bureau defines urban populations to include all persons living in urbanized areas and all persons

living in places of 2,500 or more outside of urbanized areas. Urbanized areas are areas consisting of a central place(s) and adjacent territory with a general population density of at least 1,000 people per square mile of land area that together have a minimum residential population of at least 50,000 people. The Census Bureau uses published criteria to determine the qualification and boundaries of urban areas. The first time that a majority of the state was classified as urban rather than rural was in the 1990 census. The urbanization trend is continuing. Metropolitan areas, especially in Charlotte and Raleigh-Durham, show the fastest growth between 2000 and 2005. This strong, urban-oriented growth is in marked contrast with North Carolina's historic character as a slow growing, mostly rural state. (*NC Atlas Revisited*. www.ncatlasrevisited.org) NC's urban population is generally centered in the middle of the state while the western mountains and the coastal counties are more rural. Despite a majority of individuals classified as urban, NC is very rural compared to the United States in general. NC has the third highest number of rural residents in the nation and is 43rd in the percent of urban population. (NC SDC, Newsletter, April 2000: 12:1. State Population Changes. Office of State Budget, Planning and Management)

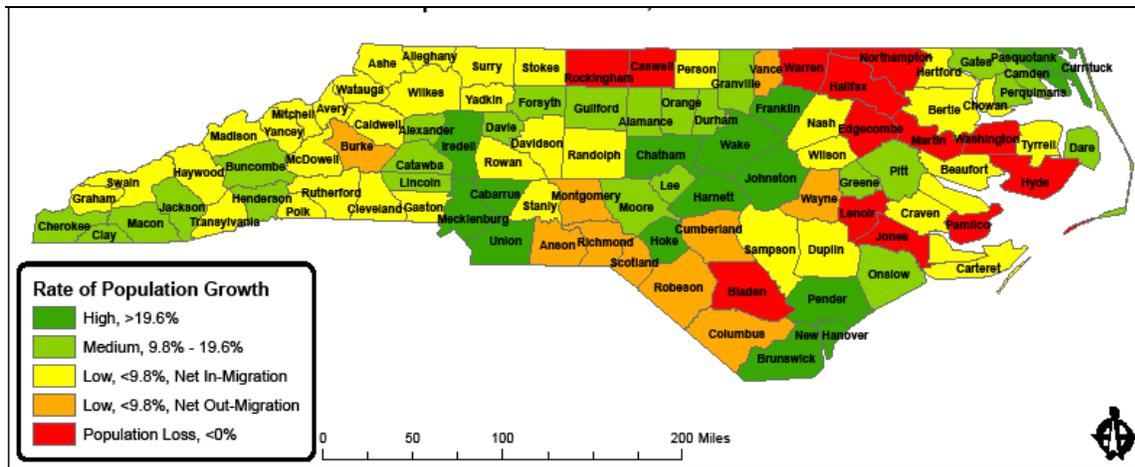
Figure 4
Percent of Urban Population in NC, 2000 Census



Produced by the NC State Data Center

Recently in NC, growth at the county level has been variable and will probably continue that way. During this decade, urban and coastal counties have sustained high growth rates and high net in-migration while rural eastern counties (e.g., Bertie, Edgecombe, Washington) have lost population. This trend should continue with a loss of individuals from the rural areas and increases into the urban and resort areas due to net in-migration (NC SDC, Newsletter, April 2000: 12:1.)

Figure 5
Population Growth 2000-2008; NC Counties
State Data Center Population Estimates



Source: NC State Data Center

NC has one of the largest American Indian populations east of the Mississippi River and among the top ten largest American Indian populations in the nation, according to the 2000 Census. In 2007, American Indians numbered more than 106,000, or approximately 1.2 percent of the population in the state. (2007 Vintage National Center for Health Statistics Bridged Population Estimate file) The American Indian population of North Carolina increased by greater than 20% between 1990 and 2000. Although American Indians live in each of NC's 100 counties, nearly 3/4 of the population lives in 11 counties, 5 of which are clustered in the southeastern part of the state. Forty-seven percent of NC's American Indian population lives in Robeson County (southeastern county) and these are mostly Lumbee. Another 7 % live in Jackson and Swain counties in the western part of the state and these are mostly Cherokee. There are eight state-recognized tribes in the state, with only one federally-recognized tribe, that of the Eastern Band of Cherokee Indians. (NC Minority Health Facts - American Indians, 2005)

Sociodemographic Distribution by Perinatal Care Regions

In 2007, the PCR with the highest percentage of North Carolina's population was PCR II, at 24.2%. Regions III and IV followed closely behind with 18.4% and 20.6% respectively. These three PCRs, located in the piedmont and central areas of the state, also have the highest number of counties which have more than 50% urban population and contain the cities of Raleigh, Durham, Chapel Hill, Burlington, Greensboro, High Point, Winston-Salem, Gastonia, Hickory, and Charlotte. In general, these same three regions have the lowest percentage of families in poverty. PCR I, located in the mountainous western portion of the state, and PCR VI, located in the northeastern coastal area of the state, have the highest percentages of counties which are rural. Due to the predominance of rural counties, the PCRs in the mountain and coastal areas (PCR I, V, and VI), have the smallest percentage of the state's population (8.0% to 14.7%), and it has dropped since 2003. The percentage of nonwhites is highest in the central and eastern portions of the state in PCRs IV, V, and VI. The percentage of nonwhites is much lower in the mountain and northwestern areas of the state (PCR I, II). (NC Vital Statistics Volume I, 2007)

**Table 1
Population Distribution by PCR and Race - 2007**

	Total Population	% of State Population	# White	% of Region/State White	# Minority	% of Region/State Minority
PCR I	726,391	8.0	672,406	92.7	53,985	7.3
PCR II	2,196,674	24.2	1,781,040	81.1	415,634	18.9
PCR III	1,665,257	18.4	1,240,435	72.3	424,822	25.5
PCR IV	1,867,441	20.6	1,348,761	72.2	518,680	27.7
PCR V	1,278,775	14.1	842,423	65.9	436,352	34.1
PCR VI	1,334,860	14.7	856,558	64.2	468,302	35.1
State Total	9,069,398	100	6,751,623	74.4	2,317,775	25.6

Source: NC Vital Statistics, SCHS, 2007

Poverty

According to the American Community Survey conducted by the US Census Bureau, North Carolina's 2007 poverty rate is estimated to be 14.8% and the US poverty rate is 13.3%. About six percent of NC residents fall below 50% of the poverty line, and 19.8% are below 125% of the poverty line. Thirty-five percent of female-headed households are poor; 43.2% hover just above the poverty line. Further estimates from the Census Bureau found that 77 counties have poverty rates higher than the national average and 21 counties have poverty rates over 20%. Robeson County has the highest rate at 28.6%; Union County the lowest at 7.9%. (Hunt, Poverty in North Carolina, 2009) Racial and ethnic breakdowns of people in poverty in North Carolina are in Table 2.

**Table 2
Poverty in North Carolina by Race/Ethnicity
2005-2007 American Community Survey**

Race/Ethnicity	Percent in Poverty	Number of People
White	9.9	579,489
Black	26	469,519
American Indian	12.7	19,643
Asian	25.3	25,433
Hispanic	27.4	158,796

Source: 2005-2007 American Community Survey 3-Year Estimates

The recent fiscal crisis has resulted in significant reductions in the state appropriations to local county governments and subsequent reductions in human services, including public health. Both state and local programs have had to make significant reductions in their programs and scope, while the number of families in need of public programs has increased.

In addition, NC's economy has undergone a shift in the past two decades, with the decline of the textile, furniture, and tobacco industries. With the loss of jobs in these sectors, many workers have been unable to find jobs to sustain their families. According to the November 2008 data from the US Bureau of Labor Statistics, NC lost more than 46,000 jobs in one month - only California, the District of Columbia, Michigan, Nevada, Oregon, Rhode Island and South Carolina had higher rates. (Business Journal of the Greater Triad Area, December 22, 2008) The depth of this recession is such that no sector is untouched by job reduction. While the larger towns are able to sustain lower unemployment rates, through creation of jobs in other sectors, job loss in rural areas is not as easily absorbed. (Firestone, 2001) As the state undergoes this crisis of unemployment, a strain is placed on governmental services such as public health. These families no longer have the regular insurance they counted on, and therefore turn to the county health department to provide their care.

Summary: Population Growth, Age and Income Distribution

Due to the state's continued growth from natural increases and in-migration, NC is becoming an increasingly urbanized state. With this growth, NC is experiencing an increase in the number and percent of the population that is nonwhite. Special issues related to these increases include (1) the accelerating growth of the Hispanic/Latino population in the designated urban "Hypergrowth" areas and several rural counties; (2) the lack of Federal recognition of seven of the eight Native American tribes in the state; (3) the disproportionately high percentage of minority persons in poverty, especially in the eastern region of the state, PCRs V and VI; and (4) the recent economic downturn which has caused growth in need for services while also cutting into funds available to provide needed service. The aging of the population, and the resultant change in the age distribution of women of reproductive age, may require a change in the traditional definition of family planning services. The increasing number of women age 40 and over having first births will need special attention because of the potential demand on assisted reproductive technology, and increase in multiple births, low birth weights, etc. On the other end of the age spectrum are the relatively younger Hispanic/Latino women, with higher fertility and pregnancy rates. An emerging challenge for family planning and maternal health services is how to balance the competing needs of various populations when money is tight.

Health Status Assessment

It is difficult to separate the health of an infant with the health of his or her mother, therefore separating the indicators into strict categories based on the two WCHS Core Indicator areas, infant mortality reduction and improved health of women, resulted in much discussion.

Infant Mortality Reduction

Of the six National Outcome Measures (NOMs), five are specific to infant mortality and birth outcomes. Listed below are the five NOMs that match the population of women and infants addressed in this section.

NOM#1: Infant mortality rate

NOM#2: Infant mortality: black/white ratio

NOM#3: Neonatal mortality rate per 1,000 live births
NOM#4: Postneonatal mortality rate per 1,000 live births
NOM#5: Perinatal mortality rate per 1,000 live births

The five National Performance Measures (NPMs) listed below seem most associated with infant mortality reduction.

NPM#8: The birth rate (per 1,000) for teenagers aged 15 through 17 years
NPM#11: Percentage of mothers who breastfeed their infants at hospital discharge
NPM#15: Percent of women who smoke in the last three months of pregnancy
NPM#17: Percent of very low weight infants delivered at facilities for high-risk deliveries and neonates
NPM#18: Percent of infants born to women receiving prenatal care beginning in the first trimester

In addition, five State Performance Measures (SPMs) fit best in the category of infant mortality reduction.

SPM#5: Percent of women responding to the PRAMS survey that they either wanted to be pregnant later or not then or at any time in the future
SPM#6: Percent of women of childbearing age taking folic acid regularly
SPM#8: Percent of women with live, term births who gain within the Institute of Medicine (IOM) Recommended Weight Gain Ranges

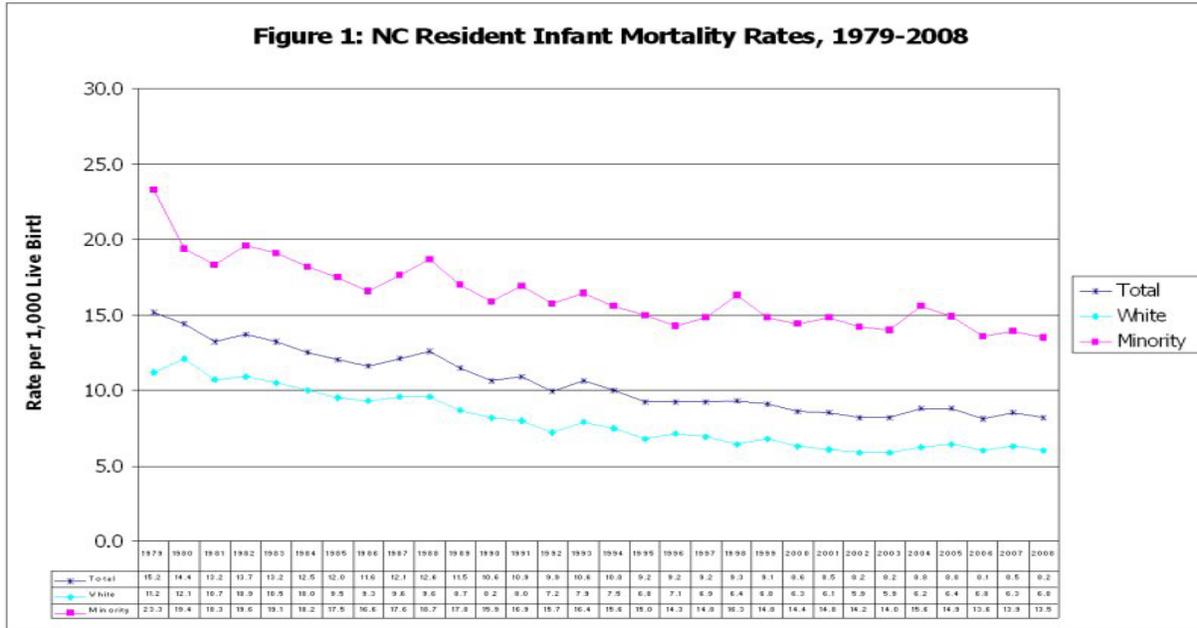
The subsequent sections discuss these measures, followed by an examination of other data, both quantitative and qualitative, that describe infant mortality reduction issues.

NOM#1: Infant Mortality Rate

Reduction in the infant mortality or infant death rate (these terms are used interchangeably within the narrative) has been a primary focus of the NC DPH. Despite this, North Carolina's infant death rate continues to exceed the national average. In 2008, 1,066 infants died in North Carolina - a rate of 8.2 infant deaths per 1,000 live births. National figures are not yet available for 2008 data, but North Carolina is currently ranked 44th among the 50 states and the District of Columbia, with an average rate of 8.5 over 2005 and 2006. The national infant mortality average for that same time period was 6.5 deaths per 1,000 live births.

In 1988, North Carolina's infant death rate was the highest in the nation at 12.6 deaths per 1,000 live births, prompting the state legislature to increase funding and to focus on this problem. Since then, the infant mortality rate has dropped 35%, but in recent years, the reductions have leveled. The graph below shows the reduction in infant mortality rate since 1979.

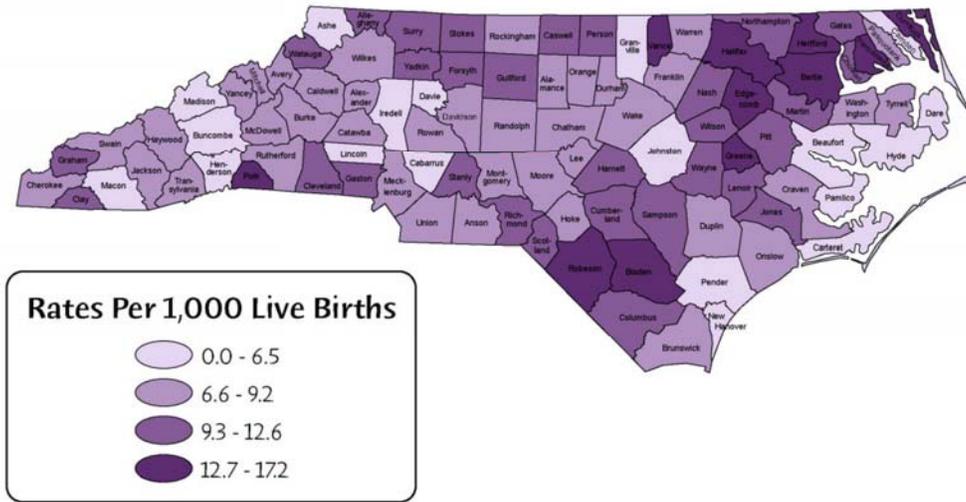
Figure 6
NC Resident Infant Mortality Rates, 1979-2008



Source: NC Vital Statistics, SCHS

Infant death rates vary greatly across the state. The highest rates of infant mortality are in the east and southeast PCRs. In 2008, these two regions were also where the highest minority infant mortality rates existed. In 2008, the highest white rate was in the eastern region, followed by the northwestern region. The following map shows the 2004-2008 infant mortality rates by county of residence.

Figure 7
North Carolina Infant Death Rates
2004-2008



Source: NC Vital Statistics, SCHS

NOM#2: Infant mortality: black/white ratio

The black infant mortality rate was 14.2 in 2008, which is the lowest rate in history; however, North Carolina is no closer to closing the gap between white and black infant deaths.

**Table 3
North Carolina Infant Mortality Ratio – Black/White
2000-2008**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
North Carolina	2.48	2.59	2.53	2.64	2.71	2.55	2.52	2.38	2.37

Source: NC Vital Statistics, SCHS

**Table 4
North Carolina Infant Mortality Rates, by Race and by Hispanic Origin
2004-2008**

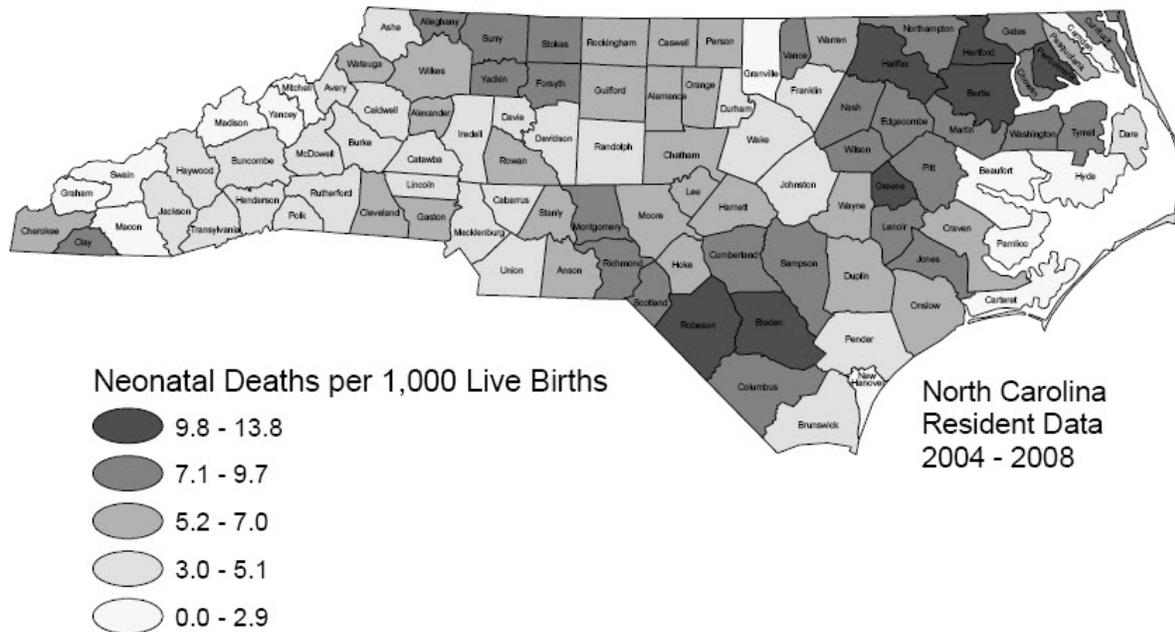
	2004	2005	2006	2007	2008
Total	8.8	8.8	8.1	8.5	8.2
White	6.2	6.4	6.0	6.3	6.0
African American	16.8	16.3	15.0	15.0	14.2
American Indian	12.7	7.8	11.2	17.6	16.5
Other	9.2	7.6	10.1	8.4	4.9
Hispanic Ethnicity	4.7	4.5	5.4	6.6	6.0

Source: NC Vital Statistics, SCHS

NOM#3: Neonatal mortality rate per 1,000 live births

Neonatal deaths are the death of a live-born infant, dying in the first 28 days of life. Typically these are babies born very small, with a congenital defect, or with some perinatal infection or condition. North Carolina’s neonatal mortality has dropped significantly over the past two decades, but recently the improvements in neonatal mortality have stalled, mirroring the trend in infant death rates. This is to be expected, since neonatal mortality is a component of infant mortality. There is no stronger association in all epidemiology than that between birth weight and mortality, yet the causal factors are not clearly understood. (Basso, Wilcox and Weinberg) Improvements in infant care for extremely low weight babies have made huge reductions in neonatal death rates – between 1970 and 2000, the neonatal death rate decreased 75% for the US. North Carolina’s neonatal death rates, in comparison, dropped from 17.9 per 1,000 in 1970 to 6.2 in 2000, a 63% reduction. The rate has dropped slightly since then to 5.2 in 2008.

**Figure 8
NC Neonatal Death Rates, 2004-2008**



Source: NC Vital Statistics, SCHS

From the map above, a stripe of counties with high neonatal death rates crosses the state from south to north, following the I-95 corridor, with the highest rates up against the Virginia line.

NOM#4: Postneonatal mortality rate per 1,000 live births

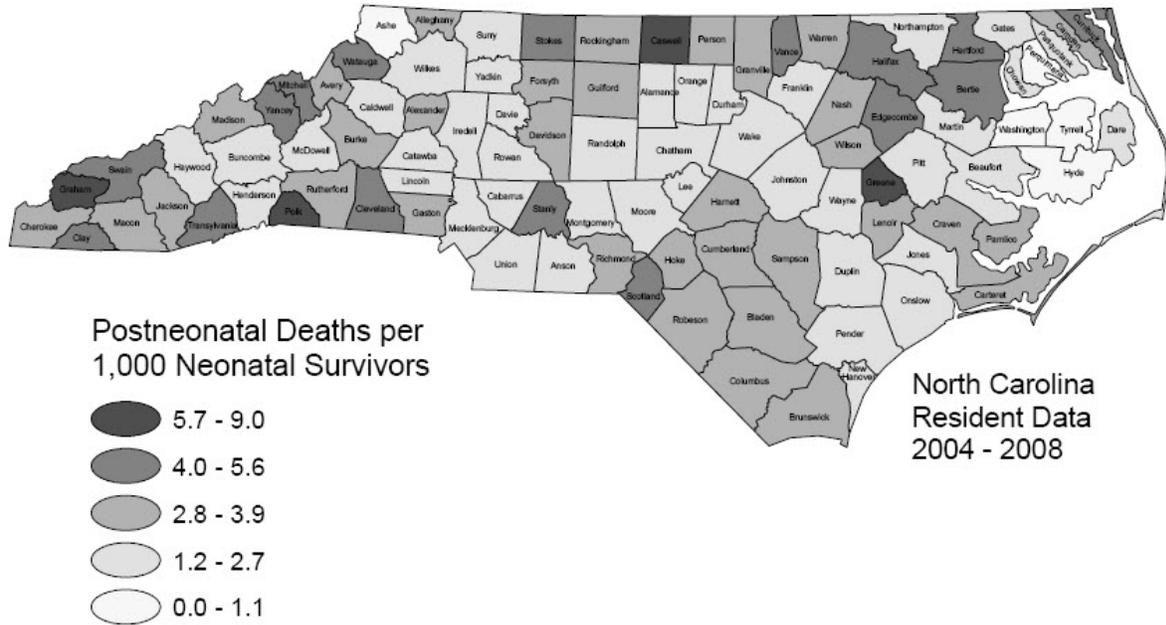
Postneonatal deaths are deaths occurring after the first month of birth but before the baby is a year old. Postneonatal deaths make up a smaller proportion of infant deaths than do neonatal deaths. Rates in the 1970s and 1980s were above four deaths per 1,000 live births, but dropped in recent years below three.

**Table 5
NC Postneonatal Death Rates
2004 to 2008**

	2004	2005	2006	2007	2008
NC Postneonatal Death Rate	2.75	2.65	2.51	2.75	2.95

Source: NC Vital Statistics, SCHS

**Figure 9
NC Postneonatal Death Rates, 2003-2008**



Source: NC Vital Statistics, SCHS

The map above does not show the same obvious high rate distribution that neonatal deaths did. Instead counties with high rates are sprinkled across the state.

NOM#5: Perinatal Mortality Rate

For the NOM, perinatal deaths are defined as fetal deaths that occur after more than 28 weeks gestation plus neonatal deaths in the first seven days of life. Each year NC has about 1,000 perinatal deaths. Perinatal death rates have fluctuated but generally trended downward since 1999.

**Table 6
NC Perinatal Death Rates
2004-2008**

	2004	2005	2006	2007	2008
NC Perinatal Death Rates	8.4	8.4	7.8	7.6	7.6

Source: NC Vital Records, SCHS

Perinatal death rates by race show a disparity, however the gap between white and black and white and American Indian has closed over time between 2004 and 2008.

Table 7
NC Perinatal Death Rates by Race
2004 & 2008

Perinatal Death Rate	2004	2008
White	6.4	6.0
Black	14.7	12.6
American Indian	15.8	9
Total	8.4	7.6

Source: NC Vital Records, SCHS

NPM#8 - The birth rate (per 1,000) for teenagers, aged 15 through 17 years

Infants of teen mothers are more likely to have low birth weight, be premature, have developmental disabilities, and have poorer developmental outcomes than the infants of older mothers. Second pregnancies to adolescent parents are associated with increased infant mortality and low birth weight. Additionally, adolescents are more likely to delay prenatal care in their second pregnancy, as opposed to adult women, who tend to seek care earlier in their second pregnancy (Committee on Adolescence and Committee on Early Childhood, Adoption, and Dependent Care, 2001, 429-430).

As reported in the RNDMU data book, fertility rates for girls ages 15-17 in NC were above both the rates for the United States and the southeast region of states in 2007 for both whites and blacks, although the disparity between the United States and NC rates is higher among white adolescents. Black teen birth rates in NC were about 40% higher than the white rates in 2007.

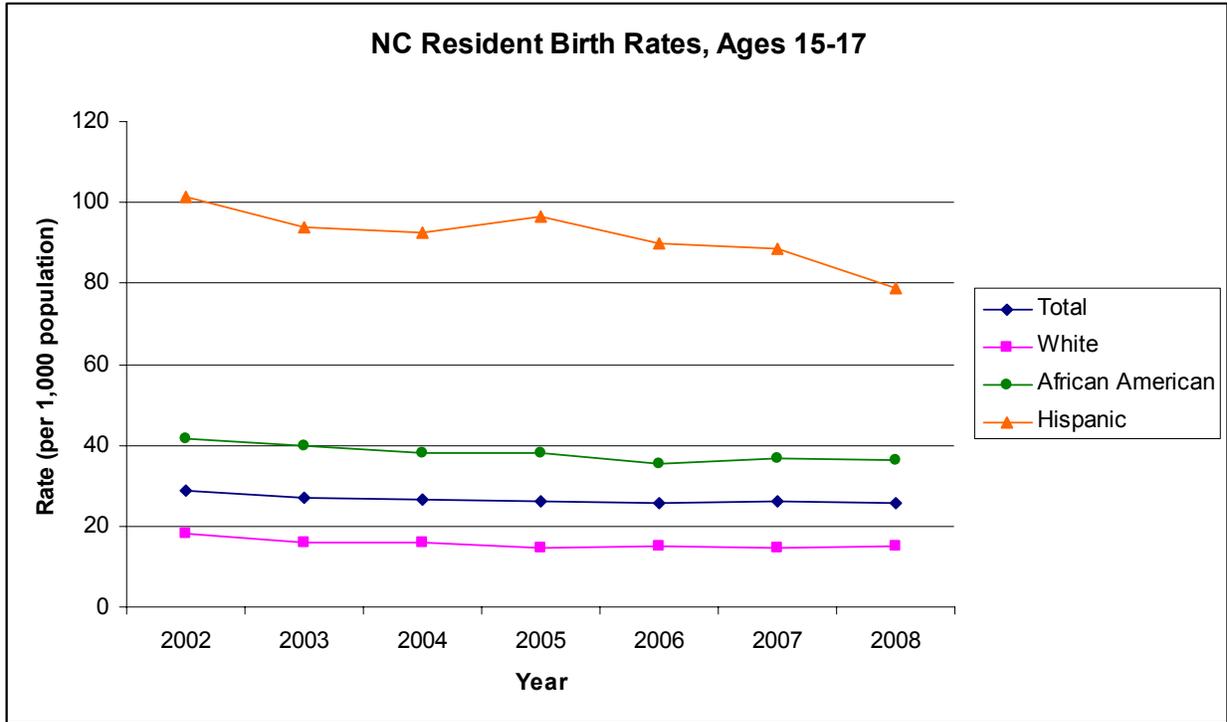
Table 8
Adolescent Fertility Rates (15-17), by Race
US, NC and Southeastern States, 2007

Area	Total	White	Black
US	22.2	NA	NA
NC	26.1	22.0	37.2
Southeast Region	26.7	21.9	39.3

Source: Sheps Center, University of NC at Chapel Hill, RNDMU, September 2009

It appears that teen birth rates have been declining steadily over the past several years, although the disparities in the rates show that there is a great deal of work yet to be done to narrow the gaps between races. The graph below shows trends since 2002.

Figure 10



Source: NC Vital Statistics, SCHS

While teen pregnancies have been declining, there were nearly 5000 babies born in 2008 to girls ages 10-17 in the state. African American girls are twice as likely to have a teen birth as whites, and Hispanic girls are more than five times as likely. Regionally, teen pregnancy rates are highest in the east and southeast parts of the state. No comparable national data are available; however, the US Healthy People 2010 goal for teen pregnancies 15-17 is 43 pregnancies per 1,000 girls. In 2008, NC's teen pregnancy rate for 15-17 year-olds was 25.9 per 1,000 girls. (Vital Statistics, NC SCHS) Pregnancy rates in 2008 for girls age 10 to 17 are found in Table 9.

Table 9
NC Pregnancy Rates for ages 10-17 by Race
2008

Group	Pregnancies	Rate per 1,000
Total	6508	13.8
White	2332	8.0
African American	2700	21.5
Hispanic	1222	31.1

Source: NC Vital Statistics, SCHS

Repeat teen pregnancies accounted for 15.4% of pregnancies to women 10-17 in 2008. (Vital Statistics, NC SCHS) In the most recent data available, the state has considerably higher rates than the southeastern region of states, although this may be a statistical fluctuation. Rates of teens ≤17 years old whose live births and fetal deaths were repeat pregnancies in 2007 show

North Carolina with a rate of 14.6%, compared with 13.9% in Region IV (RNDMU, September 2009, 34).

NPM#11 - Percentage of mothers who breastfeed their infants at hospital discharge

According to the 2006 CDC National Immunization Survey, North Carolina did not meet any of the Healthy People 2010 breastfeeding goals of 75% of mothers ever breastfeeding (NC=66.9%), 50% of mothers breastfeeding at 6 months (NC=36.7%), and 25% of mothers breastfeeding at 12 months (NC=18.9%). Additionally, the state's rate for "exclusive" breastfeeding at 6 months is 13.1%, lower than the national average of 13.6%. The 2006 data compared to 2003 data show a decline in the percent ever breastfeeding (2003 data = 68.4%), no movement at all in the percent breastfeeding at 6 months, and an almost twenty percent increase in the percent breastfeeding at 12 months (2003 data = 15.8%). The percent of women exclusively breastfeeding at six months also increased from 12.1% in 2003.

The 2007 NC PNSS data from NC WIC clients showed 61.1% of clients reported breastfeeding, yet rates varied considerably by county, from 10.3% to 98.1%. Rates were higher in the western part of the state. Additionally, women ≥ 20 years of age or with ≥ 12 years of education were more likely to breastfeed (65% and 69%, respectively). The 2007 breastfeeding rate was 59% for white, non-Hispanic women, 49% among black non-Hispanic women, 44% among Native American, non-Hispanic women, and 65% among Asian, non-Hispanic women. The highest rate was among Hispanic women at 84%. The breastfeeding rates among all race and ethnic group significantly increased compared to 1999.

The 2007 NC PRAMS data noted 75.6% of women initiated breastfeeding, 61.9% breastfed for 4 weeks following delivery, 50.9% breastfed for 8 weeks following delivery, and 54.8% and 43.1% breastfed exclusively for 4 weeks and 8 weeks following delivery, respectively. These data were higher than results from the 2002 PRAMS, except in the case of those women who were breastfeeding for 8 weeks following delivery, which fell from 56% in 2002. Breastfeeding data reveal non-Hispanic blacks and socioeconomic disadvantaged groups have consistently lower rates. Awareness of the benefits of breastfeeding is not as much of a barrier for this group as cultural norms and lack of social and economic support.

NPM#15: Percent of women who smoke in the last three months of pregnancy

Smoking during pregnancy can have a negative impact on the health of infants and children by increasing the risk of complications during pregnancy, premature delivery, and low birth weight—a leading cause of infant mortality. Maternal cigarette use data comes from the birth certificates; however, data collection methods vary due to revisions to the birth certificate in 2003. As of January 1, 2008, 27 states had implemented the revised birth certificate. North Carolina uses the 1989 Standard Certificate, but is expected to transition to the 2003 certificate beginning in 2010. (National vital statistics reports; vol 58 no 16)

According to data from the BRFSS, in North Carolina in 2008, 20.7% of women of childbearing age (18-44 years) reported smoking, compared to a national rate of 18.8% for the same age group. In 2008, 10.4% of women in North Carolina reported that they smoked during pregnancy

on their birth certificate. (Vital Statistics, NC SCHS) According to the results of the 2008 NC PRAMS, 12.5% of women responding smoked during the last three months of their pregnancy. Smoking has traditionally been a problem in North Carolina and is acknowledged as the number one preventable cause of death and disability. In 2004, at least 10 percent of women in the United States smoked during pregnancy. According to the US Public Health Service, if all women who were pregnant stopped smoking, there would be an 11% reduction in the percentage of stillborn babies and five percent reduction in the number of babies who die in infancy. (CDC, Office on Smoking and Health, 2004)

The percentage for women in North Carolina smoking was 3 percentage points higher than the national average in 2007, yet state data indicate that in the period 2003 to 2007 smoking prevalence rates for white females declined 2 percentage points (from 13.4 to 11.4), while rates for black females remained steady (~10.7) in the same time period. (Vital Statistics, NC SCHS)

The percentage of women smoking during pregnancy in the state has continually decreased since 2000, but geographic areas show wide differences. In 2006, in the west region of the state (PCR I) 18.2% of women reported smoking during pregnancy, while less than half that number (6.6%) in the Triangle area (PCR 4) reported smoking during pregnancy. (Vital Statistics, NC SCHS)

While smoking during pregnancy is a problem, secondhand smoke is especially harmful for young children. Children are particularly vulnerable to the effects of secondhand smoke because they have little control over their indoor environments. Children exposed to high doses of secondhand smoke, whose mothers smoke, run the greatest relative risk of experiencing damaging health effects. (EPA/600/6-90/006F, 1992) The US Environmental Protection Agency has reported that secondhand smoke is responsible for the following:

- Asthma in children
- Increases the risk for Sudden Infant Death Syndrome
- Infants and children younger than six exposed to secondhand smoke are at increased risk of lower respiratory track infections, such as pneumonia and bronchitis.
- Children who regularly breathe secondhand smoke are at increased risk for middle ear infections.

The results from the 2008 BRFSS for NC show that nearly one in five North Carolinians is a current smoker (20.9%). Only 77% of households reported they prohibit smoking inside. (NC BRFSS, SCHS, 2008)

NPM#17: Percent of very low weight infants delivered at facilities for high-risk deliveries and neonates

Low- and very-low weight births have been identified as one of the major determinants of infant mortality in NC. While improvements have been made in intensive neonatal care, only about 10% of live births weighing 500 grams or less survive to their first birthday. (Holliday et al., 2004) Various mechanisms have been made to explain very low weight births, such as periodontal disease and congenital defects. One recent study showed that smoking during pregnancy decreases the blood flow to the fetus and results in smaller babies. (Andersen et al.)

In order to give low weight babies the best chance for survival, the national March of Dimes-sponsored Committee on Perinatal Health made recommendations in 1976 to set up a regional system of health delivery based on referrals to regional hospitals that could deliver a set of high risk health procedures. (March of Dimes National Foundation, 1976) From this, NC's perinatal service areas were developed. Subsequent studies of regional neonatal intensive care units (NICUs) have validated the assertion that low weight and high-risk babies born in hospitals with NICUs (also called tertiary care centers) have better survival rates and fewer adverse conditions. (Cifuentes, et al., 2002, 745)

Of special interest are those infants weighing 500 to 1499 grams. These infants are the ones at high risk of poor birth outcomes and large enough to be viable at birth. As shown below, despite recommendations that high risk babies be delivered at tertiary care centers, in NC less than 80 percent of very low weight infants are delivered at hospitals with an NICU.

Table 10
Percent of 500-1499 Gram Infants Delivered at NC Tertiary Care Centers by Race
2000-2008

Year	Total	White	Minority
2000	81.8	82.1	81.5
2001	79.6	80.5	78.4
2002	78.1	75.7	80.7
2003	80.2	79.2	81.4
2004	79.2	77.6	81.2
2005	79.9	77.8	82.1
2006	78.2	78.7	77.6
2007	78.3	76.3	80.5
2008	78.4	77.7	79.2

Source: NC Vital Statistics, SCHS

Nationally, no data are available for the type of hospital in which the infant was delivered. Data are available for the southeastern region of states; however, caution should be used in interpreting these data as each of the state may define tertiary care centers a little differently. NC compared favorably with the regional rates from RNDMU for 2007, as the data show NC's percentage of 500-1499 gram births delivered at tertiary care centers to be 76.7% and the region as a whole at 63.7%. (RNDMU, September 2009, 110)

National data for 2004-2006 reveal that African American babies are more than twice as likely to be very low weight as any other race. (Peristats, March of Dimes) Compared to the US in 2007, babies born in North Carolina were more likely to be born very low weight (<1500 grams) – 1.8% in North Carolina as compared to 1.5% nationally. Rates for women in the southeastern states ranged between 1.6% and 2.2% in 2007. White and black state rates were also higher than the US in 2006, although care must be taken when comparing such small numbers. 2007 national rates by race are not yet available. (RNDMU, September 2009, 132)

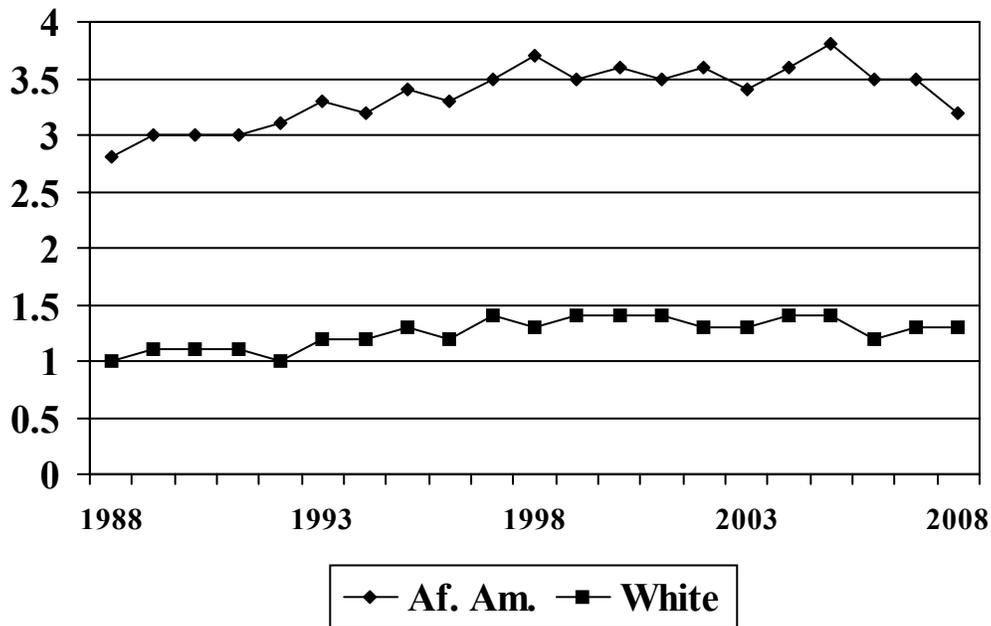
Table 11

**Percent of Live Births Weighing Less than 1500 Grams by Race
2006**

Group	Total	White	Black
US	1.5	1.2	3.1
NC	1.8	1.3	3.5
Southeast Region	1.8	1.3	3.3

Source: Sheps Center, University of NC at Chapel Hill, RNDMU Project

**Figure 11
Percentage of Live Births Less than 1500 Grams by Race
North Carolina 1998-2008**



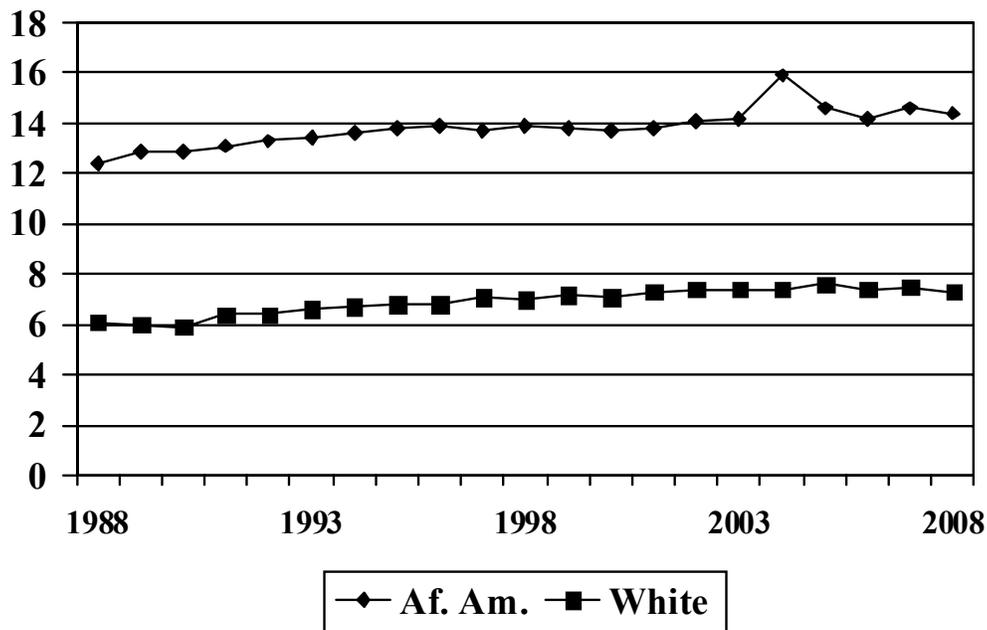
Source: NC Vital Statistics, SCHS

Data for 2007 showed that Hispanics in North Carolina have the same rate of babies born weighing less than 1500 grams as the white population (1.3% of births). However, in 2008, only 1.1% of births to Hispanic women were very low weight births, as opposed to 1.9% of births to white women. (Vital Records, NC SCHS)

Geographically within the state of North Carolina, very low weight births were most prevalent in the northeast in 2007. Of the 10 worst counties in the state, 8 were in the northeast, while one was in the north central, and one was in the far west. White rates were not concentrated in one region – four were in the northeast, two were in the north central, one was in the south central, and three were in the west. Black very low weight birth rates were worst in the northeast, with five of the worst counties being in this region, three counties were in the far west, and 2 in the north central.

Low weight births, those weighing less than 2500 grams, made up 9.1% of all births in the state in 2008. This rate has been steadily increasing since 1988. Minority rates were nearly double those of white women in 2008 (13.5% vs. 7.3%) (Vital Records, NC SCHS) National data shows that 8.2 percent of births in the US were born weighing less than 2500 grams in 2007. Southeastern region data are available by race for 2007, and North Carolina's percentages of 7.5% for white births and 14.6% for black births are consistent with the regional rates of 7.6% for whites and 14.6% for blacks. (RNDMU, 2009, 136)

Figure 12
Percentage of Live Births Less than 2500 Grams by Race
North Carolina 1988-2008



Source: Vital Statistics, NC State Center for Health Statistics

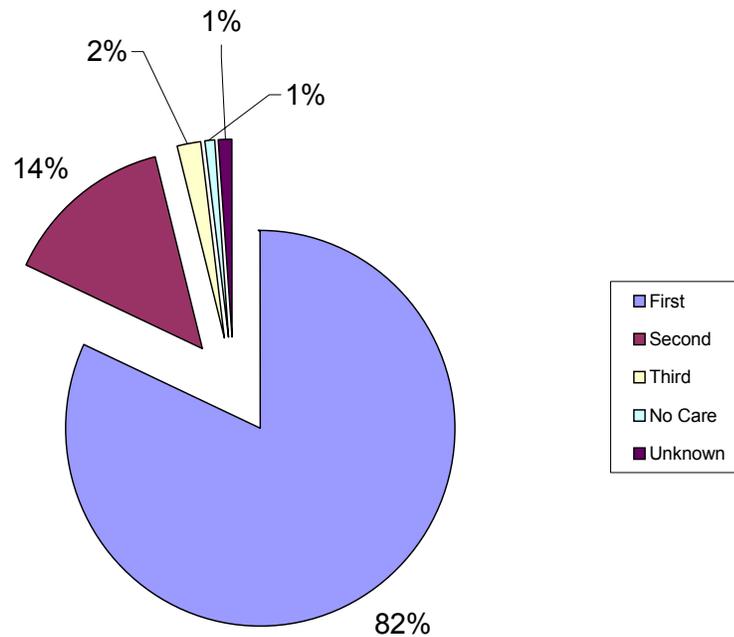
In 2008, multiple births made up 21.4% of all low weight births, compared to 16% in 1990. This number has been consistently above 20% in recent years. (Vital Records, NC SCHS) While the number of multiple births is very small, they contribute a large proportion of low weight infants.

NPM#18: Percent of infants born to women receiving prenatal care beginning in the first trimester

Early and adequate prenatal care is an accepted best practice in the reduction of infant mortality. With the advent of the revised 2003 birth certificate, the differences in reporting were such that there are no comparable US figures after 2003. 2008 North Carolina data reveal that 82% of all women received prenatal care within the first 3 months of pregnancy. White women seek care in the first trimester 84.3% of the time, compared to 76.2% for minorities. (Risk Factors and Characteristics for North Carolina Resident Live Births, 2008, NC SCHS) Combining data for 2004 to 2008, percentages of women receiving prenatal care within the first trimester by race are

as follows: total – 82.1%; black – 75%; and Native American – 77.7%. (2010 County Health Data Book, NC SCHS)

Figure 13
Trimester Prenatal Care First Received
North Carolina 2008



Source: Risk Factors and Characteristics for North Carolina Resident Live Births, NC SCHS

Looking at the geographic distribution of women seeking prenatal care early shows that women in the western region of the state received prenatal care in the first trimester about 90% of the time in 2007, the highest percentage in the state, while those in the south central (76.7%) and southeast (78.8%) received care least often in the first 12 weeks of pregnancy. (Vital Records, NC SCHS)

While early initiation of prenatal care is an important indicator of the health of a pregnancy, even more important is the adequacy of care. While no precise measures exist, several surrogate measures for prenatal care adequacy exist. Using the Kotelchuck Index, comparable data from the southeast region of the US are available. In 2007, North Carolina has higher adequacy care rates than the southeast, 79.92% for NC and 74.4.0% for the Southeast. (RNDMU, December 2009, 106)

In addition to NPM#18, the annual MCH Block Grant also uses Health System Capacity Indicator (HSCI) 05C (Percent of infants born to pregnant women receiving prenatal care beginning in the first trimester) to monitor the progress of each state. Data from calendar year 2008 are the most recent data for this indicator. Since 2001, data for this indicator have remained constant, with almost 75% of infants born to women receiving early prenatal care in

the Medicaid population and about 93% in the non-Medicaid population. When the Medicaid group is broken down by type of Medicaid (Emergency Medicaid and All Other Medicaid), a disparity is shown as only 68.7% of women receiving Emergency Medicaid received prenatal care in the first trimester while 76.4% of women receiving other Medicaid had prenatal care in the first trimester. These data do show a slight increase from the percentages found in the 2007 data (64.2% in the Emergency Medicaid group and 74.7% in the All Other Medicaid group).

SPM#5: Percent of women responding to the Pregnancy Risk Assessment Monitoring System (PRAMS) survey that they either wanted to be pregnant later or not then or at any time in the future

Almost half of all live births in North Carolina are mistimed or unwanted. In the past ten years, the percent of births that were unintended has fluctuated, declining from 47.1% in 1998 to 40.6% in 2002. Subsequently, the rate increased again to 47.6% in 2006, declined significantly to 39.8% in 2007, and increased back to 43.9% in 2008. All of these data points are still well above the Healthy People 2010 objective of 30% or less. Contrary to a common misconception, unintended pregnancies are not just a problem for adolescents. In North Carolina, approximately 75% of all unintended pregnancies are to women ages 20 and older. (Gross 2002, 4) Adolescents, however, have higher rates of unintended pregnancies. In 2007, of the teens 19 years of age or younger who had live births, the percent that were unintended births was 83.4% for black teens and 52.8% for white teens. (RNDMU, 2009, 54) In addition to younger age and minority status, women who are poor, who smoke during pregnancy, or have other pregnancy and postpartum risk factors, are more likely to have an unintended pregnancy. Postpartum risk factors include: postpartum depression, not breastfeeding, and low birth weight. (Gross, 2002, 2)

Table 12
Percent of Unintended Births
North Carolina 2004 to 2008

	2004	2005	2006	2007	2008
% of women responding to the PRAMS survey that they either wanted to be pregnant later or not then or at any time in the future	44	44.4	47.6	39.8	43.9

Source: NC SCHS, PRAMS 2004 to 2008

When looking at PRAMS data for 2006 to 2008, 44% of all pregnancies in North Carolina are unintended. Looking at the data by racial/ethnic group reveals huge disparities and emphasizes the importance of addressing them. The percent of unintended pregnancies is higher for African Americans (64%) than Latinas (40%) and Whites (38%). Data is not available for American Indian women. Implementing interventions, however, is not as straightforward since pregnancy intention is a topic that has generated a lot of debate in the literature in terms of how it should be measured and defined. Having a clearer understanding of pregnancy intention for women in North Carolina can help develop and target appropriate interventions.

In the spring of 2009, through funding from the SSDI, the WCHS contracted with the NCHSF to conduct a review of literature and carried out a pilot study to test a focus group guide on pregnancy intention. Starting in the summer of 2009, after revising the original focus group guide, the Foundation carried out a series of focus groups with the purpose of understanding the social context and cultural dimensions in which pregnancies occur and learn about reproductive health preferences. This qualitative research, funded by the WCHS, focused on looking at pregnancy from the perspective of women's everyday realities. By asking about women's feelings, preferences with respect to number of children, partner's roles, experiences with contraceptive use and influences on decision-making, this study aimed to better understand how women from different racial/ethnic groups perceive pregnancy planning. This study also served as an opportunity to let women speak about a topic that clearly affects them and to offer suggestions to help them better manage their reproductive health.

Between August 2009 and April 2010, 10 focus groups were conducted in seven counties in North Carolina with a total of 78 women participating. Separate focus groups were held with African American (4), American Indian (3) and Latina women (3). Three different American Indian tribes were represented in our sample. Women who were between 18 and 35 years of age and had at least one child were invited to participate. Women were recruited through local organizations and personal contacts, in the case of two of the Latina groups. Target participants were low-income women. All African American and American Indian groups were facilitated by the same person. All focus groups with Latina participants were held in Spanish and facilitated by a native Spanish speaker of Mexican descent.

The major findings of the qualitative study were as follows:

1. Pregnancy planning is desirable and women have basic knowledge about what they should do if they were planning a pregnancy (take folic acid and vitamins, quit smoking and drinking, check with doctor about any medications they have to take).
2. Planned pregnancies were defined by women in all groups as those that occur when there is financial stability, mental and physical readiness, partner involvement and women are healthy.
3. Unplanned pregnancies were acceptable because it is impossible to plan everything and have the ideal situation, and women stated that resources to help plan pregnancies are uncommon.
4. Small families (2-3 children) are desirable by most women from all racial/ethnic groups.
5. For Latinas, giving their children more opportunities than they had is the main motivation for having small families.
6. Finances and lack of supportive partners were the main factors influencing family size for African American women.
7. Some American Indian women turn to elders or tribal leaders for advice on planning.
8. Teaching young women and girls about family planning at school is highly recommended.
9. Women control reproductive health decisions and, for the most part, women want it that way.
10. Oral contraceptive pills and Depo-Provera were the contraceptive methods most used by women in all groups, and they wanted other, reliable options. Sterilization is currently seen by many women as their best option.

Overall, African American, American Indian and Latina women in the study had many of the same reproductive health preferences. One of the major conclusions from the study was that

pregnancy planning is desirable although considered somewhat unattainable due to lack of complete information, resources, and support. Other conclusions were that complete and accurate information about contraceptives is needed to help women in planning. Women see themselves as the main decision makers. Latina and American Indian women are interested in more male involvement. For all women, it was of utmost importance to provide sex education to youth to help them delay pregnancy. Future research should look at understanding pregnancy intention from the male perspective.

SPM#6: Percent of women of childbearing age taking folic acid regularly

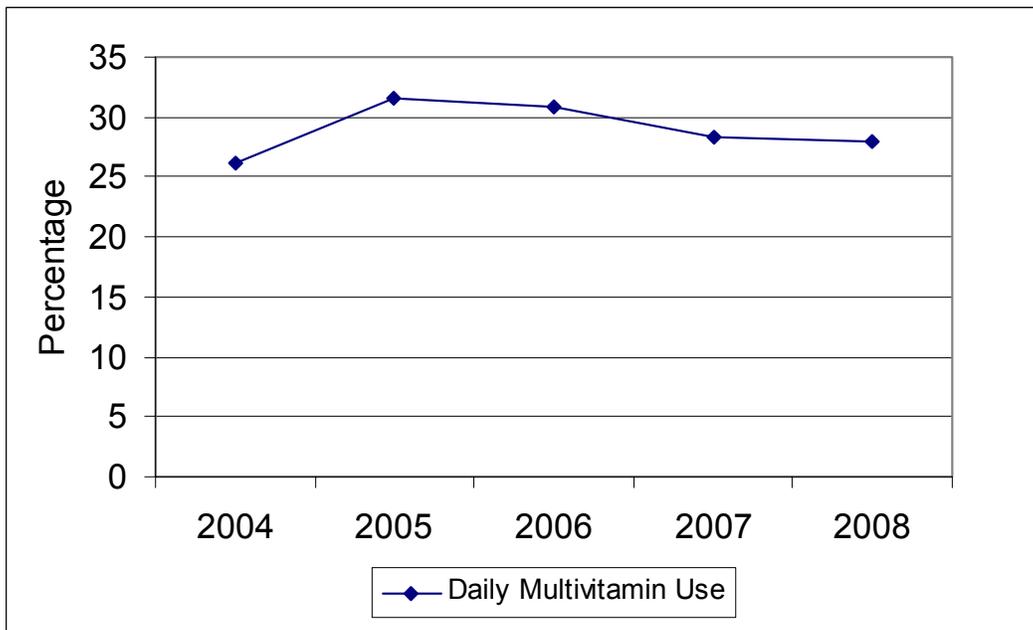
It is recommended that women of childbearing age take a multivitamin to meet their need for folic acid and decrease their risk of having a pregnancy affected by a neural tube defect (NTD). Data from the NC BRFSS indicated that in 2001, 42.2% of women of childbearing age (15-44 years) in North Carolina took folic acid regularly. This percentage jumped to 47.1% in 2004, but then decreased to 38.5% in 2006. (BRFSS, NC SCHS, 2001, 2004, and 2006). More recent trend data for this measure are not available as the questions used in the NC BRFSS have changed over the years. The data source for this measure first changed in 2007 as new questions were added to the NC BRFSS in lieu of the CDC Optional Module which was no longer available. These questions were further revised in 2008 as the 2007 questions were found to be difficult questions for the interviewers. So, while data for years 2007 and after are not comparable with data from prior years, the new questions are more useful. The two questions that are now asked are:

- 1) How often do you now take a multivitamin or other supplement containing folic acid?
- 2) How often did you take a multivitamin or other supplement containing folic acid six months ago?

Like many behaviors, women start and stop taking vitamins over the course of months. It appears from past national and North Carolina data that the percent of women taking multivitamins has leveled off and remains well below the number needed to see continued improvement in the reduction of rates of neural tube defects. A richer profile of behavior beyond “takes” and “does not take” will assist in developing strategies and evaluating current statewide efforts around folic acid. Up to 70% of all neural tube defects could be prevented if all women took a multivitamin containing folic acid daily. The Healthy People 2010 objective is that 80% of nonpregnant women 15-44 will take >400 mcg folic acid daily. Using the new questions, NC BRFSS data for 2007 indicate that only 29.2% of women aged 18 to 44 were currently taking a multivitamin that contained folic acid at least 5 times per week. This increased to 38.3% in 2008. While the increase is good, there is still a lot of room for improvement. The data obtained from the new questions will be used by the NC Folic Acid Campaign for designing marketing strategies and evaluation of prevention efforts.

Another source of folic acid consumption data is the NC PRAMS. Trend data for the percentage of women who responded that they took a multivitamin daily in the month before they were pregnant is shown in the following chart.

Figure 14
Daily Multivitamin Use in the Month Before Pregnancy
North Carolina, 2004-2008



Source: NC PRAMS, SCHS

According to the 2007 NC PRAMS data, regular multivitamin use was shown to increase with age, education, and income. Furthermore, white women and married women were more likely to take a multivitamin. (PRAMS, NC SCHS, 2007)

Interestingly, the 2007 NC PRAMS data also show that 86.1% of respondents were aware that taking folic acid could prevent some birth defect, with white women more aware (88.8%), than black (81.2%) or “other” (66.8%) women. This awareness increased with age, income and education. There is a huge gap, then, between those who are aware of the benefits of folic acid and those who use multivitamins.

SPM#8: Percent of women with live, term births who gain within the Institute of Medicine (IOM) Recommended Weight Gain Ranges

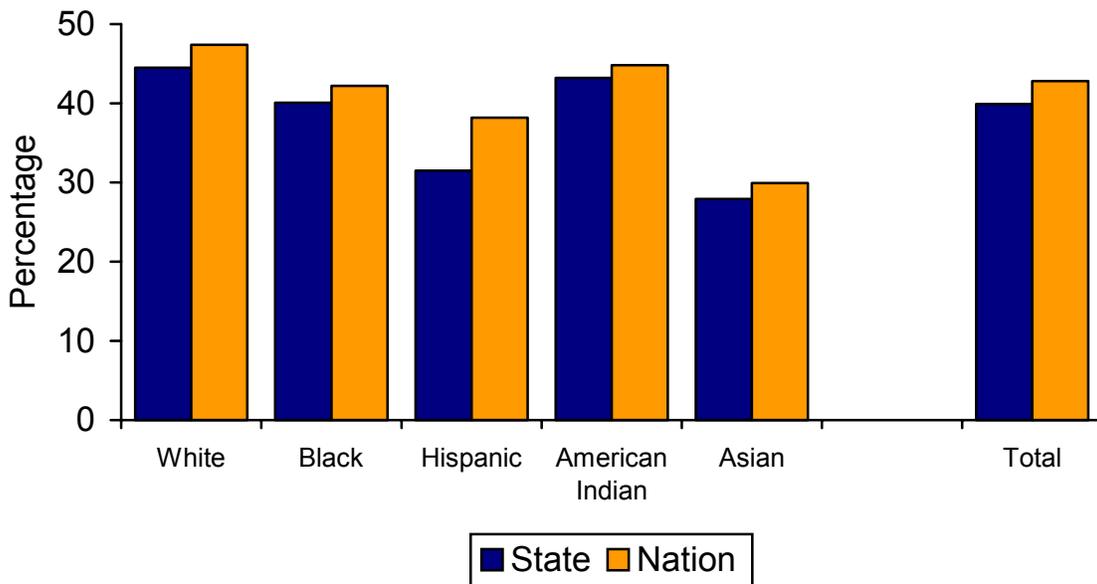
North Carolina's PNSS links data from the WIC program, public maternity clinics, birth certificates, and fetal death certificates. These data are collected at WIC sites and prenatal clinics funded by the MCH Block Grant. The PNSS collects prenatal and postpartum information about these women and outcome information about their infants. North Carolina’s annual PNSS report is usually published about a year after the reported calendar year due a lag period in closing the vital record files. The PNSS report consists of a summary, state profile, facts in brief, detailed graphs, tables, methodology and definitions.

As the PNSS is limited to data collected on WIC program participants, it is not truly representative of all women in North Carolina, but it is the best data source for weight gain during pregnancy that is available. Also, when using birth certificate records, it must be noted

that weight gain is not reported in all records and roughly 30% of records are missing pregravid height and weight. In some cases, an estimate of gestational age has been made on the birth certificate. Also, it should be noted that PNSS data cited below is for 2007. The IOM guidelines for recommended gestational weight gain were revised in May 2009, but these new guidelines are not reflected in the following data.

State data for 2008 for this measure show that 33.5% of women had gained within the recommended IOM ranges that were current at that time. This percentage has remained about the same since 2000, thus there is room for a great deal of improvement in this measure. National data from the PNSS are available; however, the data is collected from only 26 states, 5 Indian Tribal Organizations, and 1 US territory, and the most recent data available are for 2007. National data for 2007 show that 32.2% of women had gained within the recommended IOM ranges, and 42.8% gained more weight than recommended. In North Carolina, almost 40% of women in 2008 gained greater than the recommended ideal amount of weight. The following figures show the prevalence of women in North Carolina gaining greater than ideal weight by race and ethnicity in 2008 and the trend over time for women of all races and ethnicities.

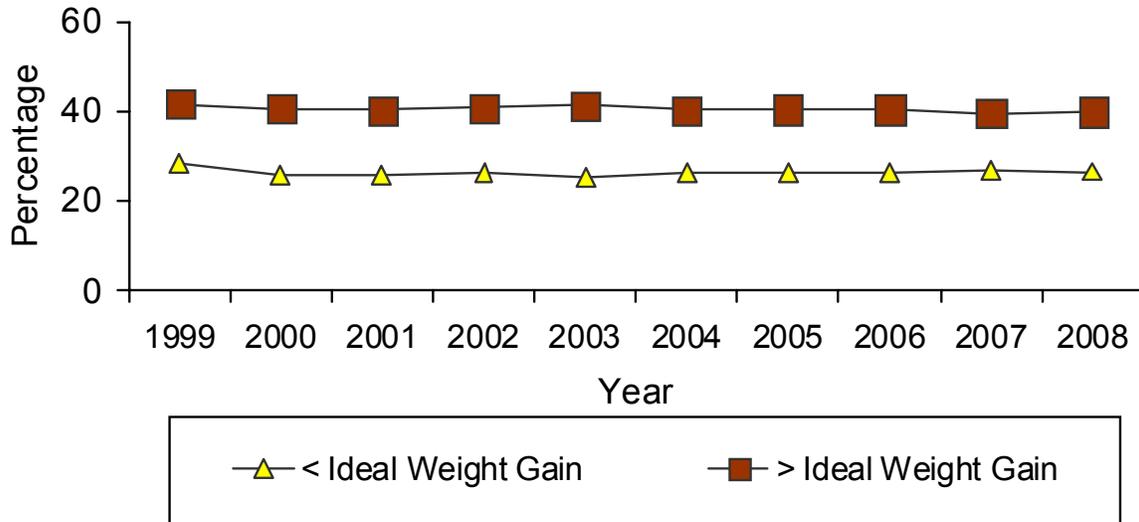
Figure 15
Prevalence of Greater than Ideal Maternal Weight Gain* by Race and Ethnicity
North Carolina (2008) and United States (2007)



Source: North Carolina Pregnancy Nutrition Surveillance System

*Ideal weight gain: prepregnancy underweight = 28-40 pounds; prepregnancy normal weight = 25-35 pounds; prepregnancy overweight and obese = 15-25 pounds.

Figure 16
Prevalence of Less than Ideal and Greater than Ideal Maternal Weight Gain*
North Carolina 1999-2008



Source: North Carolina Pregnancy Nutrition Surveillance System

*Ideal weight gain: prepregnancy underweight = 28-40 pounds; prepregnancy normal weight = 25-35 pounds; prepregnancy overweight and obese = 15-25 pounds.

Overweight and obesity contribute additional negative health consequences to women of reproductive age. Women who are overweight at conception or gain outside of the Institute of Medicine’s weight gain ranges for pregnancy have increased obstetrical risks, including gestational diabetes, toxemia, urinary infection, Cesarean section, pre-term births, macrosomia, and dysfunctional labor. Obesity during pregnancy is also associated with an increased risk of birth defects, particularly neural tube defects. Obesity has also been associated with infertility and irregular menstrual cycles (US DHHS, Surgeon General’s Call to Action. *Overweight and Obesity: Health Consequences Fact Sheet*, 2004)

PRAMS data for 2007, which is more representative of the whole population than the PNSS data, indicated 14.1% of women entered pregnancy overweight (up from 11% in 2002) and 23.6% were obese at conception (as compared to 23% in 2002). Obesity rates were highest in women 35 and over, women who were black, and women who were lower income.

Additional Indicators

Birth Spacing

Another important contributor to the health of both mother and child is the birth intervals of her children. Both short and long birth spacing contribute to low birth weight, premature delivery, stillbirths, and neonatal death. (Conde-Agudelo and Belizan, 2000, 1255)

About 13.3% of births in North Carolina in 2007 were conceived within 6 months of a previous pregnancy. These data are self-reported and may actually be slightly lower than the actual, since women may not report a birth subsequent to an abortion. The figure for the southeastern states in Region IV was slightly lower at 12% for the same period. (RNDMU, 2009, 58)

In 2007, the state rates by race/ethnicity for short birth intervals were as follows: blacks – 15.4%, white – 12.75%, and Latina (all races) – 10.6%. This disparity is also shown in the rates for the southeastern states as a whole: blacks – 13.9%, whites – 11.4%, and Latina (all races) – 9.4%. (RNDMU, 2009, 58-59)

The highest rates in the state in 2007 occurred in the Northwest (PCR 2), the Southeast (PCR 5), and the East (PCR 6). (Vital Records, NC SCHS, 2007)

While the data represented here are for extremely short intervals, studies show that women who have births with a birth interval of less than 24 months have higher neonatal, infant, and early childhood death. In addition, it has been found that women who have their babies at 27- to 32-month birth intervals are less likely to be anemic, less likely to have third trimester bleeding, and two-and-a-half times more likely to survive childbirth. (Setty-Venugopal et. al. 2002)

Sickle Cell and Hemoglobinopathies

The American Academy of Pediatrics recommends that children under the age of five with sickle cell disease receive prophylactic penicillin therapy to significantly reduce their risk of infection and possibly death. (Sox et al. 2003, 1057) These adverse outcomes are further reduced whenever the disease is detected at birth and the infant is placed on prophylactic penicillin by three months of age. Since sickle cell newborn screening and tracking throughout the lifespan began in 1973 in NC, WCHS program staff members have been better able to monitor their care and access to services. It should be noted that about 120 abnormal hemoglobinopathies are diagnosed through newborn screening each year in North Carolina. However, only those with sickle cell disease are encouraged to begin prophylactic penicillin treatments.

In 2007, 125 newborns were identified with abnormal hemoglobin out of the 131,700 newborns that were screened. Of the 125 newborns, a total of 107 infants were diagnosed with sickle cell disease and 97 (90.6%) initiated prophylactic penicillin therapy. In 2006, 112 newborns out of 128,316 screened were identified with abnormal hemoglobin. Of the 112 newborns, a total of 91 infants were diagnosed with sickle cell disease and 88 (96.7%) were initiated prophylactic penicillin therapy. The percentage of infants receiving prophylactic penicillin was higher in 2006 compared to 2007. In 2007, newborns were not placed on penicillin due to physician's decision not to initiate treatment, out of state residence, lost to follow-up, and infant deaths.

National statistics of sickle cell disorders are not readily available and statewide numbers are so small, the data can not be broken down by PCR.

Sudden Infant Death Syndrome

Sudden Infant Death Syndrome (SIDS) is defined as the sudden death of an infant less than one year of age whose death remains unexplained after thoroughly examining the autopsy, clinical findings, and the case history of the child. In recent years, scientists have examined whether a genetic predisposition to SIDS exists. One recent study concluded that it is unlikely that it is a single gene or genetic mutation, but rather a complicated combination of effects that may trigger Sudden Infant Death. (Opdal et al. 2004, e506-7)

In NC, SIDS claimed 136 babies in 2008, which was a sharp increase from 98 deaths in 2007. The number of SIDS deaths had been declining or leveling off since 1995. The State Child Fatality Prevention Team is examining the 2008 SIDS cases to identify a possible reason for the increase. Of the 136 babies who died, 78 were white and 58 were minorities.

Table 13
SIDS Deaths and Rates per 10,000 by Race
North Carolina 2004-2008

Year	Total Number of SIDS Deaths	Total Rate	White Rate	Minority Rate
2004	103	8.6	6.5	14.1
2005	105	8.5	7.7	10.7
2006	94	7.4	5.5	12.1
2007	98	7.5	6.1	11.1
2008	136	10.4	8.4	15.5

Source: NC Vital Records, SCHS

Perinatal Infections

Despite the fact that public health law requires that all women receive screenings for STDs and HIV at their prenatal visits, each year there are babies born with perinatal sexually transmitted diseases. Perinatal HIV transmission is the most common route of HIV infection in children and is now the source of almost all AIDS cases in children in the United States. Most of the children with AIDS are members of minority races/ethnicities. The number of Perinatal HIV Disease reported cases in North Carolina has declined over the years from 4 cases in 2003 to 1 case in 2007.

The cornerstone of congenital syphilis prevention is early detection of maternal syphilis and treatment with safe and effective antibiotics. These simple actions could contribute to the complete elimination of syphilis among infants, and significantly improve infant health in the United States.

In North Carolina in 2003, the number of Congenital Syphilis cases reported was 21, with a steady decline to 13 cases in 2005, and in 2007, seven cases were reported. (NC HIV/STD Surveillance Report, 2007)

Latina Infant Mortality Awareness Project

The Latina Infant Mortality Awareness (LIMA) project, a qualitative research project was undertaken in 2007 to improve our understanding of Latina health knowledge, attitudes and practices in North Carolina. Through funding from the SSDI, the WCHS contracted with the NCHSF to conduct focus groups and key informant interviews and to write a final report based on the study findings. Seven focus groups were conducted in seven North Carolina counties characterized by large Latino population: Wake, Duplin, Forsyth, Johnston, Chatham, Randolph and Harnett. Criteria for participation were: self-identifying as Latina, ability to speak Spanish, and being a woman between the ages of 18 and 49. Sixty two women participated in the focus groups. Convenience samples were formed with existing groups of Latinas and special consideration was given to sampling both women who were already accessing social service and public health services, as well as those who were not. All focus groups were conducted in Spanish by a native Spanish speaker. In addition to the focus groups, eight key informant interviews were conducted with community leaders, providers and public health staff. Topics included in all focus group discussions included: defining “health” and “healthy;” preventative health behaviors; sources of health information; access and barriers to healthcare services; social support networks; mental health, stress and depression; and, pregnancy and reproductive health.

Participants expressed a holistic view of health that included physical, mental, emotional and spiritual well-being. Health was understood not simply as the absence of disease or pain but was also defined by positive attributes. Health was perceived as central to participants’ lives and as something which merited (but did not always receive) attention and care. Women perceived of themselves (and were perceived by others) as foundations for their family’s health, yet women reported that their own healthcare needs were secondary to the physical, emotional and financial needs of their family.

Barriers to preventative health services and other health services mentioned by participants were: financial concerns or inability to pay, lack of insurance, language barriers, lack of trust in the ability or training of the provider, fear, and “racist” attitudes of staff and providers. Such barriers prevented or delayed service seeking for adults, but not, according to our participants, for children. Children’s health and women’s health during pregnancy were perceived as very important and women reported complying with all standard care recommendations for children and pregnant women. Mental health issues, including stress and depression, were perceived to be significant health problems in the communities studied (for adults, adolescents and children), and participants expressed concern at the lack of mental health services available in their communities.

The focus group discussions revealed that social support networks played an important role in disseminating health information and advice and that personal communication was the preferred method of receiving information about health-related issues. Other identified sources of health information included Spanish radio, television, newspapers and printed health literature, used to varying extents – particularly when they were in Spanish, of an acceptable reading level (basic) and were visually appealing.

Latinas in North Carolina face many challenges to caring for themselves, their families and their children. This qualitative study reaffirms that knowledge is not always sufficient to change behavior, and that issues associated with immigration and poverty, as much as “cultural

difference,” accounted for many of the problems faced by Latinas in our study related to access to healthcare services.

Practical recommendations based upon this research include: 1) Improving cultural competency of healthcare providers through training, monitoring and evaluation, paying special attention to strengthening linguistic competency, 2) Improving patient advocacy and education for Latinas, 3) Supporting health education and outreach efforts in the Latino community and enlisting key community leaders in this effort, and 4) Addressing gaps in service usage, availability and access for Latinas including mental and behavioral healthcare services.

Latina Teen Pregnancy and Acculturation

A similar qualitative study conducted by the NCHSF through funding from the SSDI included a series of focus groups with Latina teens throughout the state in an effort to better understand factors influencing Latina teen pregnancy and to understand the social context in which pregnancy prevention and risk occur. In the spring of 2009, five focus groups were conducted with Latina teens between the ages of 12 and 18 in 5 counties in North Carolina (Buncombe, Union, Lee, Pitt and Forsyth). Special attention was paid to mother-daughter communication, and the project design included two focus groups with mothers of teens (Forsyth and Lee counties). Effort was made to target immigrant teens, and focus group participants were recruited with the assistance of English as a Second Language instructors, Migrant Education staff, non-profit organizations, and churches. Specifically, the goals of the study were to:

1. better understand Latina teen pregnancies in North Carolina within the social context in which they occur;
2. identify factors providing support for pregnancy prevention among Latina adolescents; and,
3. identify factors increasing pregnancy susceptibility among Latina adolescents.

The focus group guide was developed based on current theoretical and empirical research on adolescent pregnancy among Latinas and consisted of 9 open-ended questions and specified probes. Questions focused on teens’ perceived challenges, relationships and expectations, pregnancy and sexually transmitted disease risk and protective knowledge and practice, information channels and life goals and aspirations. While the questions did probe for information about experiences of acculturation and perceived differences or similarities between cultures, and specific questions about language preference and length of residency in the U.S. on the demographic survey (both of which are proxy variables frequently used to measure acculturation) were provided, acculturation was not explicitly measured in this study. Rather, the goal was to more fully understand the complex web of forces and experiences that shape teens’ decisions and worldviews. A parallel focus group guide was used with the mothers of teens. The content was nearly the same, but the questions were directed at the mothers.

A total of 46 Latina teens were sampled. Participants ranged in age from 12 to 18. One focus group was conducted at a middle school and participants were between the ages of 12 to 14, one focus group was conducted at a church and participants were both middle and high school age students, and three focus groups were comprised entirely of high school age students. The average age for teen participants was 15. Twenty-two of 46 teens were born outside of the United States. Most of the immigrant teens were born in Mexico. For immigrant teens, length of

time in the United States ranged from 3 to 18 years, with an average of 9 years. Most teens reported that Spanish was the primary language spoken at home. Participants varied greatly in their self-reported speaking and reading English language proficiency, as might be expected given the variation in length of time in the U.S. Additionally, participants who reported living in the U.S. for most of their lives frequently reported that they could read “OK” or “very little” Spanish.

Although the results of this small qualitative study can not be generalized, the information shared by the girls sheds some light onto what some Latina teens think and experience. Some of these thoughts and ideas are listed below:

1. A teen pregnancy *"could ruin your life."* Focus group participants expressed deep concern for having a baby before finishing high school. None of the participants in the focus groups had been pregnant before. Teens reported that their parents would be angry, furious and sad if they got pregnant. Yet, they all felt that if it happened their parents would eventually be supportive. Latino families have a strong sense of *familismo* (family centeredness) and even though a teen pregnancy would not be condoned, Latino families are usually supportive of their daughters. Despite knowing that they would eventually have their families' support, the teens reported that they would feel *"ashamed"* or *"like a failure."* None of the teens expressed that a pregnancy would have positive consequences.
2. Sex is a personal decision and normal in some relationships. Teens did not talk about virginity or sexual purity as one would expect from teens that come from a mostly Catholic upbringing and who expressed the negative consequences of a teen pregnancy. Instead, the teens saw sexuality as positive and natural. Although the teens seemed to recognize that an unhealthy relationship involved the pressure to have sex, they also mentioned that in an exclusive relationship, not having sex with your boyfriend could mean losing him. This is not surprising, as anecdotally, Latina teens often talk about being asked to show proof of their love by having sex with their boyfriends (*la prueba de amor*).
3. *Amigos con derechos* (friends with benefits). The teens in three of the focus groups talked about a type of relationship with no strings attached called *amigos con derechos*. Some of the comments made during the discussion indicated a feeling of liberation such as *"He can't say anything to you about you talking to anyone else"* and *"You don't have to be with him, you don't owe him anything, and the same for him."* This might be in response to cultural expectations for girls to be chaste and sexually naive (known as *marianismo*). The teens did acknowledge that the downside of this type of relationship was that *"he might be your amigo con derechos, but he can also be that for lots of other girls. You never know."*
4. Teens want *"to find answers to questions."* The teens in the focus groups were aware of the risks of sexually transmitted infections and the importance of using contraceptives to prevent pregnancy. Yet, they were missing correct and factual information. For example, one teen asked *"doesn't the pill protect you from some diseases?"* The teens expressed frustration at how hard it is to find reliable information. They mentioned wanting special programs in their schools to obtain reliable information on sexuality and reproductive health including contraception. Those teens who mentioned having had some type of sex education class felt that they were not given complete information. They had learned that *"condoms are not 100% effective"* and *"no birth control is 100% effective,"* but given that they consider sex a normal part of relationships, this information left them wanting more information. The teens reported using the internet and talking to friends as a way to get answers to their questions.

5. Mothers want to talk to their daughters, but *"we did not talk about these things in my family."* The mothers who participated in the focus groups expressed wanting to have a dialogue with their daughters, but it was not something they knew how to do. First of all, these mothers had not experienced open communication on sexuality and reproduction with their mothers so approaching the topic was uncomfortable. Secondly, they doubted having sufficient knowledge to address the questions they might get from their daughters. Mothers expressed: *"I don't even know what the right words are for body parts!"* and *"I don't know anything about the different kinds of [contraceptive] methods."* Some of the mothers believed that their daughters would "learn what they needed to know at school."
6. There is a cultural divide between mothers and daughters. Aside from feeling uncomfortable and inadequate to have open discussions with their daughters, some of the comments heard from both mothers and daughters made it clear that there was a cultural divide. One teen said that she wanted to talk to her mom, but that her mom was "Mexican", implying that her mom's upbringing and culture presented a barrier to this conversation. A mother expressed a similar feeling about her daughter saying that her daughter was *"so American."*

As with any study, this one has several limitations. Future research might include, for example, Latina teen mothers or pregnant Latina teens, and focused effort might be needed to include teens that are not in school (teen mothers, drop-outs, very recent immigrants). The perspectives of these groups of teens might be significantly different from those of our sample. Future research would also benefit from including the perspectives of young men, as clearly the decisions and motivations of young women reflect only one side of the story. The following recommendations stem from the current research project:

1. Provide school-based, comprehensive "sex" education (education that includes information about sex and contraception as well as information about healthy relationships, self-esteem and interpersonal communication skills).
2. Research the effectiveness of culture-specific curriculums for Latino teens, such as those that address relevant cultural values, and utilize proven curriculum in prevention efforts.
3. Involve parents, particularly mothers, in prevention efforts. Recognize that mothers need and want information in order to effectively communicate with their daughters.
4. Involve peer educators. The relationships Latina teens forge with other Latinas can be very significant for them, and prevention efforts should take advantage of this important channel of information, communication and trust.
5. Provide and improve student access to school-based clinics and school-linked clinics.
6. Educate Latinos of all age about where and how to access confidential, low-cost health care in communities.
7. Develop and provide culturally competent materials for teens on topics of contraception, sexually transmitted diseases, interpersonal violence, and healthy relationships.
8. Address the role of young men in teen pregnancy prevention.
9. Research best methods for communicating health messages to Latino teens. This research suggests that teens prefer television over other media sources, so televised Public Service Announcements using a widely recognized Latino spokesperson may work well.
10. Provide bilingual materials, and further investigate language preferences among Latino teens.
11. Develop lay health training materials in Spanish on contraception, sexually transmitted diseases, self-esteem and healthy relationships.

12. Support Latino community based organizations serving Latino teens. Involving community partners in prevention efforts can help to reinforce prevention messages and involve more young people, including teens not in school.

Improving the Health of Women

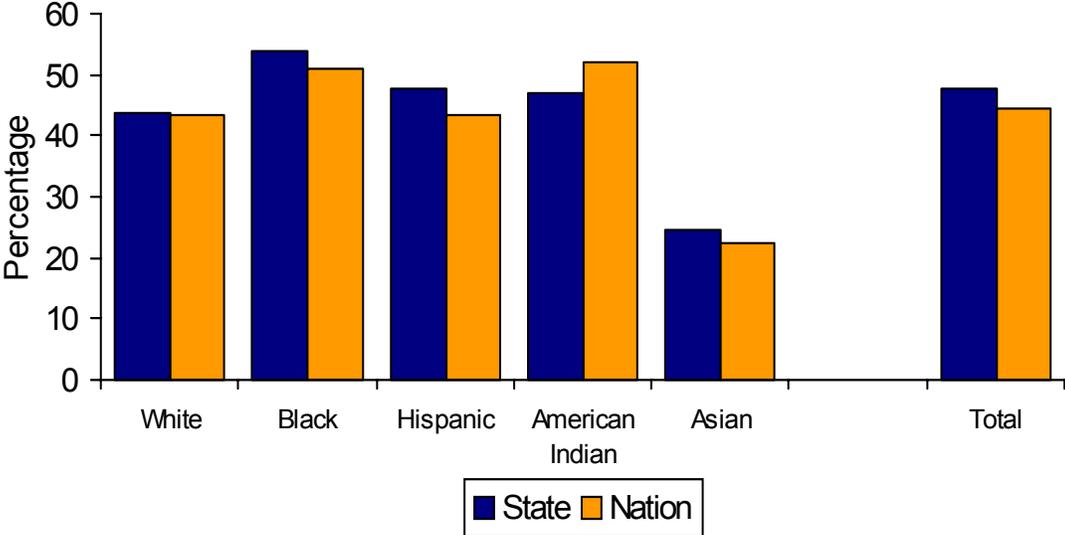
In addition to the WHB’s emphasis on the reduction of infant mortality, the Branch seeks to improve the health of women, not only pregnant and postpartum women, but women of all ages. The MCH Block Grant is specifically aimed at women of childbearing ages, so the needs assessment has focused on women who could potentially become pregnant, using the common definition of women ages 15-44.

The WHB uses various indicators to assess the health of women. In the following section, these measures of the health of women in the state are examined.

SPM#9: Percent of non-pregnant women of reproductive age who are overweight/obese (Body Mass Index [BMI]>26).

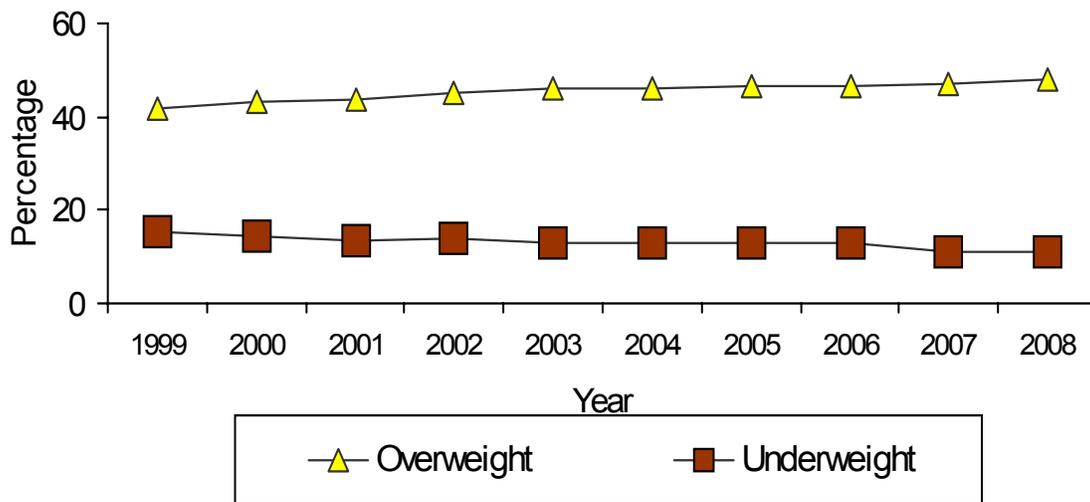
For 2008, the PNSS revealed that 47.8% of WIC clients had a prepregnancy BMI that fell into the overweight or obese categories, which compares to 44.5% nationally in 2007. The highest rates occurred in 2008 among black women and women 30 years of age and above (53.8% and 63.6%, respectively). The following figures show the prevalence of women who were overweight prior to pregnancy in North Carolina and the nation by race and ethnicity in 2008 (2007 for the US rates) and the trend over time for women of all races and ethnicities in North Carolina.

Figure 17
Prevalence of Prepregnancy Overweight* by Race and Ethnicity
North Carolina (2008) and United States (2007)



Source: North Carolina Pregnancy Nutrition Surveillance System
 * Overweight (BMI ≥ 26.0; includes overweight and obese).

Figure 18
Prevalence of Prepregnancy Underweight and Overweight*
North Carolina 1999 - 2008



Source: North Carolina Pregnancy Nutrition Surveillance System

* Underweight (BMI < 19.8); Overweight (BMI ≥ 26.0; includes overweight and obese).

Overweight and obesity among the US population continues to rise. For US adults, results from the latest National Health and Examination Survey (NHANES), conducted in 2005-06, show that the percent of persons who are overweight or obese (BMI >25) has increased to 72.9%. This is a 24% increase from the rate of 59% found in the survey conducted in 1988-1994. (CDC, NCHS Health E-Stats, December 2008) With this rise comes an increase in health risks such as hypertension, diabetes, coronary heart disease, and certain cancers. NHANES data for 2005-06 also noted 30.5% of US women age 20-39 were obese (BMI >30). For older women age 40 to 59, 41.1% were obese. The higher rates of overweight and obesity for older women is particularly interesting as a trend for women to become pregnant later in life has also been identified. There were large disparities in obesity prevalence by race and ethnicity among women reported in NHANES. Non-Hispanic black and Mexican-American women were more likely to be obese than white women. (Ogden, CL, et al., Obesity among adults in the United States – no changes since 2003-2004. NCHS data brief no1. NCHS, 2007)

SOM#1: Maternal mortality rate per 100,000 live births

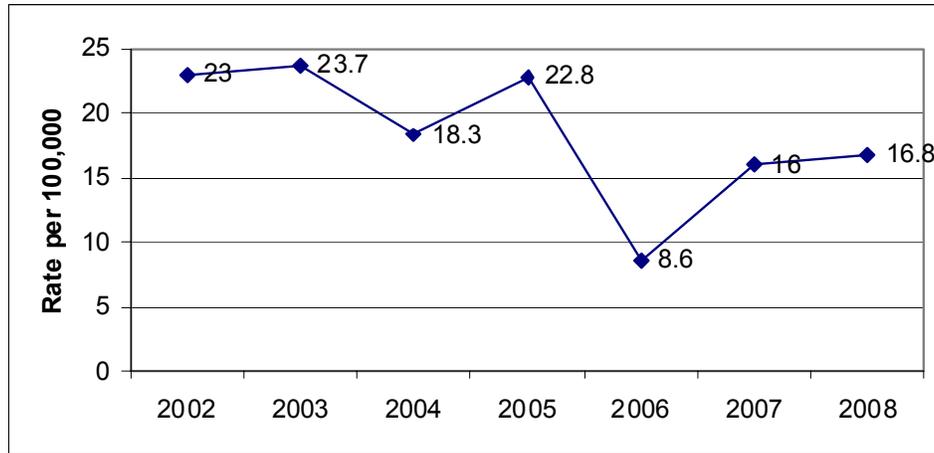
The pregnancy-related death ratio for residents of North Carolina has decreased dramatically since the early 1900s due to improvements in obstetric care and particularly the use of increasingly effective antibiotics, which has dramatically reduced deaths to infection. However, there is still strong interest in maternal mortality for several reasons: 1) it is an indicator of the overall effectiveness of the obstetric health care system; 2) there are still large disparities among certain demographic groups; 3) there has been little improvement both in North Carolina and the United States since the early 1980s; and 4) the Healthy People 2010 goal of 3.3 maternal deaths

per 100,000 live births (based on underlying cause from death certificates). (Buescher, et al. 2002, 76)

Pregnancy-related deaths are seriously underreported through death certificates alone. NC is fortunate to collaborate with the SCHS and the Department of Obstetrics and Gynecology at Wake Forest University in a program to enhance surveillance of pregnancy-related deaths. Nearly twice as many pregnancy-related deaths are identified from this enhanced system than from death certificates alone. The process for enhanced surveillance includes matching the death records for all women aged 10-50 to the live birth and fetal death files for the same and previous calendar years to identify maternal deaths that occur within one year after delivery. In addition to obtaining information from maternal death and infant death certificates, hospital discharge records of women who die in a hospital with a pregnancy-related discharge diagnosis are also obtained. A single physician who is board certified in obstetrics and gynecology as well as maternal and fetal medicine reviews all information. This enhanced surveillance began in 1988. (Buescher, et al. 2002, 76-77)

The graph below illustrates the trend in maternal mortality from this surveillance system for North Carolina from 2002 to 2008. The rates since the early to mid-1990s have been variable, fluctuating between 16 and 25 pregnancy-related deaths per 100,000 live births. In 2006, this rate dipped to 8.6 deaths per 100,000 live births, but unfortunately this is an outlier as the rate jumped back up to 16.0 in 2007 and 16.8 in 2008. The most common cause of death for the past three years is peripartum cardiomyopathy. In 2006, the rate of pregnancy related deaths for white women was 6.52 deaths per 100,000 live births and the rate for minority women was 14.05. The relative risk of pregnancy-related mortality for minorities compared to whites = 2.15, which is the lowest relative risk associated with minority race for the State in 15 years. The ratio went up to 5.1 in 2007 (38 for minority women/7.4 for white women) and back down to 2.99 in 2008 (32 for minority women/10.7 for white women). (Harper, North Carolina Pregnancy-Associated Mortality Report Summaries for 2006, 2007, and 2008)

Figure 19
Maternal Mortality Rate per 100,000
North Carolina 2002 to 2008



Source: Enhanced Maternal Mortality Surveillance System conducted by NC SCHS and Wake Forest University Department of OB/GYN

Leading Causes of Death

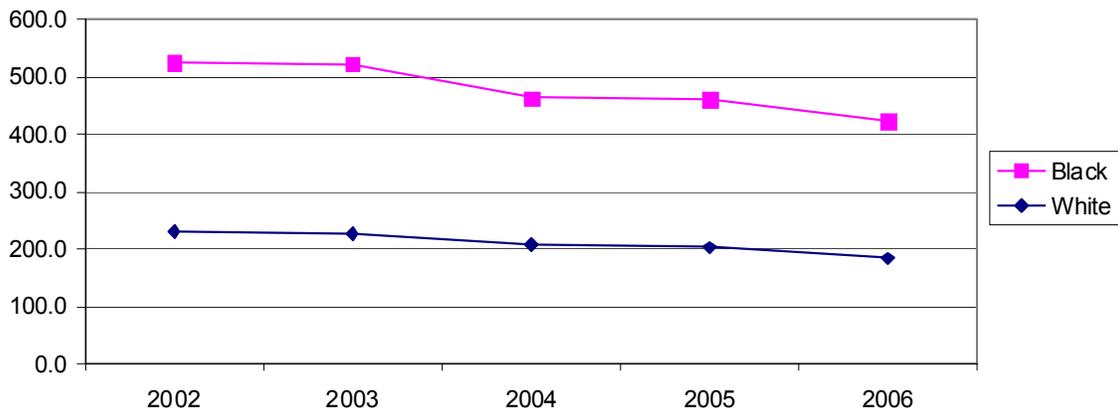
For women age 15 to 44 in NC, the three leading causes of death for 2005, 2006, and 2007 were cancer, motor vehicle injuries, and all other unintentional injuries, and they were ranked in that order. (SCHS, North Carolina Health Data Query System, accessed on August 28, 2009) In 2006 for all women of the same age group in the United States, unintentional injury was the top leading cause of death, with motor vehicle traffic injuries included in this category, followed by cancer and heart disease. (CDC, National Center for Injury Prevention and Control, Web-based Injury Statistics Query and Reporting System [WISQARS], <http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html>; accessed August 28, 2009) In 2005-2007 for African American females in NC, cancer, heart disease, and HIV disease were ranked as the top three or four leading causes of death among women age 15-44 years, with motor vehicle injuries surpassing HIV disease as the third highest cause of deaths in 2007. While HIV disease is among the top three of four leading causes of death for black females age 15 to 44 in North Carolina and the nation, it does not even make it into the list of the top ten causes for white females. (North Carolina Health Data Query System and WISQARS). For the female Hispanic population, the leading cause of death for 2005 to 2007 was motor vehicle injuries, with cancer, unintentional injuries, and assault (homicide) rounding out the top three or four causes. (North Carolina Health Data Query System)

The main difference in leading causes of death for males and females age 15 to 44 in NC is that deaths from cancer are consistently ranked higher in females while motor vehicle injuries, unintentional injuries, homicide, suicide, and disease of the heart are ranked higher in males. (North Carolina Health Data Query System)

Trend data for specific causes of death by race for females greater than fifteen years old in NC for 2002 to 2006 show that a disparity between whites and blacks exists for heart disease and

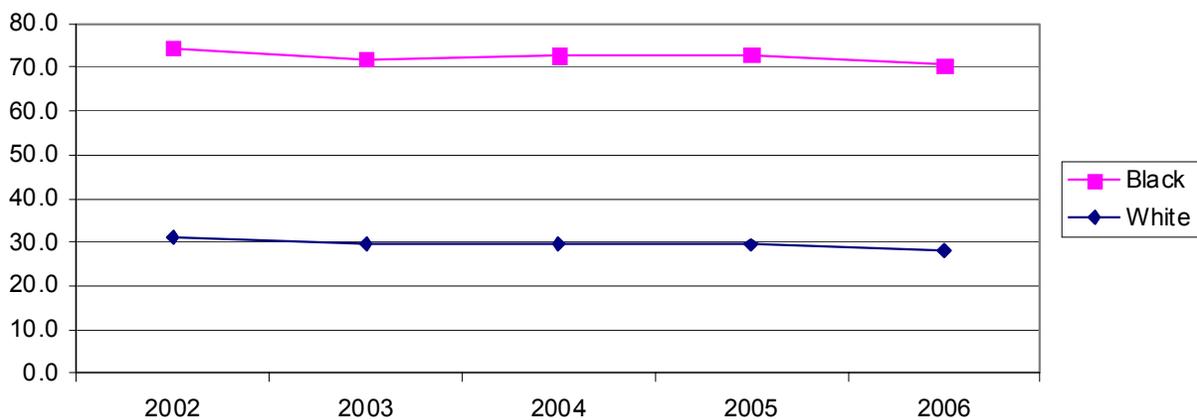
breast cancer, with blacks showing a much higher rate in both instances, although rates in both racial groups seem to be decreasing slightly (see Figure 20 and Figure 21). The rate for lung cancer for whites exceeds black rates, and rates for both racial groups have remained steady over the past five years (Figure 22). The rates for age-adjusted unintentional motor vehicle deaths show higher rates in the white population, although in 2005 the white and black rate converged and then in 2006 the black rate dropped back down. Further data are needed to see if these trends continue (Figure 23).

Figure 20
Age-Adjusted Heart Disease Death Rate per 100,000
NC Females Ages ≥ 15 Years by Race, 2002 to 2006



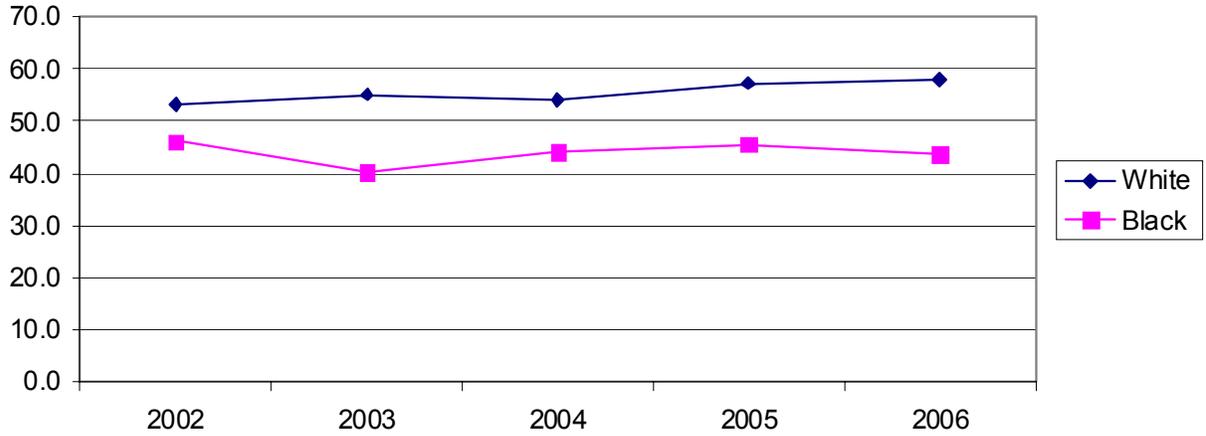
Source: Cecil G. Sheps Center for Health Research, University of North Carolina at Chapel Hill, RNDMU Project, September 2008

Figure 21
Age-Adjusted Breast Cancer Death Rate per 100,000
NC Females Ages ≥ 15 Years by Race, 2002 to 2006



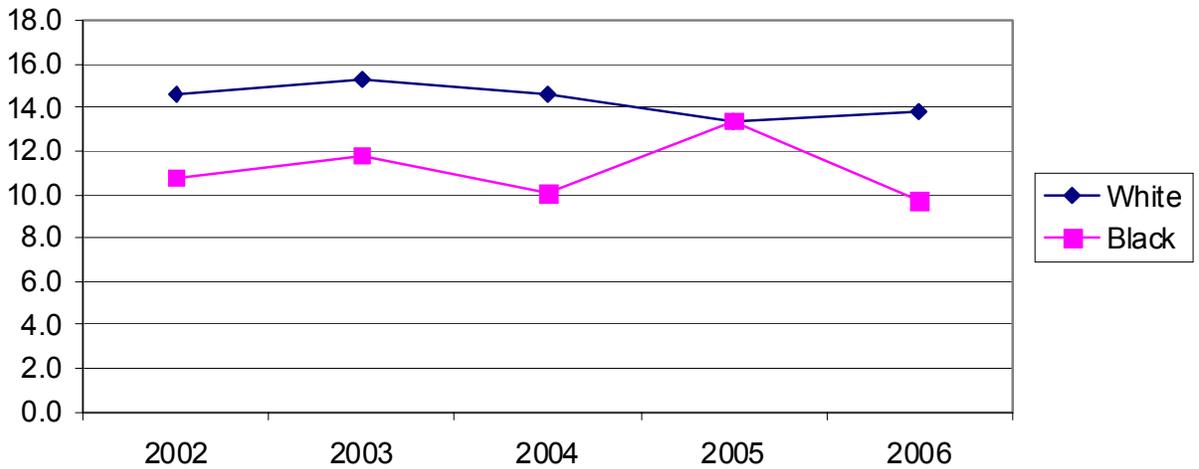
Source: Cecil G. Sheps Center for Health Research, University of North Carolina at Chapel Hill, RNDMU Project, September 2008

Figure 22
Age-Adjusted Lung Cancer Death Rate per 100,000
NC Females Ages ≥ 15 Years by Race, 2002 to 2006



Source: Cecil G. Sheps Center for Health Research, University of North Carolina at Chapel Hill, RNDMU Project, September 2008

Figure 23
Age-Adjusted Unintentional Overall Motor Vehicle Injury Death Rate per 100,000
NC Females Ages ≥ 15 Years by Race, 2002 to 2006



Source: Cecil G. Sheps Center for Health Research, University of North Carolina at Chapel Hill, RNDMU Project, September 2008

High School Dropout Rates

Education is one of the strongest predictors of health: the more schooling people have the better their health is likely to be. Although education is highly correlated with income and occupation, evidence suggests that education exerts the strongest influence on health. (Freudenberg and Ruglis) Education that is more formal is consistently associated with lower death rates while

less education predicts earlier death. (Popul Dev Rev 2004;30:625-646), The less schooling people have, the higher their levels of risky health behaviors such as smoking, being overweight, or having a low level of physical activity. High school completion is a useful measure of educational attainment because its influence on health is well studied, and it is widely recognized as the minimum entry requirement for higher education and well-paid employment.

The annual dropout rate is calculated by DPI each year. Their calculation defines a dropout as a student who was enrolled in school at some time during the previous school year, which is the reporting year; was not enrolled on Day 20 of the current school year; has not graduated from high school or completed a state or district approved education program; and does not meet certain reporting exclusions. This rate has remained fairly stable over time, with the rate for school year 2003-04 (SY04) reported to be 4.86 and the rate in SY08 reported to be 4.97. The rate for SY07 spiked at 5.24. Comparing the racial groups for the rates in SY04 to SY08, each group showed a decrease except for the black group (increased from 5.7 to 5.95) and the white group, which remained at 4.25. While Hispanic ethnicity is not separated out from race in the annual dropout report (it is reported as a race category) the trend data for Hispanic dropouts is encouraging as it has fallen from 7.38 in SY04 to 6.92 in SY08. (2007-08 Dropout Data Report, NC DPI) In addition to the annual dropout rate, DPI calculates a Cohort Graduation Rate which illustrates what percentage of ninth graders has graduated from high school four years later. These data show that NC's rate increased from 68.3% in SY06 to 71.7% in SY09. Data for SY09 also indicated that females graduate at a higher rate than males (76.5% versus 67%) and Asians graduate at a higher rate than other racial groups (83.7% compared to 77.6% for white, 63.1% for black, 71.3% for multi-racial, 59.9% for Native American, and 59% for Hispanic students). (NC High School Graduation Rate Improves, DPI News Release, August 6, 2009)

One of the priority recommendations of both the NCIOM Task Force on Adolescent Health (Recommendation 5.1) and the NCIOM Prevention Action Plan (Recommendation 11.4) is to increase the high school graduation rate. They suggest that the State Board of Education and DPI should work with others to examine what other states are doing to increase this rate and to adopt and implement promising initiatives.

Health Insurance

Having health insurance is an important way to assure women receive needed health care and preventive services. As found in the Women's Health and Mortality Chartbook (2010 edition), nearly 80.5 percent of women age 18-64 in North Carolina have health insurance coverage, which merits a national rank of 39. Coverage is defined by BRFSS respondents stating that they had access to public or private health insurance, including Medicaid and Medicare. Coverage rates broken down for the same period by race and ethnicity indicate that Asian/Pacific Islander females were most likely to have coverage (84.2%), followed by non-Hispanic white women (86.2%), non-Hispanic black women (77.9%), and American Indians/Alaskan Natives (73.8%). At only 37.5%, Hispanic women were least likely to have health insurance coverage.

In 2002, NC began using a Spanish version of the BRFSS state questionnaire. It is interesting to note the difference between insurance coverage rates for Hispanic respondents who are English speaking versus those who are Spanish speaking. In 2007, the overall rate of Hispanic females

who had health insurance was 37.6%, but for all English speaking Hispanic females who responded, 81.7% had insurance, while for Spanish speaking Hispanic females, coverage rates were only 17.81%. In 2003, the overall rate of Hispanic women with health insurance was a little lower at 36.9%, and the rate of English speaking Hispanic women with health insurance was lower at 67.6%, but the rate of Spanish speaking Hispanic women with health insurance was higher at 23.1%. (NC BRFSS, SCHS, 2007 and 2003)

The NCIOM *Prevention Action Plan* includes two priority recommendations dealing with insurance coverage and economic security. Recommendation 11.1 is to promote economic security and Recommendation 12.4 is to expand health insurance coverage to more North Carolinians. Strategies proposed in the plan to promote economic security include increasing the state Earned Income Tax Credit to 6.5% of the federal Earned Income Tax Credit and to encourage uptake of the Supplemental Nutrition Assistance Program by low-income individuals and families during outreach conducted by DSS staff members.

Domestic Violence

In 2007, North Carolina General Statute 114-2.7 was passed which directs all state and local law enforcement agencies to report specific information on domestic violence related homicides to the Attorney General's Office. The State Bureau of Investigation receives this information from law enforcement agencies and compiles annual statistics on domestic violence murders. The Report on Domestic Violence Related Homicides for Calendar Year 2008 by the NC Department of Justice indicates that 131 individuals died that year as a result of domestic violence. Of these 131 victims, 99 were female, and 8 had taken out protective orders. Of the offenders, 103 were male and 25 were female (remaining were unknown or gender not provided by law enforcement).

Trend data compiled by the North Carolina Council for Women/Domestic Violence Commission show that similar numbers of persons were served by domestic violence programs and rape crisis centers in SFY05 and SFY09.

Table 14
Persons Served by Domestic Violence Programs and Rape Crisis Centers
North Carolina SFY05 & SFY09

	Domestic Violence Programs				Sexual Assault Programs			
	SFY05		SFY09		SFY05		SFY09	
Number of Crisis Calls	104,063		126,016		20,157		20,984	
Number of People Served	50,726		51,873		8,438		8,494	
	#	% of total	#	% of total	#	% of total	#	% of total
Number Served by Gender								
Female	44086	86.9	42068	81.1	7337	87.0	7609	89.6
Male	6640	13.1	9805	18.9	1101	13.0	885	10.4
Number Served by Race/Ethnicity								
White	27736	54.7	29262	56.4	5095	60.4	5166	60.8
Black	13132	25.9	12962	25.0	1710	20.3	1730	20.4
Hispanic	4451	8.8	4854	9.4	519	6.2	666	7.8
American Indian	747	1.5	823	1.6	159	1.9	197	2.3
Asian	256	0.5	307	0.6	43	0.5	36	0.4
Unknown	3552	7.0	2982	5.7	831	9.8	580	6.8
Other	852	1.7	683	1.3	81	1.0	119	1.4

Source: NC Council for Women/Domestic Violence Commission website: www.nccfwdvc.com/documents/stats.htm

According to the 2007 National Crime Victimization Survey administered by the Bureau of Justice Statistics, there were 248,300 sexual assaults in the United States in 2007. Victims of sexual assault are 3 times more likely to suffer from depression, 6 times more likely to suffer from post traumatic stress disorder, 13 times more likely to abuse alcohol, 26 times more likely to abuse drugs and 4 times more likely to contemplate suicide (World Health Organization, 2002, 163).

PRAMS gathers data about physical violence by asking women if they have been pushed, hit, slapped, kicked, choked or physically hurt. According to PRAMS trend data from 2003 to 2007, prevalence estimates of physical violence during the 12 months before pregnancy and during pregnancy have fluctuated up and down each year, but remain about 5% of those women who replied to the survey.

Table 15
Physical Violence during 12 Months before Pregnancy and during Pregnancy
North Carolina, 2003 to 2007

Year	Prevalence of Violence 12 Months Prior to Pregnancy (%)	Confidence Interval (95%)	Prevalence of Violence During Pregnancy (%)	Confidence Interval (95%)
2003	5.2	(3.9-6.9)	5.0	(3.7-6.7)
2004	6.6	(5.1-8.4)	5.6	(4.2-7.2)
2005	5.2	(3.7-7.2)	4.6	(3.2-6.6)
2006	6.7	(5.0-8.8)	5.5	(4.1-7.5)
2007	6.5	(5.1-8.2)	4.3	(3.2-5.7)

Source: PRAMS, NC SCHS

Healthy Eating Habits

Eating more fruits and vegetables is associated with many different health benefits, including a decreased risk for certain cancers and cardiovascular disease as well as better management of overweight and obesity. Assessing fruit and vegetable intake can be viewed as a general indicator of an individual's overall diet. Eating more fruits and vegetables may replace less nutritious food products, and often requires the meal planning, food storage, and food preparation skills necessary to eat a healthy and varied diet. (www.fruitsandveggiesmatter.gov/, accessed September 16, 2009) Additionally, women are often the family's gatekeeper for food and meals and their influence, including their intake of fruits and vegetables, has a significant impact on family diet habits

The 2007 BRFSS found 75.6% of US adults were not eating the recommended five or more servings of fruit and vegetables per day. The BRFSS data for adults in NC was similar with 78.4% of NC adults not eating five or more servings of fruit and vegetables daily. Furthermore, 75.2% of NC women and 81.8% of NC men were not eating enough fruit and vegetables daily. Fruit and vegetable intake increased slightly with education, age (age 65 and over), and household income. (NC BRFSS, SCHS, 2007)

STDs and HIV

NC has historically had among the highest rates of STDs in the nation. Whether it is because the state does a better job of case finding or whether the state's population has more disease prevalence is not the issue. These cases exist and require treatment and education to reduce the spread of the disease.

While HIV disease rates for women age 15-44 increased from 22.5 per 100,000 in 2001 to 27.5 in 2003, more recent data have shown significant declines. Between 2004 and 2008, the average five-year disease rate was 17.9 per 100,000, with a range between 16.4 and 20.7. The five-year trend seems to be stable. Correspondingly, the total number of cases has also declined from 494 in 2003 to 329 in 2008. But in spite of the overall declines in disease rates and total cases, racial disparities continue to widen. In 2008, the reported cases for African American women were

five times higher compared to White women (257 vs. 50). Similarly, the disease rates for Black, Non-Hispanic women, at 55.9 in 2008, was almost 14 times higher when compared to the rate for White women at 4.1. In the previous needs assessment, the disparity in reported cases and disease rates were 4 times and 12 times respectively. The disease rate for Hispanic women, while declining to 11.9 in 2008, was still three times higher when compared to White women.

The region with the highest rate of HIV disease in women 15-44 was in the southern piedmont section of the state (Region 3) with a rate of 32.6 compared to the State rate of 17.5. The rates of both whites and African Americans were higher in this region than the state. (NC HIV/STD Prevention and Care Branch, Epidemiology and Special Studies Unit, 2008)

Table 16
HIV Disease Cases and Rates per 100,000 by Race & Ethnicity for Women Age 15-44 Years
North Carolina 2004-2008

HIV Disease Race/Ethnicity	2004		2005		2006		2007		2008	
	CASES	RATE								
White, Non Hispanic	51	4.2	58	4.8	46	3.8	62	5.1	50	4.1
Black, Non Hispanic	241	54.7	234	52.5	228	50.4	291	63.3	257	55.9
Native American	<5	---	7	29.0	<5	---	<5	---	0	0.0
Asian/Pac. Islander	<5	---	<5	---	<5	---	<5	---	<5	---
Hispanic	23	20.6	21	17.7	26	20.7	32	23.7	16	11.9
Missing	0	---	0	---	<5	---	0	---	<5	---
Total	318	17.5	323	17.6	304	16.4	390	20.7	329	17.5

Source: Epidemiology and Special Studies Unit, NC HIV/STD Prevention and Care Branch

The number of reported cases of Gonorrhea for women age 15-44 decreased from 7,571 in 2001 to 7,123 in 2003, while the rates declined from 423.2 per 100,000 to 396.8 for the same period. However, the number of cases and rates increased in 2005 and while there was a slight decline in 2007, the number of cases and rate in 2008, at 8,102 and 430.4 respectively, were still much higher than the 2003 case numbers and rates. Reported cases for black females declined from 5,289 in 2004 to 4,832 in 2008, with a corresponding decline of the rate to 1050.5 from 1196.6 in 2004. Nevertheless, the current rate for black females is still ten times higher than the rate for whites at 105.0. Hispanic women's rates which have fluctuated in the past eight years, with a low of 109.4 in 2002, increased to 149.8 in 2008. The highest rate of gonorrhea in 2008 was in Region 6 (the east) with a rate of 568.4. This is much higher than the state rate of 430.4. The white rate in Region 6 in 2008 was 156.3 compared to the state rate for the same population of 105.0. (NC HIV/STD Prevention and Care Branch, Epidemiology and Special Studies Unit, 2009)

Table 17
Gonorrhea Cases and Rates per 100,000 by Race & Ethnicity for Women Age 15-44 Years
North Carolina 2004-2008

Gonorrhea Race/ Ethnicity	2004		2005		2006		2007		2008	
	CASES	RATE								
White, Non Hispanic	1483	123.6	1495	124.4	1754	145.2	1708	140.4	1277	105.0
Black, Non Hispanic	5289	1199.6	5303	1189.7	5869	1296.4	5723	1244.2	4832	1050.5
Native American	110	457.9	114	472.3	91	375.8	129	528.6	186	762.1
Asian/ Pac. Islander	24	58.2	29	68.0	32	72.3	38	82.1	29	62.7
Hispanic	165	147.6	149	125.9	176	139.8	161	119.4	202	149.8
Missing	53	---	201	---	497	---	910	---	1576	---
Total	7124	391.9	7291	397.8	8419	453.9	8669	460.6	8102	430.4

Source: Epidemiology and Special Studies Unit, HIV/STD Prevention and Care Branch

In recent years, North Carolina has put a great deal of programmatic emphasis on the identification and reduction of syphilis. At one time North Carolina had among the highest rates of syphilis in the nation, but in 2008, the rates for syphilis had dropped so that state and national data are more similar. For North Carolina in 2008, the rate of women of childbearing age (15-44) with syphilis was 1.9 per 100,000, while the US rate was 1.5. Among White women the rate was 0.5 in both the state and the nation. In Black women, the rate has declined significantly from a high of 26.1 in 2001 to 5.4 in 2008 in North Carolina compared to 9.5 in the US in 2008. For Hispanic women in North Carolina, the rate increased slightly to 1.7 which is higher than the US rate of 1.3. (NC HIV/STD Prevention and Care Branch, Epidemiology and Special Studies Unit, 2009 and CDC, Sexually Transmitted Diseases Surveillance 2008, DHHS, November 2009.)

Table 18
Primary & Secondary Syphilis Cases and Rates
by Race and Ethnicity for Women 15-44 Years
North Carolina 2004-2008

P & S Syphilis Race/Ethnicity	2004		2005		2006		2007		2008	
	CASES	RATE								
White, Non Hispanic	<5	---	15	1.2	9	0.7	7	0.6	7	0.6
Black, Non Hispanic	30	6.8	29	6.5	44	9.7	44	9.6	25	5.4
Native American	<5	---	<5	---	0	0.0	0	0.0	0	0.0
Asian/Pac. Islander	0	0.0	<5	---	0	0.0	0	0.0	0	0.0
Hispanic	<5	---	0	0.0	<5	---	<5	---	<5	---
Missing	0	---	<5	---	0	---	0	---	<5	---
Total	38	2.1	49	2.7	55	3.0	52	2.8	35	1.9

Source: Epidemiology and Special Studies Unit, HIV/STD Prevention and Care Branch

Chlamydia is the most frequently reported bacterial sexually transmitted disease in the United States. Many cases are not reported, because most people are not aware they have Chlamydia and therefore do not seek treatment. (CDC, STD Prevention: Fact Sheets: Chlamydia, 2010) In North Carolina in 2008 the Chlamydia rate for women of childbearing age (15-44) was 1613.9 per 100,000. The US rate in the same population was 713.6. As with the other major STDs, racial disparities in Chlamydia rates are wide. The white rate for women is lowest in North Carolina at 518.9 per 100,000, while the national rate is 224. Among black women the rate in North Carolina was 3217.6 compared to the national rate of 1881. The rate for Hispanic women is about half the rates of black women, yet still twice the rate of whites: 1442.7 in NC compared to the national rate of 794.2.

Table 19
Chlamydia Cases and Rates by Race & Ethnicity for Women Age 15-44 Years
North Carolina 2004-2008

Chlamydia Race/ Ethnicity	2004		2005		2006		2007		2008	
	CASES	RATE								
White, Non Hispanic	6226	518.8	6630	551.6	7012	580.5	6180	507.9	6314	518.9
Black, Non Hispanic	14633	3319.0	15219	3414.2	15666	3460.5	13699	2978.2	14800	3217.6
Native American	350	1456.9	415	1719.4	320	1321.5	334	1368.6	433	1774.2
Asian/Pac. Islander	170	412.5	199	466.8	189	426.8	151	326.2	210	453.7
Hispanic	1705	1525.5	1872	1581.6	2023	1606.8	1779	1318.9	1946	1442.7
Missing	190	---	708	---	1444	---	2457	---	6674	---
Total	23274	1280.2	25043	1366.4	26654	1436.9	24600	1306.9	30377	1613.9

Source: Epidemiology and Special Studies Unit, HIV/STD Prevention and Care Branch. CDC, Sexually Transmitted Diseases Surveillance, 2008. DHHS, November, 2009.

B. Children Population Group

Population and Family Characteristics

Demographic Changes

The total population of the state rose between 1990 and 2000, and continues to rise yearly, according to US Census data and projections. In 2007, per population estimates from the US Census Bureau, there were just over 3 million children and youth (infants to age 24) estimated to be living in NC. This is an increase of about 160,000 children (or 5.5% increase) from the estimates for 2003. The 10 to 14 age group decreased by about 4000 children from 2003 to 2007, but all the other age groups (infants 0 to 1, children age 1 to 4, 5 to 9, 15 to 19, and 20 to 24) increased. The number of 0 to 24 year old American Indian or Alaskan Natives decreased by 1346 from 2003 to 2007, but all other race groups increased. Of the 3 million children and youth

in NC in 2007, almost 10% (307,919) of them were of Hispanic ethnicity. This is an increase from 2003, when eight percent were of Hispanic ethnicity. There were increases of children of Hispanic origin in each of the age groups with the exception of the 20 to 24 year age group, which declined by 12,228. The state's rapidly increasing Spanish-speaking population is having a widespread impact on delivery of public services to those in need. Over a quarter of the state's young Hispanic population is not proficient in English. The provision of culturally and linguistically appropriate services remains a challenge in many parts of the state.

Table 20
NC Population Estimates for Children/Youth Age 0-24 Years
2003 & 2007

Age Groups	2003		2007		% Change 2003 to 2007
	#	% of total	#	% of total	
Birth to 1 year	118,339	4.1	131,293	4.3	10.9
1 - 4 years	471,760	16.2	506,371	16.5	7.3
5 - 9 years	563,836	19.4	611,420	19.9	8.4
10 - 14 years	597,655	20.5	593,613	19.3	-0.7
15 - 19 years	554,623	19.0	620,039	20.2	11.8
20 -24 years	605,463	20.8	610,055	19.9	0.8
Total	2,911,676	100	3,072,791	100	5.5

Source: US Census 2003 and 2007 Population Estimates from US Census Bureau

Table 21
NC Population Estimates by Race and Age
2007

Age Group	Total	White	Black	Amer. Indian	Asian	Native Hawaiian or Other Pacific Islander	More than one race reported
Birth to 1 year	131,293	89,811	33,359	1,748	2,764	140	3,471
1 - 4 years	506,371	355,571	119,434	6,250	11,646	436	13,034
5 - 9 years	611,420	426,922	147,271	8,175	13,218	538	15,296
10 - 14 years	593,613	406,358	154,023	8,494	11,906	439	12,393
15 - 19 years	620,039	419,720	170,469	9,225	10,894	446	9,285
20 -24 years	610,055	428,206	153,786	8,988	10,519	571	7,985
Total	3,072,791	2,126,588	778,342	42,880	60,947	2,570	61,464

Source: US Census Bureau, 2007 Population Estimates

Table 22
NC Population Estimates by Ethnicity and Age
2007

Age Group	Total NOT Hispanic or Latino	Total Hispanic or Latino	Total All Ethnicities
Birth to 1 year	110,498	20,795	131,293
1 - 4 years	431,617	74,754	506,371
5 - 9 years	541,761	69,659	611,420
10 - 14 years	542,992	50,621	593,613
15 - 19 years	578,766	41,273	620,039
20 -24 years	559,966	50,089	610,055
Total	2,765,600	307,191	30,72,791

Source: US Census Bureau, 2007 Population Estimates

Child Health Status

The 2007 NSCH shows that the majority of NC children age 0 to 17 have overall good health (86.5% reported to have excellent or very good health as compared to 84.4% for the nation). However, 11.3% of children have one or more current chronic conditions rated as moderate to severe by parents, which is up from 8.4% reported in the 2003 survey.

NC CHAMP data for the past 4 years also indicates that the majority of children age 0 to 17 have overall good health. In 2008, 82.4% of respondents said that their children were in very good or excellent health in general, which is consistent with data from 2005 to 2007. Disparities in general health status existed in different racial and ethnic groups in 2008, as well as by different socioeconomic groups and type of health insurance as documented in Table 23.

Table 23
Percent of NC CHAMP Respondents Stating That Children
Were In Excellent or Very Good Health
2008

Percent of children in excellent or very good health	2008
TOTAL	82.4
RACE	
White	89.9
African American	74
Other Minorities	66.2
HISPANIC	
Yes	60.2
No	85.2
PARENT EDUCATION	
Less H.S.	46.6
H.S.	70.5
Some College	84.5
College Graduate	90.5
HEALTH INSURANCE	
State Health Plan	95.5
Private	90.4
Health Choice	66.4
Medicaid	67.1
Other	89.7
No health insurance	68
CHILDREN WITH SPECIAL HEALTH CARE NEEDS	
Yes	53.7
No	85.6

Source: NC CHAMP, 2008, SCHS

Family Structure and Children's Living Arrangements

The family support system is a central contributor to child well-being due to its relationship with economic and other resources that support health and well-being. The risk of poor child development is much higher for children in single-parent families than for those in two-parent families.

About 69% of North Carolina children currently live in the "typical" two parent household. NC has seen a 16% increase in the total percentage of NC children under age 18 living in single parent households from 1990 (20.9%) to 2000 (24.3%). That increase is greater for minority children. (Living Arrangements Profile for North Carolina, Annie E. Casey Foundation web site, <http://www.aecf.org/kidscount/census>, accessed on January 15, 2010)

The percentage of black children under age 18 living in single-parent households in 2000 was 53.9, compared to 18.2 percent for white children and 24% for Hispanic children. These

percentages for NC are very similar to those for the United States as a whole (19.8% white, 58.1% black, and 28.7% Hispanic. (Living Arrangements Profile for North Carolina)

Vulnerable youth and young adults

In SFY09, 5143 youth and young adults ages 13-20 were in DSS custody or placement responsibility, which is quite an increase from 3400 in 2003. According to the Annie E. Casey Foundation Kids Count 2008 data book, the estimated daily count of detained and committed youth in custody in 2006 was 1,029. The rate of detained and committed youth in custody per 100,000 youth ages 10 to 15 in 2006 was 82 as compared to a national rate of 125. In 2000, 11% of teens in North Carolina were not attending school and not working. This percentage dropped to 8% in 2006, however, showing great improvement.

Child Care

North Carolina has one of the highest rates of working mothers with young children in the nation, making the availability of child care essential for the state's economic development and stability. Over 200,000 children spend part or all of their day in regulated child care arrangements. The availability of child care is essential for the state's economic development and stability. (http://ncchildcare.dhhs.state.nc.us/general/mb_snapshot.asp#Child%20Care%20Highlights/ accessed on August 12, 2009) One of the largest problems with child care in North Carolina is the large number of children with working parents that are waiting for child care subsidies which they need to afford safe, reliable child care. According to a special data request to the NC DCD in February 2008, in 2006, there were 36,755 children ages 0 to 5 that were eligible to receive a child care subsidy, but were on the waiting list.

Table 24
North Carolina Child Care Information
2005 and 2009

Child Care Information	May 2005	May 2009	2005 to 2009 Percent Change
State population 0-12 years	10,161,051	11,006,899	+ 8.3%
Child Care Facilities serving children ages 0-12 years			
# Regulated Centers	4,592	5,048	+9.9%
# Family Care Homes	4,547	3,772	-17%
% Of Children In Centers With 4 Or 5-Star Ratings (High Quality)			
# Regulated Centers	40%	51.2%	28%
# Family Care Homes	31%	30.5%	-1.6%
Number Of Children (Age 0-12) Served In:			
Regulated Centers	227,556	250,270	10%
Family Care Homes	25,123	21,319	-15.1%

Source: Population Estimates from the NC State Demographics Branch, Office of State Budget and Management; Child Care Facility Data from the NC DCD, Monthly Statistical Summary, May 2005 and May 2009

Family Income and Economic Security

According to data from the US Current Population Surveys for various years, in 2008, 13.9% of NC families had incomes less than the federal poverty level. This was an increase from 2004, when there were 12.1% of families living below poverty. Of children age 0 to 17 years, 19.4% were living below the poverty level in 2008 as compared to 19.2% in 2003 (Current Population Survey Poverty Tables, 2005 and 2009). Additionally, data from the NC DSS show that in SFY08, there were 4.3% of children less than 19 years old in families receiving Temporary Assistance to Needy Families (TANF) and 27.5% of children less than 19 were in families receiving food stamps. These numbers are different from what was reported in SFY04 when there were 6% of children in families receiving TANF, but only 20.1% of children in families receiving food stamps.

Access to Primary and Preventive Health Care Services

Insurance Coverage

Per data from the Current Population Survey, the percentage of people in North Carolina without health insurance increased from 13.1% in 2000 to 15.4% in 2008, although there was a drop from the 16.4% of people without health insurance reported in 2007. However, with the economic downturns of 2008 and 2009 and loss of jobs, it is hard to explain the decrease between 2007 and 2008. It should be noted that if a person had health insurance at any point in 2008, they were counted as insured. The percentage of people who get insurance from their employer fell to less than 56% in 2008. In 2000, 64% of North Carolina residents were insured through their jobs.

For children 18 and under from 2004 to 2008, the percent of children who were uninsured, as reported in NPM#13, remained around 12% to 13% each year. Analysis by Elise Gould of the Economic Policy Institute, updated in October 2008, found that employer-provided health insurance coverage for children under 18 years old in NC decreased by 10.1 percentage points to 53.9% between 2000-01 and 2007-08. (Gould, E.)

Children in North Carolina who are insured may have private or public insurance. Private insurance may consist of employee or a direct purchase plan. The two main public plans for North Carolina children consist of Medicaid and Health Choice. Nationally, the number of children who have public insurance has grown. This is in part due to an increase in funding for public insurance programs and rising costs of private insurance. The National Health Interview Survey notes that from 1999 to 2008, private insurance coverage for children decreased from 69.1% to 58.3% and those children insured through public programs rose from 20.4% to 34.2%. Specific to North Carolina, the US Current Population Survey data reports that from 2004 to 2008 the percentage of children with private insurance dropped from 65.9% to 60.9% and those with government insurance rose from 31% to 36.8%.

Health Check is the largest publicly funded source of insurance for North Carolina children from birth to 21 years of age. NC Health Choice (NC's SCHIP) also serves over 127,000 of children. On March 31, 2009, there were 809,593 children enrolled in Medicaid, which is actually a 3 percent decrease from the number enrolled in 2003. With the recent downturn in the economy, NC's seamless approach to its outreach for Health Check and NC Health Choice Programs, enrollment and re-enrollment has paid off as children moved back and forth between coverage in the two programs as their family incomes fluctuated.

The MCHB HSCI#7A looks at the percent of potentially Medicaid-eligible children who receive a service paid for by the Medicaid Program. Since FY04, the percentage has increased slightly from 87.1% to 89.4% in FY08. The percent of Medicaid enrollees <1 year during reporting year who have received at least 1 initial periodic screen (MCHB HSCI#2) also increased from 90.2% in FY04 to a high of 92.1% in FY08. In that same time period, the number of children <1 who were enrolled in Medicaid grew from 100,806 to 120,255.

Dental Care

Although dental decay has been dramatically reduced over the past 20 years, each year 37% of kindergarten children in North Carolina have already experienced tooth decay and 17% have untreated decay. Dental disease is increasingly affecting a smaller segment of the population. Over 80 percent of tooth decay is now found in approximately 25 percent of the children. The population with severe decay is, in general, of lower socioeconomic status. In primary teeth, minority (nonwhite) children have a higher incidence of cavities than white children, and more of this decay has been left untreated. Other factors associated with both higher dental cavity and higher unmet needs in primary teeth are lower parent education, living in a non-urban area, and living in the Coastal or Mountain regions of North Carolina. (2003-2004 North Carolina Statewide Dental Survey) Data reported in NPM#9 and HSCI#7B show some improvement over the past 5 years, although there is room for more.

Table 25
Dental Care for Children in NC
2004-2008

Indicator	Healthy People 2010 National Objective	2004	2005	2006	2007	2008
% third grade children who have received protectant sealants on at least one permanent molar tooth ¹	21-8: 50% at age 8	43	42	44	45	44
% EPSDT eligible children ages 6-9 years who have received any dental services in the past year ²	21-12: 57% of low-income children and adolescents will receive preventive dental service during the past year	37.9	39.9	42.1	43.8	43.7

Source: ¹NC Oral Health Section, DPH; ²NC Division of Medical Assistance

Immunizations

Though North Carolina has not yet met the Healthy People 2010 immunization objective of 90%, state performance on the majority of CDC measures of vaccine coverage is similar to that of the nation as a whole, although the state rate dropped considerably between 2007 and 2008. A review of the data for completion by antigen and for various series suggests that the factor pulling down NC's coverage rate in CY08 was the completion of the required three dose series of Hib by age 35 months. The impact of Merck's Pedvax Hib recall of December 2007 was particularly damaging for North Carolina in comparison to many other states. The Pedvax Hib recall created an immediate deficit of 55,215 doses in North Carolina's Hib supply putting North Carolina providers over a month and a half behind schedule for the administration of Hib. The initial deficit from the Pedvax recall was not corrected. Pentacel, a combination Hib containing vaccine, became available in August 2008 but the average of North Carolina's monthly allocations only met 89% of overall need until November 2008. The deficit was not corrected until September 2009 when the comprehensive need for Hib vaccine dating from December 2007 (709,555 doses) was finally met. This extensive time lag in meeting North Carolina's need for Hib containing vaccine caused many children to not receive Hib vaccine on time.

WCHS Immunization Branch staff members collaborate with C&Y state and regional nurse consultants and the Office on Disability and Health staff on a regular basis to develop strategies of outreach, awareness, and disparity elimination that will ensure the continued effectiveness of North Carolina's immunization program. One of the priority recommendations in the NCIOM *Prevention Action Plan* is to increase immunization rates. (Recommendation 9.1)

Table 26
% NC children through age 2 who have completed immunizations for
measles, mumps, rubella, polio, diphtheria, tetanus, pertussis, haemophilus influenza,
hepatitis B, and varicella
(Time Period: January-December)

Healthy People 2010 Objective	CY03	CY04	CY05	CY06	CY07	CY08
90%	77.3%	77.8%	81.6%	81.9%	77.3%	70.8

Source: National Immunization Survey (NIS), National Immunization Program and the National Center for Health Statistics, CDC.

Table 27
Estimated Vaccination Coverage among Children 19-35 Months of Age
US and NC, CY08

Vaccine(s)	US	NC	Description
4+ DTP	84.6	84.1	Four or more doses of any diphtheria and tetanus toxoids and pertussis vaccines including diphtheria and tetanus toxoids, and any acellular pertussis vaccine (DTP/DTaP/DT)
3+ Polio	93.6	94.6	Three or more doses of any poliovirus vaccine
1+ MMR	92.1	92.2	One or more doses of measles-mumps-rubella vaccine; previous reports of vaccination coverage were for measles-containing vaccine (MCV)
3+ Hib	90.9	83.6	Three or more doses of Haemophilus influenzae type b (Hib) vaccine
3+ HepB	93.5	93.6	Three or more doses of hepatitis B vaccine
1+ Var	90.7	92.3	One or more doses of varicella at or after child's first birthday, unadjusted for history of varicella illness
4+ PCV	80.1	82.6	Four or more doses of pneumococcal conjugate vaccine
4:3:1:3:3	78.2	72.4	Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any MCV, three or more doses of Hib, and three or more doses of HepB
4:3:1:3:3:1	76.1	70.8	Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any MCV, three or more doses of Hib, three or more doses of HepB, and one or more doses of varicella

Source: NIS, National Immunization Program and the National Center for Health Statistics, CDC.

An emerging priority for the NC Immunization Branch is to ensure that adolescents receive all the vaccines recommended by the CDC's Advisory Committee on Immunization Practices (ACIP). The following table lists the ACIP recommendations that have been made since 2005.

Table 28
ACIP Recommendations for Adolescents

Year	ACIP Recommendation
2005	Adolescents should routinely receive meningococcal conjugate vaccine (MCV4) as well as tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine.
2006	Routine vaccination with three doses of quadrivalent human papillomavirus (HPV4) vaccine for girls aged 11–12 years. In addition, catch-up human papillomavirus (HPV) vaccination is recommended for females aged 13–26 years who have not been vaccinated previously or who have not completed the full vaccine series.
2008	Recommended annual influenza vaccination for all persons aged 6 months through 18 years beginning no later than the 2009–2010 influenza season
2009	Recommendations for use of a recently licensed bivalent HPV (HPV2) vaccine among females (in age groups consistent with past specifications) and to include language about the possible use of the quadrivalent (HPV4) vaccine for a newly licensed indication among males aged 9 through 26 years.

Source: 2008-2012 Immunization Program Operations Manual (IPOM)

These vaccines offer an opportunity to reduce morbidity and mortality among adolescents, enhance their uptake of other preventive services, and heighten awareness of the importance of disease prevention through lifelong use of recommended vaccines and other services. However, successful implementation of these vaccines will require strengthening public health infrastructure, function, and effectiveness as well as planning to ensure sustainability through technical and financial capacity-building. Partnerships and effective communication strategies will be critical to the success of implementation. Also, parents and health care providers will need to learn that their respective recommendations greatly impact the decision-making and vaccine acceptance of adolescents. (2008-2012 IPOM). One of the specific recommendations of the NCIOM Task Force on Adolescent Health was to increase immunization rates for vaccine-preventable diseases (Recommendation 9-1), and other recommendations also included ensuring that adolescents received all immunizations recommended by the ACIP through adolescent health check screening visits.

Since 2006, the CDC has conducted the National Immunization Survey – Teen (NIS-Teen) to estimate vaccination coverage from a national sample of adolescents aged 13 to 17 years. In 2008, the survey was large enough to include state estimates. Nationally, vaccination coverage for the three most recently recommended adolescent vaccinations and one childhood vaccination increased from 2007 to 2008: MCV4 (meningococcal conjugate vaccine or meningococcal-unknown type vaccine) from 32.4% to 41.8%, Tdap (tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis) from 30.4% to 40.8%, and ≥ 1 dose of HPV4 (quadrivalent human papillomavirus vaccine for females) from 25.1% to 37.2%. The 2008 survey results for North Carolina are included in the following table. They leave much room for improvement.

Table 29
2008 NIS-Teen Coverage Rates for North Carolina

≥1 Tdap	≥1 MCV4	≥1HPV4
28%	30.7%	34.4%

Source: NIS-Teen, 2008

School Health and Education

North Carolina takes the position that health and education are interdependent; therefore the identification of health related barriers to learning are crucial to the provision of an appropriate educational plan for every student. To meet that objective, North Carolina has instituted comprehensive school health services in every school district. Through strategies such as the N.C. Healthy Schools Coordinated School Health program, the N.C. School Health Leadership Assembly, through local funding and state funding directed toward school health services and personnel, and through implementation of a regional and state network of school nurse consultants, the state has made comprehensive school health services a priority. One of the priority recommendations made by both the NCIOM Task Force on Adolescent Health (Recommendation 5.2) and the NCIOM *Prevention Action Plan* (Recommendation 12.1) was to enhance the North Carolina Healthy Schools Coordinated School Health program. This recommendation includes placing a local health schools coordinator in each local education agency (LEA).

North Carolina public schools are organized by 115 LEAs in the state's 100 counties. The student population in North Carolina has increased by 46,802 students between SY05, when 1,363,695 students attended, and SY09, when 1,410,497 students attended a total of 2,393 schools (a 3.4 percent increase). Due to ongoing efforts to prioritize school health, the ratio of school nurses to students in North Carolina has improved, even with the increase in the student population. In 2004-2005, North Carolina had 932 school nurses; in SY09 there were 1,169 school nurses. The average NC School Nurse to student ratio dropped from 1:1,571 in SY05 to 1:1,207 in SY09, closer to the HP2010 goal of 1:750. Thirty-nine LEAs met the target ratio of 1:750. In SY05, three LEAs did not have any school nurses, and 17,780 students (1.4%) had no access to school nursing services. In SY09, all LEAs have at least one school nurse and all students have access to school nursing services. (NC Annual School Health Services Report: 2008-09)

School nurses utilize epidemiological principles, including monitoring for clusters of symptoms that may indicate an emerging health threat for students and staff, educate the school and community on current health topics, advocate for students, and provide crisis management and leadership. National certification in school nursing is the standard by which school nurses are judged to have the knowledge and skills necessary to provide health services in the school setting. In SY09, the percentage of nationally certified school nurses in North Carolina increased from 41% to 50% of the school nurse work force.

A critical function of school nurses is identifying students with chronic health conditions. The number and percentage of students with chronic health conditions continues to increase,

including asthma, diabetes, behavioral and emotional conditions and many others. In addition to identifying these students, school nurses develop individual health care plans and train school staff members to give necessary medications and perform medical procedures ordered by health care providers.

School nurses provided more than 81,000 one-on-one health counseling sessions to students and staff in SY09, and more than 30,000 health education programs in group settings. They facilitated vision, hearing and dental screenings conducted in schools. Almost 30,000 students were seen by physicians or eye care professionals as a result of the referrals for comprehensive eye exams. Nurses were authorized to process more than 30,000 orders for medication, and school nurses ensured that this was done in a safe manner. School nurses work with their local School Health Advisory Councils to develop and implement local programs designed to prevent illness and promote health that are mandated by the North Carolina State Board of Education Healthy Active Children policy. They also assist with disaster/emergency planning for their communities. As needs of children in school continue to grow, so must the availability of school nurses, until the recommended ratio of 1:750 is reached and, ideally, there is a school nurse in every school in North Carolina.

In April 2009, the General Assembly of North Carolina passed House Bill 88: Healthy Youth Act. (<http://www.ncleg.net/gascripts/billlookup/billlookup.pl?Session=2009&BillID=H88> accessed on June 30, 2010.) Reproductive health and safety education was expanded beyond abstinence only to include information about contraception and the prevention of sexually transmitted diseases. Curricula must be made available for local review. A parent or guardian may choose whether his or her child participates in sex education classes. Application of this act begins with the 2010-2011 school year.

The NCIOM *Prevention Action Plan* includes a recommendation to ensure students receive comprehensive sexuality education in North Carolina public schools (Recommendation 5.3). The NCIOM proposes that local school boards should adopt an opt out consent process, and that each LEA should report its consent procedures as well as the number of students receiving comprehensive sex education by grade level.

The NC School Health Nurse Survey on Behavioral Health 2007 - This survey was conducted by the C&Y Branch in the fall of 2007 at the 24th Annual School Nurse Conference. The survey was completed by 471 nurses who represented 83 different counties. The objective of this survey was to serve as a baseline for identification of resources necessary to assist school nurses in supporting students with behavioral and mental health concerns. The survey assessed school environment, diagnostic categories of concern, student support resources, risk factors, and pathways for identification, management, coordination, and referral of services for students with behavioral/mental health concerns. Nurses covering all school grades were surveyed. Results showed that 92% of NC school nurses indicate their students are receiving “good” or “fair” services with regards to behavioral/mental health. Good service was described as “Some systems are in place to manage behavioral/mental health concerns, but there is room for improvement,” while fair service was defined as “Few Systems are in place to manage behavioral/mental health concerns. Problems are addressed on a case-by-case basis. Program improvements are needed.” North Carolina school nurses would like additional training on

diagnostic classifications such as: disorders usually first diagnosed in infancy, childhood, or adolescence; mood disorders; and anxiety disorders. School nurses expressed a need for school programs such as: student advisor programs; positive behavior support; and peer meditation. Nurses indicated that schools need to better address the following risk factors: depression/grief/loss; bullying/victimization; and family transitions (separation/divorce/blending). They would like training on: depression/grief/loss; gang activities; and school/home violence.

Mortality and Morbidity

Leading Causes of Death to Children

In 2008, North Carolina had its lowest rate of child deaths ever at 71 deaths per 100,000 children. The rate, based on 1,573 actual child deaths, compares to the 1,649 deaths in 2007, or a rate of 75.1 deaths per 100,000 children. Child deaths have decreased 18 percent over the last decade and a remarkable 33 percent since the inception of the Child Fatality Task Force in 1991. (Vital Statistics, NC SCHS)

Table 30 displays the leading causes of child death to North Carolina children for the years 2004 to 2008. Similar to findings in past years and for the nation as a whole, two-thirds of child deaths in North Carolina in this period occurred during the first year of life. The primary cause of death for children less than 1 year of age was birth defects and other birth-related conditions. The major causes of preventable deaths beyond infancy are injury (both intentional and unintentional) and illnesses. As mentioned earlier, there was a 39 percent increase in the SIDS deaths, from 98 in 2007 to 136 in 2008. It is unclear what contributed to this increase, although it could be attributed to misreporting or spending less on public awareness campaigns. The study of this sharp increase will be given priority.

Table 30
Leading Causes of Death to NC Children
Birth through 17 Years (2004-2008)

Cause of Death	Average Annual Number 2004-2008	2004	2005	2006	2007	2008
Birth defects	218	219	208	198	231	232
Other birth complications/ conditions	564	575	580	557	580	528
Sudden infant death syndrome	107	103	105	94	98	136
Illnesses	302	286	293	304	329	297
Unintentional injuries	275	313	273	274	271	248
Homicide	63	51	78	65	61	58
Suicide	25	23	29	21	26	22
All other	50	37	48	60	53	52
TOTAL	1603	1607	1614	1573	1649	1573

Source: Vital Statistics, NC State Center for Health Statistics

Table 31 examines the number of child deaths by age.

**Table 31
NC Child Deaths by Age
2004-2008**

Age at Death	Average Annual Number 2004-2008	2004	2005	2006	2007	2008
<1 year	1067	1050	1077	1033	1107	1066
1-4 years	142	140	141	140	144	146
5-9 years	94	90	86	100	106	89
10-14 years	108	117	111	106	115	90
15-17 years	192	210	199	194	177	182
TOTAL	1603	1607	1614	1573	1649	1573

Source: NC State Center for Health Statistics

Unintentional Injuries

Following their first birthday, children in the United States are at greater risk of dying from injury than from any other cause. North Carolina is like other states in this respect; in the past five years, injury has been the leading cause of death for children aged 1-19 years. Injury is typically divided into two categories: unintentional and intentional (including suicide and homicide). Prevention of injury focuses on reducing the risk or severity of injuries. Effective intervention strategies must include identifying and modifying complex and interactive injury-related risk and protective factors that influence individual behavior and create safe environments.

**Table 32
Leading Causes of Unintentional Injury Deaths among NC Children,
2004-2006**

Rank	<1 year	1-9 years	10-19 years
1	Suffocation (n=87)	MV Traffic (n=142)	MV Traffic (n=648)
2	MV Traffic (n=17)	Fire/Burn (n=34)	Poisoning (n=95)
3	Fire/Burn (n=5)	Drowning (n=33)	Drowning (n=40)
4	Drowning (n=2)	Suffocation (n=17)	Fire/Burn (n=17)

Source: CDC Web-based Injury Statistics Query and Reporting System (WISQARS); <http://www.cdc.gov/ncipc/wisqars/default.htm>

As is evident in Table 33, causes of unintentional injury death to children vary by age and developmental level. The greatest injury risk to infants is from suffocation. The risk for all injuries increases as the child ages and becomes more mobile. Traffic injuries are the leading cause of death to older children and this risk rapidly accelerates as adolescents reach driving age.

The increase in unintentional poisoning deaths observed in the adolescent age group is largely due to drug overdoses. There is concern that children are gaining access to their parents' prescription drugs. According to 2007 National Household Survey on Drug Use and Health, 9.24% of North Carolinians ages 12-17 reported illicit drug use in the past month. Trend data from this survey show that there has been a decrease in illicit drug use for North Carolina youth, from 11.06% in 2004, to 10.87% in 2005, and then to 10.39% in 2006. However, illicit drugs for this survey include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used non-medically. These estimates are based on data from original questions, excluding those on the use of over-the-counter drugs or new methamphetamine items that were added in 2005 and 2006. (Substance Abuse and Mental Health Services Administration [SAMHSA], Office of Applied Studies, National Survey on Drug Use and Health, September 2008). 2007 NC YRBSS data reveal 17% of students have taken a prescription drug such as OxyContin, Percocet, Demerol, Adoral, Ritalin, or Zanax without a doctor's prescription one or more times during their life. 2008 NC CHAMP Survey Results indicate 77.9% of parents responding would find it very helpful to learn about teens and marijuana and other illegal drugs.

According to WISQARS data, in 2004 to 2006 data unintentional injury was the number one leading cause of death for children ages 1 to 19, with motor vehicle injuries being the leading cause. North Carolina vital records show that in 2008, the number of motor vehicle injuries was down almost 14 percent from 2007 for youth under 18 years of age. This may be due to a series of safety laws recommended by the North Carolina Child Fatality Task Force over the years, including the graduated drivers license system; child passenger safety seats and booster seats; enhancements in seat belt laws; and all-terrain vehicle safety requirements. 2007 NC YRBSS data indicates that 7.9% of students responded that they never or rarely wore a seat belt when riding in a car driven by someone else. 2008 NC CHAMP Survey results indicate 79.6% of respondents would find it very helpful would to learn about teens and driving safety. One of the priority recommendations of the NCIOM Task Force on Adolescent Health was to improve the comprehensive training program for young drivers. (Recommendation 6.1)

Table 33
Child Deaths from Unintentional Injury (Birth to 17 Years)
North Carolina 2004-2008

Cause of Injury	Annual Average 2004-2008	2004	2005	2006	2007	2008
Motor vehicle injuries	155	192	155	163	142	123
Bicycle injuries	5	6	7	6	4	3
Fire	18	19	13	15	24	17
Drowning	23	13	21	23	26	30
Falls	3	4	3	3	2	2
Poisoning	17	17	18	16	17	18
Other unintentional injuries	55	62	56	48	56	55
TOTAL	275	313	273	274	271	248

Source: Vital Statistics, NC State Center for Health Statistics

Drowning is the third leading cause of death from unintentional injury for North Carolina children ages 1 to 19 years and appears to have increased since 2004. Risk factors include lack of barriers (e.g., proper pool fencing) and supervision, recreation in natural water settings (such as lakes, rivers, or the ocean), lack of appropriate choices in recreational boating (not wearing life jackets), alcohol use, and seizure disorders. (CDC – Water-Related Injuries Fact Sheet. 2010)

Intentional Injuries

Suicide

Suicides have stabilized over the past five years in North Carolina. In 2008, 22 child deaths in children younger than 18 years were attributed to suicide. This is less than the 2004 – 2008 average of 25 deaths. However, these tragedies continue to be the focus of North Carolina Child Fatality Task Force studies as suicide was the third leading cause of death in NC for young people ages 10 to 24 during 2002 – 2006.

As seen in Table 34 as children get older, their vulnerability to suicidal behaviors begins to rise dramatically.

Table 34
Suicide Deaths to North Carolina Youth
2002-2006

Age Group	2002	2003	2004	2005	2006
10-14 year olds	6	6	9	8	6
15-19 year olds	30	44	44	39	44
20-24 year olds	59	92	87	74	101

Source: CDC WISQARS - <http://webappa.cdc.gov/cgi-bin/broker.exe>

North Carolina YRBSS data reveal that since 1993, there has been a decrease of students who have seriously considered killing themselves. In 2007, 12.5% of high school students reported having attempted suicide in the last twelve months, down from 24.2% in 1993. Females considered attempting suicide more frequently than males, but data suggest that male attempts were much more likely to be fatal. In North Carolina in 2008, there were more than two times as many suicides in males (25) as in females (10) for youth 18 and under. Firearms were the most commonly used suicide method for both sexes from 1999 to 2006. Of the 397 youth suicides (ages 10 to 19) years that occurred in North Carolina during that time period, 222 of these deaths, nearly 56%, were by firearm. Suffocation is the second cause of death (NC SCHS).

Homicide

The rate of homicides has stabilized over the past five years. Fifty-eight child deaths in children under 18 years old in 2008 were attributed to homicide. This is less than the 2004 – 2008 average of 63 deaths. It is, however, one of the leading causes of death among children in North Carolina over 1 year of age. For the years 1999-2006, homicide was the fourth leading cause of death

(unspecified) for 1 to 9 year olds and the second leading cause of death (firearms) among 15 to 19 year olds (after unintentional injury, primarily motor vehicle crashes). (CDC WISQARS - <http://webappa.cdc.gov/cgi-bin/broker.exe>, accessed October 19, 2009). Per 2007 North Carolina YRBSS results, 21.2 % of high school students carried a weapon such as a gun, knife, or club on at least one day during the 30 days before the survey.

Child Maltreatment

DPH recognizes child maltreatment as a serious and preventable public health problem with extensive short- and long-term health implications. Children who survive maltreatment are at increased risk for adverse health affects and risky health behaviors in adulthood. (Danese et al. 2009) The short-term effects of child abuse and neglect include the physical and emotional harm abuse causes for the child; the disruption to family life and cohesion; and the strain on scarce community resources resulting from the response to reports of abuse. Long-term consequences are the most costly in both human and monetary terms. Children who are abused are more likely to abuse their own children; experience lifelong chronic health and medical problems (e.g. obesity, drug abuse, heart disease); form broken and dysfunctional families; and draw on community resources for law enforcement, unemployment, social services, and health care. (English et al. 2005)

According to National Child Abuse and Neglect Data System, in FFY07 (most current year for which data are available), approximately 3.5 million children in the United States were subject to a CPS investigation or assessment of which 749,000 children (25.2%) were found to be victims of child maltreatment and 1,760 children died due to abuse or neglect. (US DHHS, Administration on Children, Youth and Families (2009). *Child Maltreatment 2007*.) In North Carolina, 25,976 children were confirmed victims of child maltreatment during FFY07 and 164 children died as a result of abuse or neglect in 2007 (NCDHHS *NC Child Fatality Prevention Team Annual Report, 2007*.) National and state data are an underestimate of the true incidence of child maltreatment due to underreporting and focus on a single data source.

Trend data for the North Carolina victimization rates, which include both substantiations and “services needed” determinations, are found in Table 35.

Table 35
Child Maltreatment Victimization Rates and Numbers
North Carolina 2003 to 2007

Year	Rate	Number of Children
2003	15.9	32,847
2004	16.3	33,849
2005	15.7	33,250
2006	13.1	28,422
2007	11.7	25,976

Source: US DHHS, Administration on Children, Youth and Families (2009). *Child Maltreatment 2007*. Retrieved January 30, 2010 from URL: http://www.acf.hhs.gov/programs/cb/stats_research/index.htm#can

In reviewing child maltreatment trends in North Carolina, it appears that North Carolina is making great strides in reducing child maltreatment rates; however, the actual downward trend may be related to the state's Multiple Response System (MRS) and how data is reported under this new system. During FFY02, North Carolina implemented an alternative response pilot program (MRS) in 10 counties. In 2003, this pilot was expanded to 42 additional counties and taken statewide in 2006. With MRS, after receiving reports of alleged child maltreatment, the allegations are screened by the county agency to determine if they meet the statutory definition of abuse, neglect, or dependency. Once reports are accepted by the county agency because the allegations meet statutory definitions, it is assigned to either an Investigative Assessment or a Family Assessment track.

The Family Assessments place a greater emphasis on globally assessing the underlying issues of maltreatment rather than focusing solely on determining whether or not the incident of maltreatment occurred. In a Family Assessment the family is engaged using Family-Centered Principles of Partnership throughout the entire assessment. Case decision findings at the conclusion of a Family Assessment do not indicate whether a report was substantiated or not, rather a determination of the level of services a family may need is made. Perpetrators are also not listed for Family Assessments. Legislation requires that for all allegations of abuse, neglect, or dependency with regard to any child in a family, all minors living in the home must be treated as alleged victims.

MRS has changed many data definitions and therefore trend data on assessments and substantiations are not available. In February 2006, the NC DSS added a new finding for Family Assessments, "Services Provided, No Longer Needed." This finding indicates that the safety of a child and future risk of harm are no longer issues because the agency has been successful in frontloading necessary services during the family assessment and therefore the case was neither substantiated or "Services Needed". (NCDHHS, <http://www.ncdhhs.gov/dss/mrs/>) In 2007-2008, there were 9,242 children with this new finding. (Duncan, et al. University of North Carolina at Chapel Hill Jordan Institute for Families website - <http://ssw.unc.edu/ma/>) As the Family Assessment Track of MRS can address neglect and dependency, some of the "Services Needed" reflects dependency allegations. (NCDHHS, <http://www.ncdhhs.gov/dss/mrs/>) Additionally, the MRS system also allows a finding of "Services Recommended". This means that the CPS assessment did not find safety issues which warranted mandatory services, but voluntary services are recommended to help strengthen family relationships. In 2007, 13,996 children fell into this category. (NCDHHS, <http://www.ncdhhs.gov/dss/mrs/>)

As DSS has changed their practice and data collection methods, DPH will also need to select alternative indicators to measure impact on child maltreatment prevention in NC. Possible indicators include:

- Victimization Rates (substantiated and "Services Needed" findings);
- First-Time Victim Rates; and
- Victim Age (reduction of rates of child maltreatment in children 5 and under).

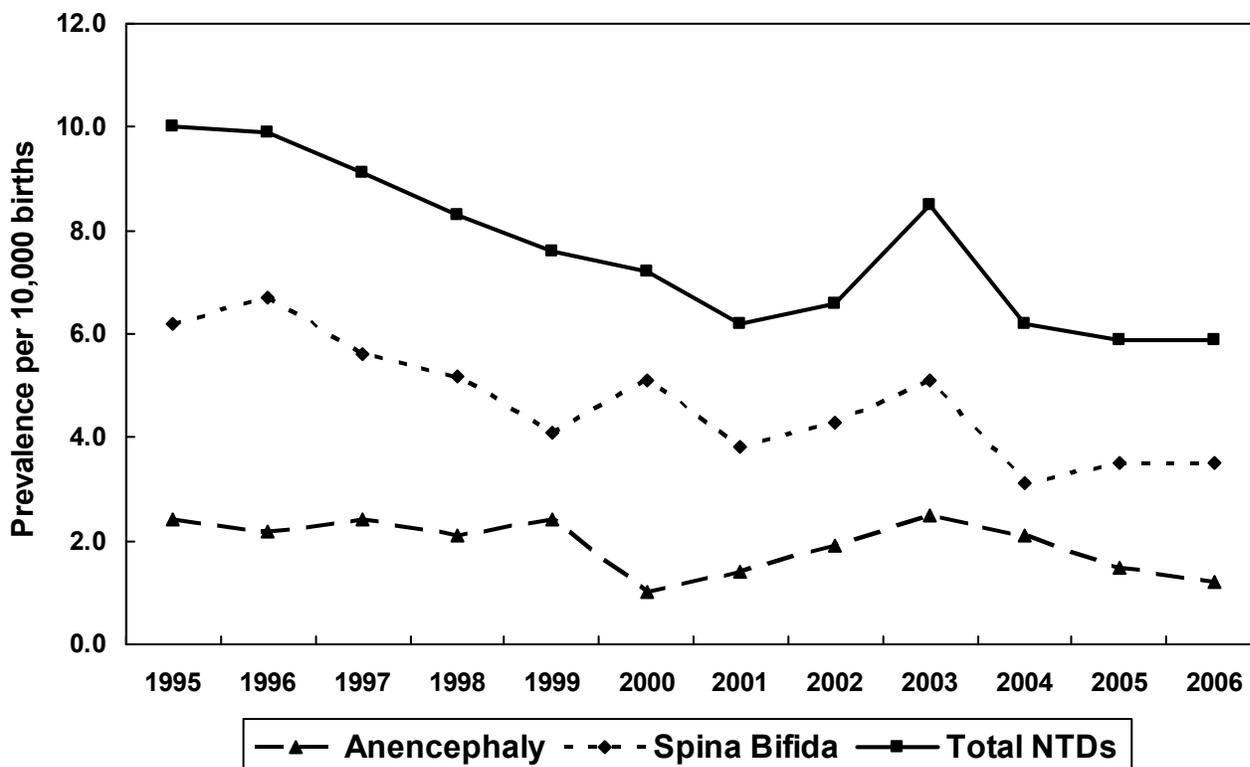
Other Indicators

Birth Defects

A birth defect is a structural, functional, or chemical abnormality that is present at birth. The causes for about two-thirds of all birth defects are unknown and are believed to be due to a combination of genetic and environmental factors (multifactorial causes). In North Carolina about three percent of all infants are born with a major birth defect, or about 4,000 infants each year. Birth defects are a leading cause of infant mortality and childhood disability in North Carolina. Some birth defects are preventable, such as fetal alcohol syndrome and NTDs, which include anencephaly and spina bifida. Up to 70 percent of all NTDs can be prevented if women consume 400 micrograms of folic acid every day before conception and through the first trimester of pregnancy.

North Carolina has historically had a very high prevalence of NTDs compared to other areas of the country. Through the N.C. Folic Acid Council, March of Dimes, DPH, and other partner organizations, the state has maintained a broad-based effort to educate women about the importance of taking folic acid in order to reduce the risk of NTDs. These efforts, combined with the national folic acid fortification program, have been associated with a dramatic decline in NTDs since the mid-1990s. Based on data collected by the North Carolina Birth Defects Monitoring Program (BDMP), the prevalence of NTDs overall declined by 41 percent from 1995 to 2006 (see Figure 23). Both anencephaly and spina bifida—the two most common types of NTDs—declined significantly during this time. The prevalence of NTDs in North Carolina has declined among all racial/ethnic groups, although disparities persist. The prevalence among Latinas is twice that of non-Hispanic whites, and this gap has not changed over the past ten years. The N.C. March of Dimes and the Folic Acid Council are currently focusing their folic acid education programs on Latinas in order to reduce this disparity. The BDMP is collaborating with the CDC, UNC, and other groups on research aimed at identifying causes of birth defects and new opportunities for prevention.

Figure 24
Prevalence of Neural Tube Defects by Phenotype
North Carolina Live Births and Fetal Deaths
1995-2006



Asthma

Childhood asthma continues to be an important public health issue in NC. Data from the NC CHAMP survey show that in 2008, about 14.2% of children under the age of 18 in NC had been diagnosed with asthma at some point in their lives (lifetime asthma prevalence). This is more than a 20 percent decrease since the results of the first NC CHAMP survey in 2005, when 17.8% of children in North Carolina had asthma. In 2008, about 8.2% of these children still had this chronic condition (current asthma prevalence), a 28 percent decrease from the 2005 rate of 11.5%. The provisional US lifetime and current prevalence rates for 2008, which are the latest data available from the National Health Interview Survey, are 14% lifetime prevalence and 10% current prevalence. So, while the decreasing state rates are encouraging, North Carolina still has a higher prevalence than the nation. In North Carolina in 2008, in children less than 18, boys had slightly higher lifetime and current asthma prevalence rate than girls, and African American children had higher lifetime and current prevalence rates than their white counterparts, although these disparities in rates were smaller in 2008 than in 2007.

Table 36
Asthma Prevalence Rates in Children less than 18 in North Carolina and the United States
2005 to 2008

	2005	2006	2007	2008
% Ever Had Asthma				
North Carolina ¹	17.8%	17.1%	15.7%	14.2%
United States ²	12.7%	13.5%	13.1%	14%
% Currently with Asthma				
North Carolina ¹	11.5%	10.8%	9.8%	8.2%
United States ²	8.9%	9.3%	9.1%	10% ³

¹Data source: Child Health Assessment and Monitoring Program, NC SCHS

²Data source: Summary Health Statistics for U.S. Children: National Health Interview Survey

³Provisional data

Asthma is the most common chronic disease in children and the leading cause of school absenteeism. In North Carolina, data reported through the North Carolina Annual School Health Services Report show a decline in SY09 after two years of substantial increase in the number of students known to school nurses to have asthma.

Table 37
Asthma Measures from the NC Annual School Health Services Report
2006 to 2009

Asthma measures	SY06	SY07	SY08	SY09
Students known to school nurses to have Asthma	80866	83440	86437	75576
LEAs with asthma education programs	54	49	53	51
Students taught with Open Airways curriculum	2283	N/A	39 LEAs	34 LEAs
Students using peak flow monitoring while at school	3714	3199	4466	4035
Students known to self-carry asthma medication	N/A	14967	19767	18998

Source: NC Annual School Health Services Report

Trend data for the HSCI#01 (the rate of children hospitalized for asthma (ICD-9 Codes: 493.0 - 493.9 as a primary diagnosis) per 10,000 children less than five years of age) shows a six percent decrease between 2005 and 2008.

Table 38
Asthma Hospitalization Rates and Asthma Related Hospital Discharges
NC, 2005-2008

	2005	2006	2007	2008
Asthma Hospitalizations* children <5 (rate per 10,000) *ICD-9 493.0-493.9 <i>as primary diagnosis</i>	26.9	26.0	26.3	25.2

Source: Hospital Discharge Data compiled by NC State Center for Health Statistics

Diabetes

According to the August 2009 NC Diabetes Prevention and Control Fact Sheet on Type 1 (Juvenile) Diabetes, about 3700 children and youth had Type 1 Diabetes in North Carolina during the period 2002 to 2005, with 75% of those children being white. Trend data from SY06 to SY09 in the NC Annual School Health Services Report is mixed, with the number of children known to have Type 1 increasing between SY08 and SY09 after decreasing between SY07 and SY08. However, the number of children known to have Type 2 decreased between SY08 and SY09 after a sharp increase between SY07 and SY08. More years of data are necessary in order to depict a trend, but the total number of children with diabetes in school in North Carolina seems to be holding steady.

Table 39
Diabetes Measures from the NC Annual School Health Services Report
2006 to 2009

Diabetes measure	SY06	SY07	SY08	SY09
Students known to have Diabetes Type 1	N/A	3516	3205	3407
Students known to have Diabetes Type 2	N/A	982	1507	1177
Total students known to have diabetes	4437	4498	4712	4584
Students who monitor blood glucose at school	3419	3610	3677	3548
Receive insulin injections at school	1918	2024	2104	2101
Have insulin pumps	1414	1458	1588	1504
Students known to self-carry diabetes medication		2514	2467	2527

Source: NC Annual School Health Services Report, 2006 to 2009

Trend data from the NC CHAMP indicate that the percentage of parents that were told by a doctor or health professional that their child had diabetes or high blood sugar decreased to 11% in 2008 after being at 16 or 17 percent for the prior three years.

Blood lead exposure

While the lead poisoning problem in NC has diminished since the NC Childhood Lead Poisoning Prevention Program was formed in 1994, lead poisoning is still a problem that can affect health for a lifetime. Surveillance data indicate a substantial decrease in the number of children with elevated blood lead levels since 1995 when 895 children were confirmed to have exposures at or above 10 micrograms per deciliter (mg/dL). In 2008, only 179 children were confirmed at the same exposure level, despite the fact that the total number of children tested has grown by 71% from 87, 884 in 1995 to 150,518 in 2008.

Table 40
NC Childhood Lead Surveillance Data
2004-2008

Year	Screened (<6 years) Number	Screened (1 & 2 Years)		Confirmed	
		Number	% Screened	10-19 µg/dL	≥20 µg/dL
2004	124,486	92,057	39.1	349	52
2005	128,249	96,623	40.6	299	53
2006	135,595	103,899	42.8	255	38
2007	143,972	112,556	44.9	232	38
2008	150,518	119,542	46.2	179	36

Source: NC Department of Environmental Health/Children's Environmental Health Branch

Newborn Metabolic Screening

The universal newborn metabolic screening services were initiated in North Carolina in 1966 with services for phenylketonuria. Tandem mass spectrometry was begun in July 1977 and as of 2009, North Carolina screens for all of the nationally recommended conditions with the addition of Biotinidase deficiency. The newborn metabolic screening samples and newborn hearing screening results are obtained simultaneously at birthing hospitals in North Carolina and reported through the same screening form. Table 41 shows that the percent of newborns screened in North Carolina is close to 100% and indicates the number of confirmed cases of different conditions. Follow-up is conducted on all newborns with a confirmed condition.

Table 41
Infants Screened for Conditions Mandated
by the NC-Sponsored Newborn Screening Program
2004-2007

Year	2004	2005	2006	2007
# of Births	119,773	125,219	127,646	133,409
% Screened	99.15	99	99.63	97.74
# Confirmed Cases of:				
Phenylketonuria & Hyperphenylalaninemia	5	7	6	5
Congenital Hypothyroidism	79	71	61	86
Galactosemia	7	5	2	9
Sickle Cell Disease	111	125	117	125
Congenital Adrenal Hyperplasia (CAH)	8	6	4	1
3-Methylcrotonyl-CoA carboxylase deficiency	6	5	4	8
Medium Chain AcylCo-A Dehydrogenase Deficiency	5	8	11	10
Other	9	15	15	11

Source: NC Public Health Laboratory

Hearing Screening and Follow-up

It is generally estimated that one of every 1,000 infants is born deaf, and six of every thousand has a degree of hearing loss in at least one ear likely to affect communication, cognition and/or educational attainment. (BEGINNINGS) Hearing screening is one of the mandated newborn screening tests for all infants born in the state. By 2002, all birthing hospitals in the state were in compliance with law requiring newborn hearing screening. Currently, over 98% of all newborns have had an initial hearing screening, and 96.9% have completed the hearing screening process within 30 days of birth. Between 1.5% and 2.0% of infants screened require additional testing or medical evaluation.

Table 42
NC Newborn Hearing Information Program Data
2004-2008

	2004	2005	2006	2007	2008
Total Birthing/Neonatal Facilities	94	94	92	92	92
Number participating hospitals	94	94	92	92	92
Total births*	120,589	123,951	129,000	132,188	132,106
# Infants screened prior to discharge** (initial hearing screen)	107,823	113,711	120,097	123,469	123,844
% screened prior to hospital discharge	89.4%	91.7%	93.1%	93.4%	93.7%
Infants completing hearing screening process within 30 days of birth	***	***	***	114,727	124,101
% completing hearing screening process within 30 days	***	***	***	86.8%	93.9%

*per Vital Records

** Prior to discharge is defined as less than 7 days following birth

*** Data not available

Source: NC Newborn Hearing Screening Program

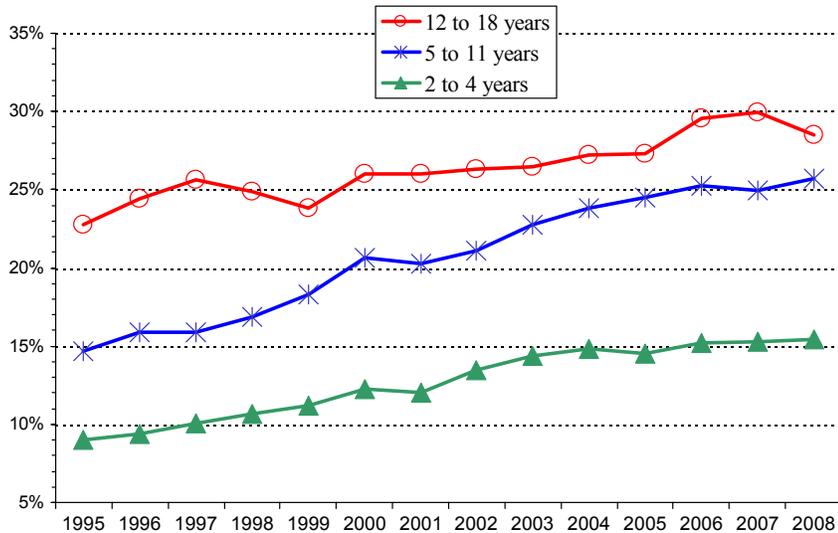
Overweight and obesity

North Carolinians are more and more aware of the increasing prevalence and consequences of overweight and obesity, especially among children. One of the most serious consequences of overweight and obesity in children is that it tends to persist into adulthood when it is associated with many adverse health outcomes including heart disease, hypertension, diabetes, gallbladder disease, osteoarthritis, and some cancers. Adolescent overweight is also associated with health risks such as hyperinsulinemia, hypertension, and respiratory and orthopedic problems. The increasing prevalence of overweight and obesity in the US is a significant public health problem.

The purpose of the North Carolina Nutrition and Physical Activity Surveillance System (NC-NPASS) is to provide accurate, timely information relevant to child health indicators of nutritional status such as overweight, underweight, and anemia. Child Health clinics and WIC programs at local public health departments routinely submit data on clients to the NC HSIS. NC-NPASS is a subset of this larger HSIS database and includes height, weight, a few lab measures and limited behavioral data. The data set used to generate NC-NPASS reports may not be representative of the population as a whole since it is comprised of data collected on children seen in NC DPH sponsored WIC and child health clinics and some school-based health centers. This data set is the source for SPM#3 (Percent of children 2-18 who are overweight). Data for that measure have stayed pretty constant between 2004 and 2007, with about 17% of children who are overweight each year during that time period. The state goal is to reduce that percentage to 10%. In regards to NPM#14 (Percentage of children, ages 2 to 5 years, receiving WIC services with a BMI at or above the 85th percentile), data show that the percentage has stayed at about 30% for the past five years. The proportion of overweight children (BMI >85th but <95th

percentile) seen in WCHS clinics continues to increase for all age groups. About a quarter of North Carolina children ages 5 through 18 are overweight by objective measurement. The following figure and tables illustrate the differences in childhood obesity by age, gender, race, and ethnicity.

Figure 25
Percentage of Obese (BMI >=95th Percentile) Children by Age Group by Year
NC-NPASS, 1995 to 2008



Source: NC-NPASS

Table 43
Obese (BMI >=95th Percentile) Children by Age, Gender, and Ethnicity
NC-NPASS* 2008

ETHNICITY	AGE	GENDER						ALL CHILDREN		
		MALE			FEMALE			Obese #	Total #	Obese %
		Obese #	Total #	Obese %	Obese #	Total #	Obese %			
HISPANIC	2-4	2,891	13,902	20.8%	2,857	13,855	20.6%	5,748	27,757	20.7%
	5-11	932	2,830	32.9%	768	2,845	27.0%	1,700	5,675	30.0%
	12-18	298	800	37.3%	233	920	25.3%	531	1,720	30.9%
	2-18	4,121	17,532	23.5%	3,858	17,620	21.9%	7,979	35,152	22.7%
NON-HISPANIC	2-4	4,078	31,346	13.0%	4,048	30,989	13.1%	8,126	62,335	13.0%
	5-11	799	3,753	21.3%	884	3,732	23.7%	1,683	7,485	22.5%
	12-18	679	2,581	26.3%	809	2,786	29.0%	1,488	5,367	27.7%
	2-18	5,556	37,680	14.7%	5,741	37,507	15.3%	11,297	75,187	15.0%
TOTAL **	2-4	6,973	45,271	15.4%	6,907	44,856	15.4%	13,880	90,127	15.4%
	5-11	1,735	6,589	26.3%	1,653	6,581	25.1%	3,388	13,170	25.7%
	12-18	983	3,394	29.0%	1,044	3,715	28.1%	2,027	7,109	28.5%
	2-18	9,691	55,254	17.5%	9,604	55,152	17.4%	19,295	110,406	17.5%

Source: NC-NPASS. ** Total includes unknown Hispanics.

Table 44
Obese (BMI >=95th Percentile) Children by Age, Race, and Gender
NC-NPASS* 2008

RACE	AGE	GENDER						ALL CHILDREN		
		MALE			FEMALE			Obese #	Total #	Obese %
		Obese #	Total #	Obese %	Obese #	Total #	Obese %			
WHITE	2-4	4,214	26,675	15.8%	4,120	26,207	15.7%	8,334	52,882	15.8%
	5-11	1,086	3,934	27.6%	944	3,873	24.4%	2,030	7,807	26.0%
	12-18	555	1,841	30.1%	546	2,136	25.6%	1,101	3,977	27.7%
	2-18	5,855	32,450	18.0%	5,610	32,216	17.4%	11,465	64,666	17.7%
BLACK	2-4	1,888	14,200	13.3%	1,918	14,213	13.5%	3,806	28,413	13.4%
	5-11	373	1,701	21.9%	445	1,709	26.0%	818	3,410	24.0%
	12-18	332	1,205	27.6%	410	1,231	33.3%	742	2,436	30.5%
	2-18	2,593	17,106	15.2%	2,773	17,153	16.2%	5,366	34,259	15.7%
AMERICAN INDIAN	2-4	146	822	17.8%	138	732	18.9%	284	1,554	18.3%
	5-11	35	148	23.6%	37	159	23.3%	72	307	23.5%
	12-18	19	68	27.9%	23	68	33.8%	42	136	30.9%
	2-18	200	1,038	19.3%	196	1,041	18.8%	396	2,079	19.0%
ASIAN & PACIFIC ISLANDER	2-4	94	652	14.4%	108	703	15.4%	202	1,355	14.9%
	5-11	37	168	22.0%	31	170	18.2%	68	338	20.1%
	12-18	19	122	15.6%	23	125	18.4%	42	247	17.0%
	2-18	150	942	15.9%	162	998	16.2%	312	1,940	16.1%
UNKNOWN	2-4	631	2,922	21.6%	623	3,001	20.8%	1,254	5,923	21.2%
	5-11	204	637	32.0%	196	670	29.3%	400	1,307	30.6%
	12-18	58	157	36.9%	42	154	27.3%	100	312	32.1%
	2-18	893	3,716	24.0%	861	3,825	22.5%	1,754	7,541	23.3%
TOTAL**	2-4	6,973	45,271	15.4%	6,907	44,856	15.4%	13,880	90,127	15.4%
	5-11	1,735	6,588	26.3%	1,653	6,581	25.1%	3,388	13,169	25.7%
	12-18	983	3,393	29.0%	1,044	3,714	28.1%	2,027	7,108	28.5%
	2-18	9,691	55,252	17.5%	9,604	55,151	17.4%	19,295	110,406	17.5%

Source: NC-NPASS. ** Total includes unknown Hispanics.

Adolescent Health (Including Risk Related Behaviors)

Physical Activity & Nutrition

Nationally, results from the 2007 YRBSS indicate that 30.3% of high school students in grades nine through twelve went to physical education (PE) classes 5 days in an average week when they were in school compared to 29% of North Carolina students. North Carolina survey results actually decreased from 34.4% in 2001, a 15 percent decrease.

Per the 2008 data from NC-NPASS, 17.2% of youth ages 12 to 18 are overweight and 28.5% are obese. These data are limited to children seen in North Carolina Public Health Sponsored WIC and Child Health Clinics and some School Based Health Centers. Percentiles were based on the CDC/National Center for Health Statistics Year 2000 BMI Reference.

Per 2008 NC CHAMP Survey results, 47.7% of children and youth 2 to 17 years of age, including those in college or other post high school education, spend 1 to 2 hours in physically active play on a typical day. Almost 90% of parents and caregivers believe that it is very important for schools to provide routine physical activity opportunities, in addition to physical education, throughout the school day. On a typical day, 29.2% of children and youth have 3 or more servings of vegetables and 36.1% have 3 or more servings of fruit. Finally, 69.4% of parents and caregivers of children 11 years and older that would like to learn more about teen issues would find it very helpful to learn about helping teens maintain a healthy weight.

Tobacco Use

Nationally, 2007 YRBSS data indicates 20% of high school students in grades nine through twelve having smoked cigarettes on at least 1 day during the 30 days before the survey compared to 22.5% of North Carolina students. North Carolina survey results actually show a 19 percent decrease from the results in 2001 (27.8%).

The 2009 North Carolina Youth Tobacco Survey (NC YTS) provides a critical source of public health data for understanding the scope of the tobacco problem and measuring progress toward overall goals among youth. The 2009 NC YTS is a comprehensive statewide representative sample of more than 7,100 middle and high school students. The 2009 YTS showed that 10.5% of middle school students reported use of some form of tobacco in the past month, down from 17.4% in 2001, close to a 40 percent decrease, but up from 9.1% reported in the 2007 YTS. Among high school students, 25.8% of high school students reported use of some form of tobacco in the past month, compared to 35.8% in 2001, an almost 28 percent decrease.

Per 2008 NC CHAMP Survey results, 65.9% of parents and caregivers of children 11 years and older that would like to learn more about teen issues would find it very helpful to learn about teens and tobacco.

Behaviors that Contribute to Violence

Nationally, 2007 YRBSS results indicate that 5.9% of high school students grades nine through twelve carried weapons on school property, for example, a gun, knife, or club on at least 1 day during the 30 days before the survey, compared to 6.8% of North Carolina students. This was an increase from 4.8% of North Carolina students reporting to have done so in 2001.

Per 2008 NC CHAMP Survey results, 23.1% of those surveyed has two or more guns in or around their home. Of those respondents, 31.8% kept the guns unlocked. Of parents and caregivers of children 11 years and older that would like to learn more about teen issues, 75.5% reported that they would find it very helpful to learn about communicating with teens.

YRBSS State and National Trend Data

In Table 45, data for both North Carolina and the United States for the most recent four years of the YRBSS are listed. North Carolina students are consistently below national percentages in regards to never or rarely wearing a seat belt riding in a car driven by someone else and riding

with driver who had been drinking. Unfortunately the percentage of North Carolina students who have attempted suicide one or more times has been greater than national percentages in 2005 and 2007. While national percentages of students carrying weapons on school property have decreased, the percentages for North Carolina students have increased. In 2007, the percentage of North Carolina students binge drinking is below the national percentage – however the state rate is still far above the Healthy People 2010 national objective. North Carolina students’ marijuana usage in 2007 mirrors national usage, but is also well above the Healthy People 2010 national objective. North Carolina students are smoking cigarettes less and less, nearing the Healthy People 2010 national objective. Students who went to physical education classes 5 days in an average week when they were in school in 2007 parallels national attendance, but again is well below the Healthy People 2010 national objective. Several of the priority recommendations of the NCIOM Task Force on Adolescent Health are related to youth risk behaviors. These include Recommendation 7.7 - to ensure the availability of substance abuse and mental health services for adolescents; Recommendation 8.2 - to support evidence-based prevention programs in the community, particularly juvenile justice prevention and treatment programs; Recommendation 10.1 - to support the implementation of North Carolina’s Tobacco Control Program; and Recommendation 10.2 - to improve school nutrition in middle and high schools. In addition, the NCIOM’s Prevention Action Plan had the following priority recommendations: Recommendation 4.3 - implement quality physical education and healthful living in schools; Recommendation 4.5 - implement the ESMM North Carolina Obesity Plan and raise public awareness; and Recommendation 6.1 - develop and implement a comprehensive substance abuse prevention plan.

Table 45
National and North Carolina High School Youth Risk Behavior Survey Results,
2001 – 2007

Percent of students:	Healthy People 2010 National Objective	2001		2003		2005		2007	
		NC	US	NC	US	NC	US	NC	US
Never or rarely wearing a seat belt riding in a car driven by someone else	8	9.5	14.1	10.9	18.2	8.3	10.2	7.9	11.1
Riding with driver who had been drinking	30	23.9	30.7	23.5	30.2	25.3	28.5	24.7	29.1
Attempted suicide on or more times	1	N/A	8.8	N/A	8.5	13.1	8.4	13.3	6.9
In a physical fight ≥ 1 time during the past 12 months	32	29	33.2	30.9	33	29.9	35.9	30.1	35.5
Carried weapons on school property, for example, a gun, knife, or club on at least 1 day during the 30 days before the survey	4.9	4.8	6.4	6.3	6.1	6.4	6.5	6.8	5.9
Binge drinking ≥ 5 drinks of alcohol within a couple of hours on ≥ 1 day of the past 30 days	2.0	20.7	29.9	21	28.3	23.1	25.5	21.1	26
Using Marijuana ≥ 1 time during the past 30 days	0.7	20.8	23.9	24.3	22.4	21.4	20.2	19.1	19.7
Smoked cigarettes ≥ 1 day of the past 30 days	16	27.8	28.5	24.8	21.9	24.9	23	22.5	20
Who went to physical education (PE) classes 5 days in an average week when they were in school	50	34.4	32.2	30.5	28.4	37.4	33	29	30.3

Source: Youth Online: Comprehensive Results, YRBSS, CDC, (<http://apps.nccd.cdc.gov/yrbss/>)

Qualitative Data

The 2009 Child Health Needs Assessment Survey for Providers - There were 634 respondents consisting of 141 Primary Care Physicians (including pediatricians and family physicians), 126 Nurses, 103 Therapist (speech-language, physical, occupational), 61 Physician's Assistant/Nurse Practitioner, 9 Nutritionists, 7 child care Health Consultants, 11 Registered Dietitians, and 176 who identified themselves as specialty physicians or other. There were respondents from 86

counties, with about 40% of the respondents from the more populous counties (Wake, Mecklenburg, Durham, New Hanover, Wayne, Orange, Buncombe, Pitt, and Cumberland.

Respondents were asked to choose the top three health priorities most in need of focused attention and public health resources. Results for children ages 0 to 5 were:

- Developmental delays (Includes physical, motor, mental, cognitive and social-emotional areas, including autism) - 73.19 %
- Immunizations - 37.72 %
- Nutrition/Breastfeeding - 36.76

The top three priorities found for children age 6 to 11 were:

- Overweight and obesity - 86.91%
- Behavioral health/mental health - 72.54%
- Asthma and allergies - 37.80%

The top three priorities found for children age 12 to 21 were:

- Overweight and obesity - 67.20%
- Behavioral health/mental health - 59.49%
- Substance use (includes tobacco) - 45.98%

The most predominant response from providers regarding the most critical emerging needs and gaps in health services for children was obesity and the complications that accompany it. One respondent stated “Nutrition and physical activity (lack of) are creating an obesity epidemic in our community.” Respondents also noted the lack of adequate health insurance as a critical gap in health care. Many providers also identified mental health services as a critical gap, with one respondent citing that “these are the least accessible and effect many of the other health issues.”

Providers identified the following items as the top three strategies that could assist them in implementing medical home principles into their practice:

- Reimbursement systems in place for coordination of comprehensive care (59.30%)
- Attend a workshop to learn how to implement these principles (41.97%)
- Do a self-assessment to determine the degree to which your practice is already implementing medical home principles (40.13%)

The 2009 Child Health Needs Assessment Survey for Physicians - There were 241 physician respondents extracted from the survey conducted for all providers. These 241 respondents consisted of 150 primary care physicians (including pediatricians and family physicians), 25 pediatricians, 4 mental health providers, and 162 who identified themselves as specialty physicians or other. There were respondents from 58 counties.

The top three health priorities for children in the various age groups were the same as the priorities identified in the results for all of the provider responses. An overwhelming response from physicians regarding the most critical emerging health issue was overweight and obesity, with one respondent stating that “obesity is by far the most important and will bankrupt us.” Mental health and psychiatric services emerged as another major concern. Accessibility to healthcare also emerged as well as substance abuse, oral health, and health promotion.

Physicians identified the following items as the top three strategies that could assist them in implementing medical home principles into their practice:

- Reimbursement systems in place for coordination of comprehensive care (66.8%)
- Do a self-assessment to determine the degree to which your practice is already implementing medical home principles (39.41%)
- Consultant access (35.26%)

Limited English Proficiency (LEP) Survey – Staff members from the C&Y Branch surveyed professionals who serve clients with LEP with the objective of identifying provider priorities for children and children with special health care needs and guiding resource allocation and program planning. The survey was distributed by email and list serves by the NC Health Check/Health Choice and Minority Outreach coordinator. Given the difficulty of reaching members of diverse groups with LEP, those who serve LEP clients and who have contact with clients who speak many different languages were surveyed. The survey was completed by 75 people, including 33 staff/board members of community-based-organizations, 21 individual respondents (not official group members), 8 members of the Hispanic/Latino Advisory Group (NCDHHS), 5 parents of CSHCN, 4 members of faith-based community agencies, and 4 members of the NC Refugee Advisory Council (NCDHHS).

Respondents were asked to identify three top health priorities that are most in need of focused attention and public health resources for children of three different age groups (0 to 5 years, 6 to 11 years, and 12 to 21 years). The top priorities identified for children age 0 to 5 years were:

- Developmental delays
- Nutrition/breastfeeding
- Child abuse/maltreatment

Top priorities identified for children age 6 to 11 years were:

- Overweight and obesity
- Behavioral health/mental health
- Asthma and allergies

Top priorities identified for children age 12 to 21 years were:

- Behavioral health/mental health
- Overweight and obesity
- STD/HIV

Respondents were also asked to identify challenges they faced in seeking and finding quality health care for children. The top responses included:

- Ability to pay for services (identified by 53% of respondents)
- Navigating the systems in order to receive appropriate services (40%)
- Transportation to providers (38%)
- Language barriers with family and provider (29%)
- Cultural understanding/respect given to family by provider (21%)
- Availability of language interpreters for your family (13%)

Overall conclusions drawn from the responses given in the survey indicate that those who serve LEP clients see a need for family education and parenting education. Language barriers and diverse cultural issues have made communication with families difficult. Transportation was also cited as an issue. There is a lack of trust of official agencies and services. Continuity of care and the ability to pay for care are also concerns. Respondents recommend educating families about how to use public insurance options, what services are available to the community, and how to take advantage of opportunities for preventative care.

C. Children with Special Health Care Needs Population Group

Prevalence

The North Carolina CYSHCN Program has embraced the broad federal definition of children with special health care needs: children and youth who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally. While some programs and organizations in North Carolina adhere to this definition, others provide services only to those children meeting narrower definitions. Programs and organizations may also limit eligibility for their services to subsets of children that meet more limited age, income, residency, or other criteria. This variance in definition increases the challenges in collecting information across agencies.

The National Survey of Children with Special Health Care Needs

The most extensive evidence to date regarding prevalence and socio-demographic characteristics of children with special health care needs was gathered through the NS-CSHCN (www.cshcndata.org). This survey, conducted first in 2001 and again in 2005/06, provides information about CYSHCN in all 50 States and the District of Columbia. In North Carolina, telephone interviewers screened at least 3,000 households with children to identify CYSHCN. In-depth interviews were conducted with the parents of 750 – 850 CYSHCN residing in North Carolina. It is important to note children who are institutionalized and those who are at increased risk of special health care needs were not included in the estimated prevalence. According to the definition utilized in the survey, in 2001, 14% of children in North Carolina had special health care needs. This increased to 15.4% in the 2005/06 survey. North Carolina prevalence was a bit higher than the national prevalence in both surveys.

Table 46
Comparison of CYSHCN in NC to U.S. - Prevalence by Age, Ethnicity and Income Level
2001 and 2005/06

	2001 Survey Results		2005/06 Survey Results	
	NC (%)	US (%)	NC (%)	US (%)
All CYSHCN	14.0	12.8	15.4	13.9
Female	11.3	10.5	12.7	11.6
Male	16.6	15.0	18.1	16.1
Children 0-5	8.1	7.8	10.1	8.8
Children 6-11	16.7	14.6	17.7	16.0
Children 12 -17	17.1	15.8	18.4	16.8
0-99% FPL	15.6	13.6	15.1	14.0
100-199% FPL	15.0	13.6	17.0	14.0
200-399% FPL	13.3	12.8	14.7	13.5
400% FPL or greater	16.2	13.6	15.2	14.0
Hispanic	6.9	8.5	6.4	8.3
White (non-Hispanic)	15.8	14.2	17.0	15.5
Black (non-Hispanic)	12.5	13.0	14.1	15.0
Multi-racial (non-Hispanic)	8.6	15.1	22.8	17.9
Asian (non-Hispanic)	-	4.4	-	6.3
Native American (non-Hispanic)	-	16.6	-	14.5
Native Hawaiian (non-Hispanic)	-	9.6	-	11.5

Source: NS-CSHCN, 2001 and 2005/06

North Carolina Child Health Assessment & Monitoring Program (CHAMP) Survey

The NC CHAMP Survey was initiated in January 2005. From 2005 to 2007, two screener questions from the NS-CSHCN were used to identify CYSHCN: the need for prescription medication and elevated use of medical care due to a chronic condition. In 2008, this screener was changed to one question: elevated need for or use of medical, mental health, or educational services. Respondents with children who experience these health consequences are then asked whether the specific health consequences are attributable to a medical, behavioral, or other health condition and whether this condition has lasted or is expected to last for at least 12 months. Any child with an affirmative response to these health consequences and its follow-up questions is considered to have special health care needs. Because of the change in the screener questions, the difference in prevalence of CYSHCN across years of data collection is somewhat an artifact of the difference in the CYSHCN definition. This difference in CYSHCN definition needs to be taken into consideration when comparing across years of data results. Survey results for 2005 to 2008 are found in the following tables:

Table 47

Percent of NC CHAMP survey respondents whose child(ren) currently needs or uses more medical, mental health, or educational services than is usual for most children of the same age

Year	Total # Respondents	# Yes Respondents	Percent (weighted)	C.I. (95%)
2005	3929	484	13.1	11.9-14.5
2006	3112	356	11.8	10.5-13.2
2007	2689	311	11.7	10.3-13.3
2008	2970	391	12.8	11.4-14.4

Source: NC CHAMP Survey, NC SCHS

Table 48

Percent of NC CHAMP respondents whose child(ren)'s need for medical, mental health or educational services are because of any medical, behavioral, or other health condition

Year	Total # Respondents	# Yes Respondents	Percent (weighted)	C.I. (95%)
2005	475	372	77.2	72.2-81.5
2006	351	296	84.9	79.9-88.9
2007	310	261	86.4	81.5-90.2
2008	384	322	83.4	78.0-87.7

Source: NC CHAMP Survey, NC SCHS

Table 49

Percent of NC CHAMP survey respondents whose child(ren)'s condition that has lasted or is expected to last for at least 12 months

Year	Total # Respondents	# Yes Respondents	Percent (weighted)	C.I. (95%)
2005	445	398	90.2	86.5-93.0
2006	337	310	92.6	88.6-95.3
2007	296	252	85.3	79.6-89.5
2008	381	335	86	80.9-89.9

Source: NC CHAMP Survey, NC SCHS

A report released in January 2010 looked at NC CHAMP data from 2006 and 2007 and made comparisons between CSHCN and non-CSHCN for a variety of health related behaviors. During that period, the NC CHAMP CSHCN module asked respondents whether a child currently experienced any of the following five different health consequences: need for or use of prescription medications; elevated need for or use of medical, mental health, or educational services; functional limitations; special therapy, such as physical, occupational, or speech therapy; and treatment or counseling for an emotional, developmental or behavioral problem. Respondents with children who currently experience any of these five health consequences are then asked whether that specific health consequence is due to a medical, behavioral, or other

health condition that has lasted or is expected to last for at least 12 months. A child must have affirmative responses on all 3 parts (or 2 parts in the case of screening question for the ongoing emotional, developmental, or behavioral conditions criteria) of a screening question in order to qualify on that particular screening criteria.

Responses from the CSHCN screener questions were categorized in order to determine a measure of special needs type based on four mutually exclusive groups. Table 50 presents prevalence rates for the four CSHCN screener mutually exclusive categories for the NC CHAMP 2006-07 sample compared to the NSCH 2007 rates for the United States and North Carolina.

The four mutually exclusive groups include:

- A. Prescription medication use (only): This group has chronic health conditions that are managed primarily through prescription medication; 10.9% of the NC CHAMP sample report prescription medication use without elevated need for services or functional limitations, compared to the NSCH rate for North Carolina of 8.7% and national rate of 7.6%.
- B. Elevated need for services (only): This group qualifies as CSHCN on one or more of the three screening criteria addressing elevated need or use of specialized services or therapies (e.g. pediatric specialist care; early intervention; mental health care; developmental disabilities; special education; physical, occupational or speech therapies); 3.2% of the NC CHAMP sample report elevated need for services without prescription medication use or functional limitations, compared to the NSCH rate for North Carolina of 2.6% and national rate of 3.0%.
- C. Prescription medication use AND elevated need for services: This group has health needs that require both medication management and specialized services or therapies and qualify as CSHCN based on one or more of the three screening criteria addressing elevated service use AND on the prescription medication screening criteria; 5.5% of the NC CHAMP sample report prescription medication use in concurrence with elevated need for services without functional limitations, compared to the NSCH rate for North Carolina of 5.1% and national rate of 4.3%.
- D. Functional limitations: This group qualifies as CSHCN on the functional limitations criteria, almost always in concurrence with one or more other screening criteria; 5.2% of the NC CHAMP sample report functional limitations, comparable to the NSCH North Carolina rate of 5.5% and national rate of 4.3%.

Table 50
CSHCN Screener Qualifying Mutually Exclusive Categories in NSCH and NC CHAMP

Screening Category	NSCH - US			NSCH - NC			NC CHAMP 2006-07		
	N	%	95% CI	N	%	95% CI	N	%	95% CI
Prescription medication use	7,571	7.6	7.3, 7.9	171	8.7	7.2, 10.2	654	10.9	9.9, 11.9
Elevated services use	2,609	3.0	2.7, 3.2	36	2.6	1.4, 4.3	175	3.2	2.6, 3.8
Prescription medication use/elevated services use	4,269	4.3	4.0, 4.5	90	5.1	3.3, 6.5	303	5.5	4.7, 6.2
Functional limitations	3,903	4.3	4.0, 4.6	97	5.5	4.2, 6.8	285	5.2	4.4, 6.0
Total CSHCN	18,352	19.2	18.5, 19.8	394	21.9	19.2, 4.6	1417	24.8	23.4,26.2

Source: NSCH, MCHB, US DHHS and NC CHAMP, SCHS

Note: Percentages are weighted to population characteristics.

Within the 2006-07 NC CHAMP study sample, 24.8% of all children interviewed were classified as CSHCN. Demographic characteristics for the total sample broken down by CSHCN status are given in Table 51.

Table 51
Prevalence Rates of CSHCN in NC CHAMP by Demographic Characteristics
2006-07

	YES			NO		
	#	%	CI	#	%	CI
Total Sample	1417	24.8	23.4, 26.2	4265	75.2	73.8, 76.6
Gender						
Males	811	27.6	25.5, 29.6	2099	72.4	70.4, 74.5
Females	606	21.8	19.9, 23.8	2166	78.2	76.2, 80.1
Age						
0-5 years	266	16.6	14.5, 18.8	1481	83.3	81.2, 85.5
6-11 years	502	28.0	25.5, 30.6	1239	72.0	69.4, 74.5
12-17 years	649	29.6	27.2, 32.1	1545	70.4	67.9, 72.8
Race/Ethnicity						
White, Non-Hispanic	1003	25.2	23.5, 26.8	2843	74.8	73.1, 76.5
Black, Non-Hispanic	237	28.4	24.8, 31.9	633	71.6	68.1, 75.2
Hispanic	68	11.4	8.0, 14.8	512	88.6	85.2, 92.0
Other	109	26.7	21.3, 32.1	277	73.3	67.9, 78.7
Federal Poverty Level						
<100%	190	30.4	26.0, 34.9	449	69.6	65.1, 74.0
100-199%	237	25.2	21.8, 28.6	729	74.8	71.4, 78.2
200-299%	265	26.6	23.1, 30.0	755	73.4	70.0, 76.9
300-399%	238	22.5	19.4, 25.7	780	77.5	74.3, 80.6
≥400%	389	22.8	20.3, 25.4	1190	77.2	74.6, 79.7

Source: NC CHAMP, SCHS

US Census Data for NC

Another source of data on children and youth with disabilities in North Carolina is the United States Census. Based on the 2000 Census, 8.5% of children and youth ages 5 to 20 years were living with a disability. It should be noted that the Census definition is a much narrower definition than that of the MCHB. Data from the 2008 American Community Survey (ACS) show that 5.5% of children aged 5 to 17 years in North Carolina are children with either a hearing, vision, cognitive, ambulatory, or self-care difficulty. (Table S1810, US Census Bureau, 2008 ACS). A different table (S0901) on children characteristics states that 4.2% of civilian children under 18 years in households have a disability. The Census Bureau introduced a new set of disability questions in the 2008 ACS questionnaire. Therefore, comparisons to data from prior years are not recommended.

North Carolina Youth Risk Behavior Surveillance System

The YRBSS includes three disability screener questions related to whether children:

- Consider themselves to have a disability (i.e. physical, mental, emotional, or communication-related)
- Limit activities due to any impairment or health problem

- Experience trouble learning, remembering, or concentrating because of some impairment or health problem

Table 52
Percentage of students who consider themselves to have a disability
North Carolina YRBSS
2001, 2003, 2005, & 2007

	Middle School				High School			
	2001	2003*	2005*	2007	2001	2003	2005	2007
Total	11.5	12.6	12.0	12.8	13.9	15.3	13.8	13.2
Males	12.4	12.1	11.1	11.6	14.2	15.2	14.8	13
Females	10.7	13.1	12.7	14.1	13.7	15.3	12.8	13.3
Black	10.2	12.2	11.0	12.9	11.2	11.2	14.3	10.5
Hispanic	15.3	--	11.0	12.9	17.4	--	17.2	12.7
White	11.4	12.0	11.5	12.3	15.0	17.3	13.1	13.4

Source: NC Youth Risk Behavior Survey, NC Department of Public Instruction
 *2003 & 2005 NC YRBSS data for the disability screener questions are unweighted data.
 -- = fewer than 100 cases

A study examining differences between high school students with disabilities and those without based on the results of the 2005 and 2007 surveys is being conducted by the NC SCHS. In this study, students are determined to have a disability if they responded that they consider themselves to have a disability or if they answered that their activities were limited due to any impairment or health problem, thus the percentage of students with a disability was higher than the percentages listed in Table 52. According to this definition, 20% of students responding to the survey had a disability in 2005 and this increased to 21% in 2007. Differences in proportions between the disability group and the no disability group were found for 52 questions in YRBSS. Preliminary results show that many of the areas where disparities were found highlight the need for better mental health services (students with disabilities were more likely to feel unsafe at school, agreed that they felt alone in life, or had considered suicide during the past twelve months).

The 2009 Child Health Needs Assessment Survey for Families of Children with Special Health Care Needs

The 2009 Child Health Needs Assessment Survey for Families of Children with Special Health Care Needs (CHNAS-Families CSHCN) was completed as an online survey by 42 respondents: 29 parents, 8 individual respondents (not an official group member), 4 members of the FC, 1 member of CDSA, 1 CDSA staff, 1 licensed Psychologist as well as parent, 1 member of the Commission on Children with Special Health Care Needs, 1 school nurse, and 1 self advocate. A flyer was distributed by FC members to potential responders. Respondents were asked to report the need for improvement (high, moderate, or low) in each of the five NPMs related to CYSHCN. They were also asked to state specific unmet needs or barriers to service for each measure. The results of these surveys are incorporated into the health status assessment that follows.

Respondents were also asked “What do you consider to be the most critical emerging health needs of and gaps in services for children with special health care needs?” Several issues came up in the responses to this question. Mental and dental health were both noted as unmet healthcare needs. One major concern was lack of adequate funding for these services. Respondents were requesting more information for families and providers and wish to see continuity in the services offered. Respondents also stated that providers need more training with one respondent stating the need for “Adequate training/skill level of providers – credentials alone do not equate quality of care.”

Health Status Assessment

This section is organized by first reviewing data and program activities for the five NPMs related to CYSHCN, followed by review of other indicators.

NPM#2: The percent of children with special health care needs age 0 to 18 years whose families partner in decision making at all levels and are satisfied with the services they receive.

This performance measure has two parts. The first part is the percentage of families who report they partner in making decisions about their C/YSHCN. This is defined as the percentage who report that professionals and families work together to ensure that the family is a collaborative partner in their child’s well-being. This measure also includes effective partnering activities such as advisory groups, trainings and other leadership roles. The second part of this performance measure identifies the percentage of parents who are satisfied with the services their children receive.

The NS-CSHCN provides national and state-specific data about the MCHB National Performance Measures. North Carolina responses for this NPM are similar to the national data (see Table 53). 2001 survey results showed that 65.3% of North Carolina families of children with special health care needs age 0 to 18 years indicate they are partners in decision making at all levels and are satisfied with services they receive; however, 2005/06 data results showed a decline to 58.2%, a decrease of more than ten percent. Nationally, the rates stayed at about 57.5% in both surveys.

Non-white families reported that they were less satisfied with services than white families were, indicating racial and/or ethnic disparities in the quality of services provided. Parents reporting lower income and those without insurance were less likely to report satisfaction. The increased severity of a child’s disability was linked to decreased satisfaction with services and partnering in decision-making. In both 2001 and 2005/06, North Carolina’s responses to NPM #2 are more favorable than the national data across almost all subgroups: race/ethnicity of child, insurance coverage, and specific types of special health care needs. North Carolina is lower than the national percentage in the 2005/06 results in the following subgroups: Hispanic, not insured (although this sample is too small to be considered reliable), and use both more prescription medications and more services. It is concerning, however, that both the overall percentage and those for every subgroup dropped for the state from the 2001 survey to the 2005/06 survey. This was not true for the nation, which showed increases overall and in most subgroups. An

overriding concern is that the North Carolina results show that more than one third of the families surveyed report a lack of satisfaction with partnering and with services, and this percentage grows to more than 50% in some of the subgroup categories.

Table 53
NPM#2: CSHCN whose families are partners
in decision-making and satisfied with services
2001 and 2005/06, United States and North Carolina

	2001 Survey		2005/06 Survey	
	NC (%)	US (%)	NC (%)	US (%)
Overall	65.3	57.5	58.2	57.4
<i>Race/Ethnicity</i>				
White, not Hispanic	69.7	61.6	61.2	61.0
Black, not Hispanic	55.5	48.4	55.0	53.5
Hispanic	58.7	44.1	42.9	46.4
<i>Insured</i>				
Yes	66.7	58.7	59.0	58.1
No	39.9*	35.2	28.1*	37.2
<i>Specific type of health care needs</i>				
Functional limitations	47.6	45.7	44.9	43.8
Managed by Rx meds	78.7	71.5	68.7	68.8
Above routine need/use of services	55.8	42.9	46.4	46.0
Rx meds and greater use	62.9	57.1	55.0	55.6

Source: NS – CSHCN, 2001 and 2005/06

*Estimates based on sample sizes too small to meet standards for reliability or precision. The relative standard error is greater than 30%.

The report on CSHCN based on 2006-07 NC CHAMP data looked at 2007 data for information on communication between the parent and the child’s personal doctor or nurse. Similar to non-CSHCN, the majority (59.5%) of CSHCN parents rated communication between their child’s personal doctor and themselves as excellent.

Table 54
Rating of communication between parent and child’s personal doctor or nurse by parent
2007

	Non-CSHCN			CSHCN		
	N	Weighted %	95% CI	N	Weighted %	95% CI
Excellent	875	55.8%	52.8, 58.8	353	59.5%	54.5, 64.4
Very Good	463	29.6%	26.8, 32.4	177	29.0%	24.4, 33.5
Good/Fair/Poor	214	14.6%	12.4, 16.8	67	11.5%	8.2, 14.9

Source: 2007 NC CHAMP, SCHS

Gathering quantitative data to define progress on this measure proves somewhat challenging. Parent/caregiver opinion is collected via the NS-CSHCN and will also be collected on NC CHAMP survey beginning in 2010. In addition, there is a need for surveillance of parent/consumer opinion about their ability to partner with providers across the different types of services and systems for CYSHCN and the quality of services they receive. Individual facilities, providers or groups may collect parent opinion data, but to understand how families experience quality across a system of care, this data would be better analyzed as a whole.

Beginning in 2010, the NC CHAMP survey included the questions: “How often did [CHILD’S NAME]’s doctors and other health care providers help you feel like a partner in [his/her] care?” And “How often did [CHILD’S NAME]’s doctors and other health care providers spend enough time with him/her?” These questions come from a group of questions that are combined from the NS-CSHCN to report on NPM 2, and will be repeated in even-numbered years as part of the core of the NC CHAMP survey. Questions on the other NPMs will be asked in odd years. The questions have been added to the NC CHAMP survey in response to the need for more data that was revealed by the needs assessment. These questions will be asked of caregivers of all children, and can also be separated by CSHCN to be analyzed.

Qualitative data are also necessary for us to understand our progress and shortcomings under NPM#2. The FC on CSHCN has considered effective ways to use the stories of family members and consumers to provide a more nuanced understanding of where NC stands in its work to improve NPM#2. Work has been done to explore how stories of the individual experience of families working to partner with providers and seek satisfaction with high-quality health care can be used to inform policies and system-level changes. The FC has worked with National Center for Cultural Competence and the Family Voices project.

Improved health literacy among consumers presents great opportunity to increase partnerships and awareness of low health literacy among providers is needed for families and medical professionals to be able to partner in decision making. Through funding from the Chronic Disease and Injury Section of DPH, the NCIOM was asked to convene a Task Force on Health Literacy. There were 48 members of the Task Force and Steering Committee, including staff members of WCHS. The Task Force met seven times over a period of nine months and released a final report including 14 recommendations and a number of strategies in August 2007. Recommendations included identifying strategies to improve health literacy awareness among health care professionals, identifying best practices of communicating health-related information for all populations and incorporating these practices into systems of care, and encouraging consumers to better understand the health information they receive.

The C&Y Branch offered health literacy training in 2009 for continuing education credit through a webinar that was archived and made available to nurses and other health professionals throughout the state through June 2010. Health literacy topics have also been incorporated into other trainings. Principles of health literacy have been used to guide the creation of program materials for working with families. Family members, including Spanish-speaking family members, have reviewed program materials to accommodate the low health literacy of many users. Further, the C&Y Branch has recently instituted a requirement for LHDs that they must “develop written policies to ensure training of all child health staff and implementation of

evidence based health literacy strategies in child health clinics and home visits for newborn assessment and care to assure parents and clients can read, understand, and apply health information to make health decisions to improve health outcomes.”

The C&Y Branch conducted surveys with health care providers, families, and key informants in agencies that serve clients with LEP. The results of these informal surveys show that the majority of families report high or moderate need for improvement regarding families partnering in decision-making at all levels and being satisfied with the services that they receive.

CHNAS – Families CSHCN Results

When asked to comment on the need for improvement regarding families partnering in decision-making at all levels and are satisfied with the services that they receive:

- 29.27% of respondents reported high need for improvement
- 58.54% of respondents reported moderate need for improvement
- 12.2% of respondents reported low need for improvement

When asked “What specific unmet needs or barriers to service come to mind when you think of families partnering in decision-making and being satisfied with services?” respondents identified several themes. Respondents felt that parental input is not welcomed and that poor communication/relationship exists with some providers. Respondents also felt that there is a lack of information on the resources available and insufficient access/availability of services and providers. One respondent stated “Because services are not coordinated, messages to parents are disjointed and confusing. Parents lack the skills to be able to integrate the information they hear from different sources.”

LEP Survey Results

In one part of the survey, respondents were asked about families partnering in decision-making at all levels and being satisfied with the services that they receive and how they would rate the need for improvement in this area. Responses to this question were:

- 47.3% reports high need for improvement
- 48.65% reports moderate need for improvement
- 4.05% reports low need for improvement

As a follow-up to this question, respondents were asked to cite specific unmet needs or barriers to service that come to mind when you think of families partnering in decision-making and being satisfied with services. The major themes identified included the need for family education, parenting education and support, and better transportation. The lack of trust of official agencies and services was also identified as an issue, along with the poor quality of interpretation of language and cultural issues which make it difficult to cross barriers of communication with families. One respondent wrote, “Cultural and language issues. Working with interpreters is hard sometimes when the interpreter is untrained. Many parents don’t feel that they are ‘good enough’ to team up with professionals for their children’s best interest. They think the professional knows best and just go along with what they decide.”

EI Branch

The EI Branch has a long history of involving families as partners in the provision of services. Families have been involved and invested in policy, planning and service implementation at the state, regional and local levels. They serve as co-chairs to all state Interagency Coordinating Council committees. They have been vocal supporters of service expansions and system redesigns.

Under Part C of IDEA, the EI Branch is the lead agency for services to young children aged birth to 3 years with a developmental delay or established condition, which may result in developmental delay, and their families who reside in North Carolina. This federal early intervention legislation requires the state lead agency to document family outcomes as a result of families participating in the early intervention program. This documentation must include the percent of families participating in early intervention who report that these services:

- have helped the family to know their rights,
- have helped them effectively communicate their children's needs, and
- have helped their children develop and learn.

Baseline data was collected in the fall of 2005 using the Early Intervention Services Assessment Scale (EISAS) developed by the Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill. The EISAS survey was designed to provide early intervention programs and service providers with feedback about parents' perceptions of the quality of services. Its use is not specific to examining family outcomes as a result of participation in early intervention. To collect that information, we began using a family survey instrument developed by the National Center for Special Education Accountability Monitoring (NCSEAM) in FY07 with plans to continue its use in subsequent years.

For FY07, all families of children receiving services under the early intervention program in North Carolina who exited the early intervention program from March – June 2007 were mailed the *NCSEAM Family Survey – Early Intervention*. Comparison of that first year's use of the NCSEAM survey with FY08 showed essentially no change in the survey return rate or in the ratings given by families. In FY09, the survey was distributed to families currently enrolled versus families exiting the program. This change was based upon the belief that family participation would increase because families would be actively receiving services. Although there was essentially no change in the return rate of surveys (21.1%), there was a slight increase in the ratings given by families.

While there are systems in place to ensure that parents be viewed as integral to effective program planning, there remain a number of gaps. Programs that have provided leadership opportunities for families continue to be under-funded and have lost funding in 2009 and 2010. We specifically have eliminated the following centers or programs: Assistive Technology Centers, Hemophilia, Adult Cystic Fibrosis, Community Transition Coordinators, Family Resource Hotline, and Expanded Role Nursing Training contract. The Purchase of Medical Care Program has been transferred to DMA. There is also a massive reorganization of the North Carolina case management systems by DMA taking place. The Child Care and Health Resource Line have been reduced and the following positions working with CSHCN programs have been lost: social

worker, transition coordinator, Office on Disability and Health, behavioral health specialist, Specialized Services Unit Manager, nutritionist, two physical therapists, a nurse consultant and a speech pathologist. Some recommendations made by the FC and other family members have not been implemented due to loss of funding. The FC and the Commission for CSHCN were involved in the decisions for reductions.

Another gap in effective program planning is that family members are not always included in the process of program and policy development. The state Title V program has made substantive gains in family partnering by working with both families and C&Y Branch staff to continually improve partnerships. The C&Y Branch Head has recently requested that all C&Y program managers present a written description of how they are utilizing and intend to utilize families in all aspects of their programs and we have doubled the contract amount to financially support more family involvement.

Finally, a recurrent problem for several performance measures including this one is that data about families as partners is not collected systematically. Programs and studies look at issues that apply to this population, or work specifically with family members, but they do not collect or report data relevant to demonstrate the critical role families play in improving the health outcomes of their children and youth. The C&Y Branch is committed to continue to investigate new avenues to systematically collect family partnership and satisfaction data and incorporate the findings into daily program implementation.

NPM#3: The percent of CSHCN age 0 to 18 who receive coordinated, ongoing, comprehensive care within a medical home.

The American Academy of Pediatrics' description of a "medical home" lists seven defining components: accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective. Ideally, these seven components are delivered by doctor or other health professional who knows the child well. Five of the 7 components of medical home and the presence of a personal doctor or nurse are assessed by the NS-CSHCN. The five components include: 1) accessible; 2) family centered; 3) comprehensive; 4) coordinated; and 5) culturally effective. The overall medical home measure is a composite score derived from these five different subparts based on 21 different survey items. To qualify as having a medical home, a child must have a personal doctor or nurse and meet the criteria for adequate care on every needed component.

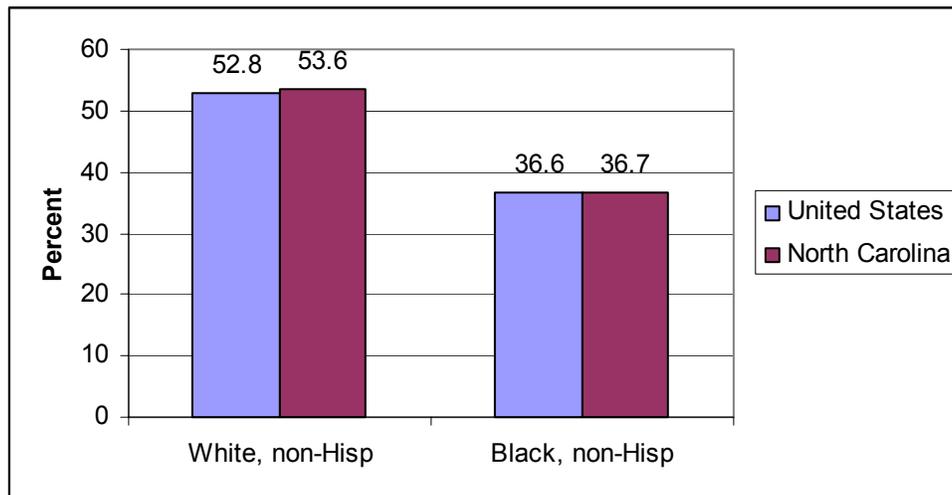
In the 2005/06 version of the NS-CSHCN, significant changes and additions were made to the set of questions used to assess the care coordination and access to referrals components of the medical home composite measure. The result is an improved and more robust assessment of this important component. There were minor changes in 2005/06 to several other questions used in constructing the medical home summary score. These changes must be taken into consideration when comparing results across survey years.

In the 2005/06 survey, North Carolina results were very similar to national survey results, with 46.5% of respondents in North Carolina meeting the outcome and 47.1% respondents nationally. While this outcome is not comparable across survey years, it is interesting to note that in the

2001 survey, North Carolina had a higher percent of respondents stating that they did receive care within a medical home than the nation (55.4% for North Carolina as compared to 52.7% for the nation).

While the sample size for North Carolina does not allow for comparisons to national rates by all racial and ethnic groups, the state rates for the black and white groups are almost identical to those nationally as seen in Figure 24, with a huge disparity between the two racial groups.

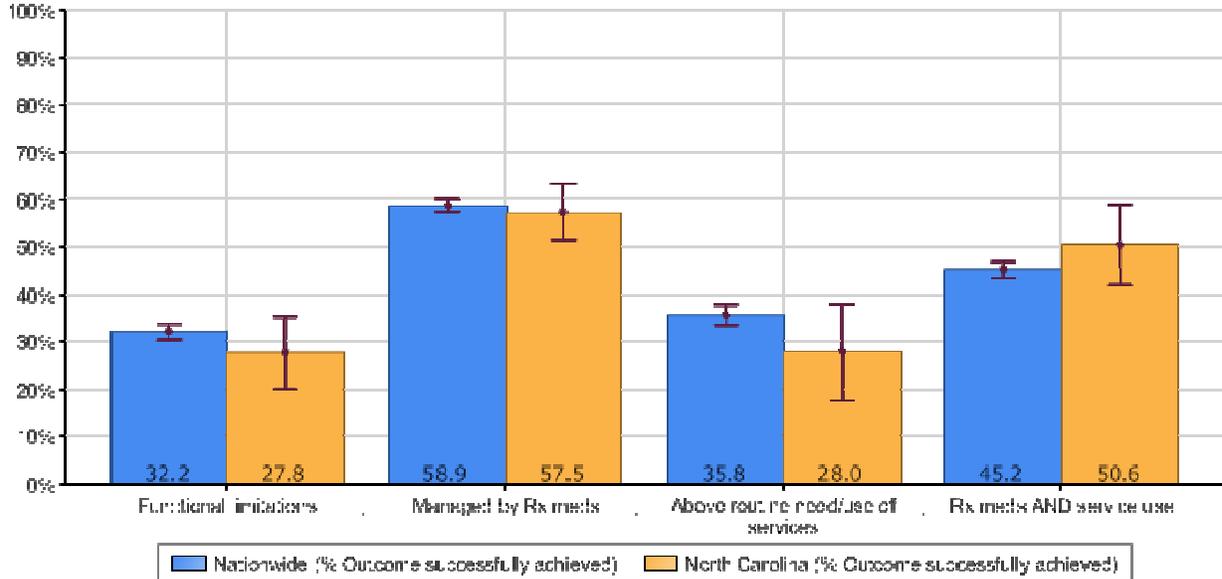
Figure 26
Percent of CSHCN who received coordinated, ongoing, comprehensive care within a medical home by race
NS-CSHCN 2005-06, United States and North Carolina



Source: NS – CSHCN, 2005/06

In addition, in North Carolina, the percent of children having a medical home differed greatly depending on the type of special health care need of an individual

Figure 27
Percent of CSHCN who received coordinated, ongoing, comprehensive care within a medical home by type of special health care need
NS-CSHCN 2005-06, United States and North Carolina



Source: NS – CSHCN, 2005/06

The odds of having a medical home increased with increasing income level of the family both in North Carolina and nationwide.

CHNAS-Families CSHCN Results

When asked to comment on the need for improvement regarding children/youth receiving coordinated, ongoing, comprehensive care within a medical home:

- 48.78% of respondents reported high need for improvement
- 34.15% of respondents reported moderate need for improvement
- 17.07% of respondents reported low need for improvement

When asked “What specific unmet needs or barriers to service come to mind when you think about medical home?” the respondents felt there is a lack of physician involvement. Respondents cited a need for more training and resources and also the need for better coordination of resources and better communication of the importance of prevention and education. One respondent cited that “Medical providers and families don’t always understand this concept and even when they do there seems to be lots of barriers and problems sharing information and coordinating care.”

LEP Survey Results

In one part of the survey, respondents were asked about children/youth receiving coordinated, ongoing, comprehensive care within a medical home and how they would rate the need for improvement in this area. Responses to this question were:

- 47.3% reports high need for improvement
- 41.89% reports moderate need for improvement
- 10.81% reports low need for improvement

As a follow-up to this question, parents were asked to cite specific unmet needs or barriers to service that come to mind when you think of families about medical home. Responses included difficulty with logistics at local facilities, including transportation, interpretation, literacy, continuity of care, scheduling and insurance, and the ability to pay for care. One respondent stated “Most of our immigrant children do have Medicaid, although their parents often do not; however, if they need to go to specialists, it is often a long way and means losing work, etc. So they don’t go. Language is often a barrier, as is literacy.” Another wrote “I think this is a new concept to many patients - who tend to be frequent users of urgent cares or ERs. It is hard to explain to those without insurance that it would actually be cheaper to be established with a PCP [Primary Care Provider], especially a community health center or health department.”

NPM#4: The percent of CSHCN whose families have adequate private and/or public insurance to pay for the services they need

Results of the 2001 NS-CSHCN showed that 57.3% of North Carolina families of CSHCN age 0 to 18 had adequate private and/or public insurance to pay for the services they needed. This increased to 63.7% of North Carolina families in the 2005/06 survey. In North Carolina in 2005-06, an estimated 119,091 families of CSHCN did not have adequate private and/or public insurance to pay for the services they needed. Nationally in the 2005/06 survey, 62% of families indicated having adequate health insurance, as compared to 59.6% in the 2001 survey.

The difference between having some health insurance and having health insurance that is adequate to cover the services that one needs is a big gap. In the 2001 survey, 5.8% of families in North Carolina cited that they had no health insurance. This decreased to 2.4% in 2005/06. While the 2001 state results are almost equal to the national rate of 5.2%, the national rate at 3.8% in 2005/06 was much higher than the state rate. The percentage of families in North Carolina covered by private insurance actually increased from 55.5% in 2001 to 59.9% in 2005/06, while the percentage covered by public insurance decreased from 35.1% in 2001 to 27.2% in 2005/06. Similar changes occurred in national rates as the percentage of children covered by private insurance increased from 60.3% in 2001 to 64.9% in 2005/06, while the percentage covered by public insurance dropped from 28.6% to 21.7% in 2005/06.

Based on results of the 2001 survey, 12.6% of North Carolina families with CSHCN paid \$1,000 or more out of pocket in medical expenses per year for their child, but this increased to 18% of families in 2005/06. "Out of pocket" expenses for CSHCN health care includes payments for all types of health-related needs such as medications, special foods, adaptive clothing, durable equipment, home modifications, and any kind of therapy. Health insurance premiums or costs that were reimbursed by insurance or other sources not included. Nationally, in 2005-06, 20% of families surveyed paid \$1000 or more out of pocket in medical expenses per year, which was up

substantially from 11.2% in 2001. In addition, in 2001, 21.8% of North Carolina families reported that their child's conditions caused financial problems for the family, although that percentage decreased to 18.3 in the 2005/06 survey. National rates for this indicator were 20.9% in 2001 and 18.1% in 2005/06, which mirror the state data.

Results from the 2005/06 NS-CSHCN show differences in adequate insurance coverage based on geography, age, race, and income. Only 58.3% of CSHCN in suburban areas have adequate coverage as compared to 64.5% in urban core areas and 63.7% statewide. Insurance levels for CSHCN in North Carolina are highest in the 0 to 5 year age group, and decrease as children age. Despite this, an estimated 23,436 CSHCN aged 0 to 5 in North Carolina do not have adequate private and/or public insurance to pay for the services they need. Early childhood is the time when preventative measures and interventions are most effective.

National rates for this measure in 2005/06 indicate that black CSHCN were less likely than white CSHCN to have adequate insurance (63.8% white, 60.7% black). However, in the North Carolina survey results, white CSHCN had a lower percentage than black children (64.7% white, 66.3% black).

Families with incomes between 200%-300% of the FPL do not qualify for NC Health Choice. Adequate insurance coverage is greatest for those North Carolina respondents above 400% of the FPL (70.1%), which is higher than the national average of 68.9%. Adequate coverage is also higher for North Carolinians than the national average for families 0-99% and 100-199% of the Federal Poverty Level. In North Carolina families earning 0-199% of the FPL qualify for public coverage either through Medicaid or NC Health Choice.

Analysis of the national Medical Expenditure Panel Survey (MEPS) for costs of care for CYSHCN revealed that total expenditures for CYSHCN were almost three times that for other children (Newacheck & Kim, 2005). Hospital care was four times higher, physician costs were more than double, non-physician costs were six times higher, and prescriptions were 10 times higher for CYSHCN. There was no significant difference for the amount of dental care. Out-of-pocket expenses for CYSHCN were twice that for other children, with the largest portion going toward dental care. CYSHCN made up 15.6% of the total children, but accounted for 33.6% of total health care expenditures. If dental care is excluded, the percentage increases to 42.1% of expenditures. This number might even be higher but MEPS excludes certain long-term services and equipment along with services provided in schools and other institutional care facilities. Expenses for hospital stays and home health care tend to be covered by insurance, but expanded coverage needs to be applied to physician services and dental services. These services account for a great percentage of out-of-pocket expenses.

Income level and insurance status are predictors of financially burdensome health care expenses. Children from low-income families (<200% FPL) were reported to be at greater risk of experiencing financial burdens (out of pocket expenses >\$1000/year or >5% of family income) caused by health care expenses. Insurance was found to protect families from financial burdens. Again, families from low-incomes who had insurance were still at greater risk compared with higher-income families. (Newacheck & Kim, 2005)

Title V CSHCN Help Line Data and Information

During the January 2005 to November 2009 time period, the CSHCN Help Line received calls from 890 parents and health care professionals calling about a child who was uninsured. This represented 16% of the total children (5,689) discussed during that same time period. Some are uninsured for brief periods of time, while others report being uninsured for years. Reasons cited most often by parents are that they cannot afford the coverage offered by their employers or that they work for employers who offer no coverage or offer coverage for the employee only, leaving dependents uninsured. Some of these families miss qualifying for NC Health Choice by a mere \$50 per month. As a result of these calls and the information provided by help line staff, some of those families were able to obtain coverage for their children either through Medicaid or Health Choice. Children with complex conditions often qualify for Community Alternatives Program for Children or Community Alternatives Program for Children and Adults with Mental Retardation or Developmental Disabilities. Some of the parents also qualified for Medicaid themselves, as parents of dependent children. Children reported as having multiple barriers to accessing health care coverage simultaneously were the most likely to remain uninsured long term. One such example was that in 2005, 4% of the CYSCHN discussed were reported as about to be or already uninsured due to the cost of private coverage and as also being financially ineligible for public health care coverage. That multiple barrier to access increased to 6% in 2007, 8% in 2008, and 10% in 2009.

There were also those children who were reported as being underinsured and also financially ineligible for public health care coverage. Callers reported that their current coverage: limited the number of specialized therapies and/or mental health services the child could receive in a plan year; did not cover any mental health services, nutritional supplements, or drug coverage; and had a cost limit on durable medical equipment. In 2005, 6% of the CYSCHN discussed during calls to the help line were reported as underinsured. By 2009, it had risen to 7%.

Families often reported that due to the burden of their high monthly insurance premiums, co-pays and deductibles for services their policy did cover, as well as out-of-pocket costs for services their policy did not cover, left them with insufficient income to meet their child's unmet needs. Families often reported that their child's physicians and other health care providers had arranged for out-of-pocket expenses to be handled through a monthly payment plan. However, once they fell behind in making those payments, providers sometimes refused to provide further treatment until outstanding bills were paid. Such situations often resulted in parents turning to urgent care facilities for needs that were chronic and complex rather than accessing consistent care through the medical home. Some also report maxing-out credit cards for health care services or delaying necessary treatment, resulting in costlier treatment needs down the road.

The cost of daily medications was cited as the greatest financial burden for many, which led some parents to resort to administering medications differently than prescribed (i.e. every other day instead of daily or using medication prescribed for other family members - most often diabetes, allergies, asthma, and attention deficit hyperactivity disorder [ADHD]).

The parents of children who do not qualify for public programs because of citizenship or residency status and also cannot afford private plans describe the same stressors. These were often children who would have qualified for public programs financially had citizenship or

residency issues not been an obstacle. CYSHCN within this group were at even higher risk for being underserved because in addition to not being able to access public programs or secure private plans, many also had very low incomes. While some may have qualified for Emergency Medicaid when a medical crisis arose, it was only temporary assistance. Once the emergency coverage period had lapsed, they often had to delay or stop needed follow-up care.

CHNAS-Families CSHCN Results

When asked to comment on the need for improvement regarding families having adequate private and/or public insurance to pay for the services they need.

- 66.67% of respondents reported high need for improvement
- 28.57% of respondents reported moderate need for improvement
- 4.76% of respondents reported low need for improvement

When asked “What specific unmet needs or barriers to service come to mind when you think about adequate public/private insurance?” several respondents stated that often times a child’s diagnosis/treatment does not qualify or is ineligible for insurance coverage. “There are many children who have various levels of need who do not have the financial options available to cover services.” Respondents stated there is inadequate coverage in both private and public insurance as “Public or private insurance is rarely enough to cover all expenses.” Several respondents mentioned nonexistent transition programs for teenagers. Benefit limitations were also cited a barrier, with one respondent stating “Not all families qualify for public health programs nor can they afford private health insurance.”

Qualitative Data Resulting from Discussion with NC Commission on CSHCN regarding NPM#4

In February 2009, staff members met with members of the NC Commission on CSHCN. Commission members were asked “What specific unmet needs or barriers to service come to mind under NPM 4?” The main themes that emerged from the discussion were the following:

1. Medical coding system and payment from insurance (public and private) does not pay for many services that CSHCN require. For example, care coordination, communication with other health care providers via phone or in person, visits to patient in other facility, and school “educational testing/evaluation” are not reimbursed.
2. Where does the medical home reside for CSHCN who need intensive mental health services? If it is a combination of the pediatrician and psychiatrist’s offices, who gets the payment for being a medical home provider?
3. One person made the point that “the system should not be a game. As a mental health provider, if you know how to code for it [services for CSHCN], you can get paid.”
4. Mental health rates are inadequate payment for provider services and make access to mental health services more difficult for providers and families.
5. Poor payment rates and unpaid services cause low rates of participation for mental health providers in both public and private insurance networks. The participation rate is around 70% for mental health providers as compared to greater than 90% for primary care providers.
6. Families with CSHCN pay more out-of-pocket for mental health care even when they do have insurance. Families are unable to anticipate the final costs until after they receive

treatment. Providers may not trust the family and their ability to pay. Increased copay, facilities fees, deductible/coinsurance, separate charges for provider services, prescriptions and other costs are prohibitive for many families.

7. Providers give “assembly line treatment” to patients and must spend time without being paid to handle complex cases. One person said it “can take the entire visit just to get them in the room,” leaving little time for handling complex physical and mental health issues.
8. NC Medical Society has recommended going to a formulary to reduce costs of medicine. This is an issue for families who will be unable to get necessary medication to treat mental health conditions.
9. Families who are unable to pay go without needed mental health services.
10. In some geographical areas, specialty mental health care is not available.
11. Many families receive mental health services and medication from pediatrician/primary care doctor. There is limited ongoing management of medication and follow-up and it is suspected that this is a compensation issue.
12. Schools and prisons (the juvenile justice system) serve as de-facto mental health facilities, but are not equipped to handle mental health or complex cases, and have a long back-log for testing, diagnosis and services. However, insurance (public and private) does not want to pay for services that another system (school, prison, etc.) is responsible for providing.
13. Families often find themselves caught between the school system, the medical system, and the student’s need to balance medications for mental health conditions.

LEP Survey Results

In one part of the survey, respondents were asked about the need for adequate private and/or public insurance to pay for necessary services and how they would rate the need for improvement in this area. Responses to this question were:

- 73.97% reports high need for improvement
- 19.18% reports moderate need for improvement
- 6.85% reports low need for improvement

As a follow-up to this question, parents were asked to cite specific unmet needs or barriers to service that come to mind when you think of families about adequate health insurance. Responses included providing education about how to use the public options that exist, taking advantage of opportunities for preventative care, the problem of poor quality care for those without insurance or those with public insurance, the need for coverage for people of all ages, access to affordable family planning services, and access to dental care and mental health care. Respondents stated that most of their clients work and that “Working poor have the greatest challenge. Health coverage is expensive, but the poor qualify for Medicaid. The lower middle incomes often have challenges paying for healthcare.”

NPM#5: The percent of children with special health care needs age 0 to 18 whose families report the community-based service system are organized so they can use them easily

This performance measure recognizes the major challenges confronting families in accessing coordinated health and related services needed for their children/youth with special health care needs. Differing eligibility criteria, duplication and gaps in services, inflexible funding streams

and poor coordination among service agencies continues to be a concern across most states, including North Carolina.

All states and territories, including North Carolina, are charged with the delivery of care for CYSHCN through a comprehensive, coordinated, interdisciplinary, and multi-organizational approach with focus on the interdependence of the child, family, and community. The intended outcome of NPM 5 is: services should be organized for easy use from the perspective of families of CYSHCN. While this transformation is underway in North Carolina, the assessment of existing qualitative and quantitative data informs us that North Carolina has yet to achieve this goal, in particular for certain subsets of the population.

According to the 2005/06 National Survey, 89% of families in North Carolina and nationally reported no difficulties using any of the health related services needed by their child during the past 12 months, thus indicating that services were organized in ways that families can use them easily. These rates cannot be compared to results of the 2001 survey due to significant revisions being made to the survey question. However, when this indicator is broken down into subgroups of families that had health insurance and those who did not, these rates change substantially. For those families surveyed in North Carolina who were not insured, only 53% reported having no difficulty using services, while nationally that rate was 74%. For non-Hispanic households in North Carolina 89.8% reported no difficulties using the health related services needed by their child, but for Hispanic respondents, these rates dropped to 80.5% for families speaking Spanish in the home and 85.9% for families speaking English in the home. National rates were very similar for these ethnic groups.

While the overall rates for NPM#5 are pretty good, 35.7% of North Carolina families reported a lack of family-centered care, which mirrors the national response of 34.4%. These percentages have increased from the 2001 survey, where the state rate was 33.2% and the national rate was 29%. Thirty percent of respondents stated that the health care needs of their CYSHCN required a family member to cut back or discontinue working, and fifteen percent of families reported spending 11 hours or more a week coordinating or providing their child's healthcare (13.5%).

Twenty-six percent of all respondents said North Carolina had not yet achieved an organized, community-based system of care that families can use easily. This perception was higher among respondents whose child had functional limitations (36.9%) and those reporting above routine services use (38.4%). Hispanic, Black and Multiracial respondents reported poor organization and lack of community-based care (33.6, 34.7, 40.8 % respectfully). While this data set does not lend itself to analysis by age of child or by diagnostic category, the information gleaned from the focus groups (see Qualitative Section) informs us that many of these issues salient to this NPM, including access to services and lack of care coordination, are intensified for children as they age out of early intervention and enter into the school system.

Title V CSHCN Help Line Data and Information

The primary information requests from Help Line callers consistent with NPM#5 are shown in Table 55. While responses to the National Survey revealed that families of CSHCN had difficulty in accessing necessary services in general, Help Line staff asked callers to identify

specific service needs and worked to educate them on available benefits, to be aware of and plan for service gaps as their children transitioned across programs, and improve access despite program differences, closures and benefit reductions.

Table 55
Major Reasons for Calling the Title V CSHCN Help Line
1/2005 to 11/2009

Primary Reason for Calling	Information Provided	# of Related Calls
Accessing coordinated healthcare services including eligibility criteria for public insurance	Eligibility/enrollment information (getting into a program and initiating services)	3570
Accessing related services	Finding a provider/vendor/agency contact once enrolled in a public or private insurance program or plan.	4106
Benefits education	Overview of all or specific benefits	4640
Differing eligibility criteria/benefits	Prior approval processes for services when crossing programs. Dealing with/clarification on service denials when program benefits/policies differ	2948
Duplication/gaps in service coverage Inflexible funding streams	Information about covered services and eligibility requirements. Describing NC programs to people who have moved from other states.	122

Source: NC Title V CSHCN Help Line, 2005-2009

Topics discussed most often were help finding program-affiliated providers/vendors/other agencies (33%); testing/evaluations (20%); hearing-related needs/services (18%); durable medical equipment/assistive technology (16%); medical/incontinence supplies and nutritional supplements (12%); and prescription/over the counter medications (12%). Calls about testing/evaluations were related to newborn genetic and hearing screenings; mental/behavioral health assessments; and evaluations done prior to the initiation of special therapies. Much of the hearing-related needs/services calls were also related to newborns needing hearing rescreens and amplification equipment if needed. A crucial function of the Help Line, consistent with NPM#5, is to assist families in locating and accessing community-based resources. The resources and referrals identified/suggested most often are highlighted in Table 56 below.

Table 56
Most Frequently Identified Resources and Referrals for Title V CSHCN Help Line
1/2005 to 11/2009

Resources/Referrals Identified	# of Callers
Local DSS (apply for Food Stamps, Medicaid, Health Choice, Subsidized Child Care, Energy Assistance, etc.)	2059
Local health department/community health center	1543
Current/other health care provider, other public/private agency/organization or vendor	2316
State Customer Services/Medical Review for Health Choice enrollees and Purchase of Medical Care Services for Children's Special Health Services funding recipients	2207
Program-specific or agency/organization-specific web sites	2030

Source: NC Title V CSHCN Help Line, 2005-2009

One of the most important questions staff members asked Help Line callers was whether or not the children being discussed had unmet needs. Over time, trends became apparent, making collaboration with other public and private programs/agencies/organizations to meet those unmet needs a crucial function for the branch.

Since the early 1950's, the Title V Children's Special Health Services (CSHS) Program paid for some non-reimbursable services for children enrolled in Medicaid. In late 2008, this program closed due to budget cuts. By early 2009, Medicaid had picked up many of the services previously funded by CSHS, but a few services have remained unfunded. Unless those children qualified for a Waiver Program, families have had to look to private organizations for such funding. Those unfunded service needs, include home wheelchair ramps; special car seats/vehicle harnessing systems; vehicle tie-down devices; and vehicle ramps. These unmet needs are especially burdensome among privately-insured families who are already paying high premiums, deductibles, co pays, and totally out of pocket for some services during at least part of their plan year (such as plans that limit the number of special therapy sessions, set monetary limits on durable medical equipment, or do not cover mental health services at all). How these barriers to access related to NPM 5 and why families chose to or had to keep those inadequate plans are included in Table 57.

Table 57
Barriers to Access to Adequate Health Care Coverage
as Reported through the NC CSHCN Help Line
2005 - 2009

Common Reasons	Related NPM 5 Indicators
Employer-sponsored health insurance is in place, but inadequate. Family afraid to discontinue private coverage in order to qualify child for NC Health Choice due to perceived instability of publicly funded programs and potential inability to get child re-enrolled under former insurance later.	<ul style="list-style-type: none"> • Accessing coordinated services • Gaps in coverage
"Family Policy" restrictions prevent eligibility for NC Health Choice – cannot drop a child from a "family" policy	<ul style="list-style-type: none"> • Inflexibility of funding stream
Burden of costly private insurance deductibles/co pays - children often medically underserved to avoid those expenses or providers denied services when bills are outstanding. Medications cited as the greatest financial barrier.	<ul style="list-style-type: none"> • Gaps in coverage • Accessing necessary providers/services
"Self-employed" applicants are financially ineligible for NC Health Choice based on previous year's income, but are earning less and struggling more during year in which they are applying.	<ul style="list-style-type: none"> • Inflexibility of funding stream • Eligibility criteria
Military health insurance benefits are considered inadequate, but active duty parents could not discontinue coverage in order to qualify for NC Health Choice.	<ul style="list-style-type: none"> • Gaps in coverage • Differing eligibility criteria

Source: NC Title V CSHCN Help Line, 2005-2009

State Help Line data are noteworthy when reviewed longitudinally and even more so when families experience a combination of barriers to access simultaneously. The number of CSHCN Help Line callers who reported that their child had been denied private insurance (due to pre-existing conditions) and that they were also financially ineligible for either Medicaid or Health Choice, rose steadily from 0.6% in 2007 to 2.5% in 2008. The creation of a high-risk pool plan, Inclusive Health, in 2008 contributed to another decline to 1.5% in 2009. Another factor in the decline was that as the economy worsened and parents lost jobs, more children qualified for Medicaid or Health Choice, making it unnecessary for them to contact private carriers. The significant increase in the NC unemployment rate (and the resulting loss of private insurance coverage for some) over the last two years prompted many families to apply for public programs for the very first time. The high cost of coverage under the Consolidated Omnibus Budget Reconciliation Act (COBRA) left entire families uninsured long enough to impact their access to future coverage without pre-existing condition restrictions. Researching and learning about all the public programs under which their children might qualify presented a steep learning curve for many NC families, but these programs were their best option for securing coverage with no pre-existing condition restrictions. However, passage of the American Recovery and Reinvestment Act in early 2009 afforded many laid-off employees, who initially turned down or terminated COBRA coverage due to the cost, a second opportunity to elect COBRA coverage at a much lower cost thanks to the Premium Assistance Subsidy.

Mental Health Services for CYSHCN

According to the 2007 NSCH, 39% of CYSHCN in North Carolina ages 2-17 who needed mental health treatment did not receive it, as opposed to 34% of the non-CYSCHN surveyed. In addition, families of privately insured CSCHN who need mental health care face a higher burden than other families in caring for their children. (December 2009, the Journal of Pediatrics, Volume 124, Supplement 4, Busch and Barry)

Of the calls made to the NC CSCHN Help Line between January 2005 and November 2009, the diagnoses and service needs identified most among those children were related to mental/behavioral disorders/issues. This represented 19.4% of the total children discussed during help line calls, and 28.3% of the 5,689 children identified as having special needs.

Among the 21,029 children reported to the C&Y Branch as eligible for Supplemental Security Income (SSI) through Social Security during the 2005 to 2009 assessment period, 13,249 (63%) were identified as having a Mental Disorder. Among those with a Mental Disorder, the most frequently reported primary diagnoses were Speech Language Delay (2,959/22%), ADHD (2,895/22%), Mental Retardation (2,333/18%), and Autism (1527/12%). Speech Language Delay is classified (by ICD-9 codes) as falling within the Mental Disorders category since most speech language disorders are related to a mental condition (such as autism and mental retardation). Among the 21,029 children receiving SSI benefits, 13,250 (63%) were reported as having a secondary diagnosis that also fell within the Mental Disorder category. The most frequently reported secondary diagnoses were: ADHD (2,239/17%), Speech Language Delay (1,582/12%), ODD (1,268/9%), and Learning Disorders (734/5%).

In response to studies and reports, including the 2003 NC Medical Journal and the 2003 report from the President's New Freedom Commission on Mental Health: Achieving the Promise: Transforming Mental Health Care in America, the NC DMH/DD/SAS has been working toward a transformed system in North Carolina. One pivotal aspect of transformation is increasingly serving people in their communities of choice. This means less hospitalization and more crisis and community services. State Plan 2007, called the State Strategic Plan 2007-2010, is DMH/DD/SAS's strategic plan for the three-year period. It defines the specific objectives, action steps and milestones to be undertaken over the next three fiscal years for continued implementation of reform and transformation of the DMH/DD/SAS system as required by the NC General Assembly. One pivotal aspect of transformation is increasingly serving people in their communities of choice. This means less hospitalization and more crisis and community services.

CHNAS-Families CSHCN Results

When asked to comment on the need for improvement regarding community-based service systems being organized so that families can use them easily:

- 52.38% of respondents reported high need for improvement
- 40.48% of respondents reported moderate need for improvement
- 7.14% of respondents reported low need for improvement

When asked "What specific unmet needs or barriers to service come to mind when you think of community-based service systems?" problems surrounding access to care emerged

predominantly as a barrier. Respondents cited eligibility issues, location of providers, and service hours as specific barriers. One respondent stated “Community based services are often crowded and impersonal. Their hours of operation are during regular working hours so people have to take off work to wait lengthy hours to apply for services. Many of these people don’t get paid if they don’t go to work.” Respondents also sense a lack of communication between agencies. A limitation on resource availability is also seen as a barrier. Respondents feel that money is an obstacle, not only paying for the services, but funding that supports the services is perceived as minimal.

LEP Survey Results

In one part of the survey, respondents were asked about the need for community-based service systems to be organized so that families can use them easily and how they would rate the need for improvement in this area. Responses to this question were:

- 40.28% reports high need for improvement
- 47.22% reports moderate need for improvement
- 12.5% reports low need for improvement

As a follow-up to this question, parents were asked to cite specific unmet needs or barriers to service that come to mind when you think of community-based systems used easily by families. Responses included clients being unaware of services that are available in the community and the need for more mental health, child care, transportation, and language services. Some positive activities with the community were also mentioned, for example, “Material written by the communities themselves; we are training Latina mothers who have been in Greensboro for 5 or more years to be leaders for more recent arrivals. They are writing a manual to hand out of lessons they have learned and services they have accessed.”

NPM#6: The percentage of youth with special health care needs who received the services necessary to make transitions to all aspects of adult life

The transition from adolescence to adulthood is an important and somewhat challenging developmental stage for all youth. For CYSHCN and chronic disabilities, this transition period can be even more difficult and demanding. With rapid advances in medical treatments and assistive technology, more than 500,000 CYSHCN are expected to survive into adulthood each year. However, despite these medical advancements, CYSHCN do not have the same outcomes as their peers on indicators such as health status, academic achievement, interpersonal relationships, community participation, and employment (Stewart, 2009), which are all important domains of transition.

Health care transition, according to the Society for Adolescent Medicine, is the purposeful, planned movement of adolescents from pediatric to adult health care (Rosen, D. et al.) It is a process where the responsibility for managing health care needs shifts from the parent to the young adult. Health status and health care services are cited as two of the major barriers to making successful health care transitions for CYSHCN. At a minimum, to achieve healthy transitions to adulthood, children with significant health care needs and disability must have

health care professionals who are knowledgeable about all the domains of transition including long-term planning for their health, education, independent living, and employment.

The need for adequate preparation of CYSHCN during the health care transition process was identified as a national priority by the President's New Freedom Commission. Recent research has also highlighted the need for improving access to and the provision of quality health care transition services for CYSHCN. Yet, even with the increased attention to this on addressing the needs of CYSHCN as they move toward adulthood, there are still many barriers that impede their transition into the adult health care system.

The forces or "barriers" that obstruct the smooth transition from pediatric to adult health care systems were categorized by Reiss and Gibson (PEDIATRICS, December 2002) as 1) Service needs – or the availability or absence of treatment services and the degree to which a service satisfies the young adult, family member, and health care provider, 2) Structural issues – or institutionalized medical practices, such as education and training, interagency cooperation, insurance coverage, and institutional policies, and 3) Personal preferences – or the individual's likes and dislikes, attitudes, and values as well as the psychological and emotional aspects of relationships between and among youth, families, and professionals.

According to the 2005/2006 NS-CSHCN, only 39.9% of North Carolina CYSHCN receive the services necessary to make transitions to all aspects of adult life, including adult health care, work, and independence, compared to 41.2% nationally.

Technical expert panel review of the 2001 NS-CSHCN methods for assessing transition to adulthood led to significant revisions and additions to the 2005-2006 version of these questions. In particular, filter questions were added to identify CSHCN who needed the services being assessed and a new question was added to assess whether health care providers help CSHCN to take increasing responsibility for self-care. Significant wording changes and new additions were also made to the set of questions used to assess Transition to Adulthood in the 2005-2006 version of the NS-CSHCN. The 2001 survey version of the outcome is based on CSHCN ages 13-17; the 2005/06 outcome is calculated for CSHCN ages 12-17. Take these changes into consideration when comparing results across survey years. 2001 survey reflect national results only.

Within the medical home model, youth should receive coordinated, ongoing, comprehensive care, including access to culturally competent health care services. Although planning for health care transition is ideally included as part of the services offered within the medical home, many youth and families often report the lack of physician and institutional support for transition. Family members that responded to the state 2009 CHNAS-Families CSHCN felt there is a lack of physician involvement in transition, as one responder said "Physicians are not as involved or committed to the concept [of medical home]."

Lack of information/resources emerged as the most common theme in the survey, as respondents said that "Services are needed to help people with special needs interact, work, and partake in their community." and "As a parent, you are often on your own to navigate an ever changing system with little or no support. It is not clear who you should ask and often when you do ask professionals they don't have the answers to your questions." Lack of education and training for

youth, families and pediatric/adult medical providers was also a problem for obtaining adequate health care services. Many youth and families stated that there is a lack of education and training available regarding several aspects of the transition process, including coordination of care and finding adult providers. CYSHCN and their parents state that adult providers do not have a working knowledge of, or experience in, treating the individual's disability or special health care need.

Ongoing research has documented that many of the medical home initiatives have yet to reflect an understanding of the transition-related needs of CYSHCN and disabilities. Several researchers have acknowledged the need for increased awareness and skills among CYSHCN, their families, and physicians regarding transition and appropriate infrastructure to support necessary training and services. The most predominant response from providers in the Child Health Needs Assessment Survey for Physicians was concern for access to coordination of care and services. Direct quotes from respondents included citing the need for: "communication between specialists and PCPs," "adequate access to needed service, especially in rural areas," and "linking families to services, services available close to home and at hours that working families are able to access." Additionally, health care financing that posed structural barriers to providing adequate health care transition services was a common theme in the responses. Health care financing included inadequate insurance coverage and inadequate provider reimbursement. Almost 34% of providers stated lack of reimbursement for time spent preparing for and coordinating transition. Further, several respondents stated that often a child's diagnosis/treatment does not qualify or is ineligible for insurance coverage, so "There are many children who have various levels of need who do not have the financial options available to cover services." Respondents stated there is inadequate coverage in both private and public insurance. Several respondents mentioned nonexistent transition programs for teenagers.

Addressing both physical and mental health needs is a critical issue for providers that work with CYSHCN, particularly during the process of transition. Many youth and families often experience resistance to changing providers or going to see a provider to address acute and chronic health issues. Access to primary care physicians that can address mental health issues may be critical to facilitating the transition from pediatric to adult health care.

CHNAS-Families CSHCN Results

When asked to comment on the need for improvement regarding youth with special health care needs who received the services necessary to make transitions to all aspects of adult life, including adult health care, work, and independence:

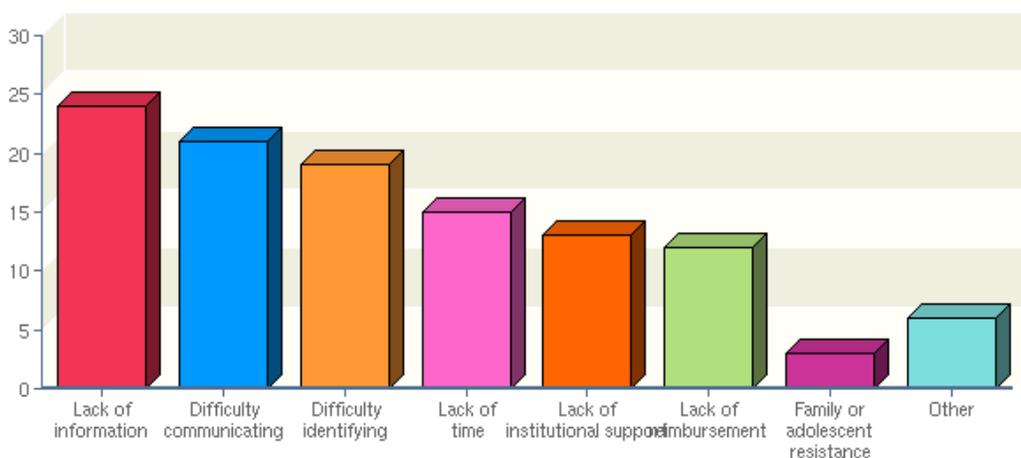
- 52.63% of respondents reported high need for improvement
- 42.11% reports moderate need for improvement
- 5.26% reports low need for improvement

When asked "What specific unmet needs or barriers to service come to mind when you think about transition to adulthood?" the lack of information/resources emerged as the most common theme from respondents, with one respondent stating "As a parent, you are often on your own to navigate an ever changing system with little or no support. It is not clear who you should ask and often when you do ask professionals they don't have the answers to your questions." A need

for improved provider relationships was also cited, with one respondent stating “They [providers] are typically not willing to work with the patient’s pediatric specialist to ease the transition and begin building a family professional partnership.

Respondents were also asked what they saw as the most significant barriers to a successful transition process for youth from pediatric to adult health care providers. Responses are found in Figure 28.

Figure 28
Most Significant Barriers to Transition from Pediatric to Adult Health Care Providers
2009 CHNAS-Families CSHCN



Source: 2009 Child Health Needs Assessment Survey - Families

LEP Survey Results

In one part of the survey, respondents were asked about youth with special health care needs receiving the services necessary to make transitions to all aspects of adult life and how they would rate the need for improvement in this area. Responses to this question were:

- 50.75% reports high need for improvement
- 40.3% reports moderate need for improvement
- 8.96% reports low need for improvement

As a follow-up to this question, parents were asked to cite specific unmet needs or barriers to service that come to mind when you think of transition services for youth with special health care needs. Many of the respondents, themselves service providers, were unfamiliar with this concept or did not know of services in their area. Others cited the need for more education or information about services available. Information about cultural expectations and opportunities is also lacking. One respondent wrote “Many of our youth with special health care needs are unable to care adequately for themselves they are unprepared for adulthood. [We need] more programs designed to enable folks with health needs to learn independence and a sense of responsibility.”

HSCI8: Percent of SSI beneficiaries <16 years old receiving rehabilitative services from the state CSHCN program

Social Security administers the SSI Program, which provides monthly income to people who are age 65 or older or are blind or disabled and have limited income and financial resources. To be eligible for SSI, an individual also must be a resident of the United States and must be a citizen or a non-citizen lawfully admitted for permanent residence. In thirty-two States, the SSI application is also the Medicaid application. SSI and Medicaid eligibility usually starts the same month, but in certain circumstances can also be retroactive. In North Carolina, children who receive SSI benefits automatically qualify for Medicaid coverage. This program became law in 1965 and is jointly funded by Federal and State governments (including the District of Columbia and the Territories) to assist States in providing medical long-term care assistance to people who meet certain eligibility criteria.

Once eligible, disability or blindness cases are reviewed periodically to decide if the recipient is still disabled or blind. If no longer disabled or blind, benefits are discontinued. This review process is called Continuing Disability Review (CDR). The law requires a CDR to be performed approximately every three years, unless the recipient has a condition that is expected to improve sooner than that. However, if the recipient has an impairment that is not expected to improve, a CDR will still be performed but not as often. Medicaid is the largest source of funding for medical and health-related services for people with limited income. For more information on Medicaid eligibility, see NPM 4.

During December 2005, the federal SSI database indicated that 7,113,897 persons received federally administered SSI payments, 1,036,498 of whom were children under the age of 18 years. State data for that same month and year indicated that of the 199,270 North Carolina residents receiving federally administered SSI payments, 36,739 were under the age of 18. That 2005 edition of *State Statistics* was the last one published. Later data was available in the publication *Congressional Statistics*. State data for December 2008 indicated that there were 184,286 disabled persons and 1,700 blind persons receiving SSI benefits. Unfortunately, that publication did not include a breakdown by age. However, as the Title V agency for the state, the C&Y Branch receives information on every child under age 21, who became eligible for SSI benefits during the previous month. Using that monthly data system, as of December 2005, 3,065 children under age 18 were determined eligible, but only during a portion of the year - May (when data entry began) through December. As of December 2008, 4,155 children under age 18 were determined eligible during the entire year. Partial 2009 data indicated that as of November 31, 2009, 3,965 NC children under age 18 had already been determined eligible during the year. In summary, for most of this five year assessment period, (May 2005 – November 2009), 20,811 children under age 18 were determined eligible for SSI benefits.

Additional Data Sources on CYSHCN

Focus Group with Members of the Family Council Regarding NPM#5 and NPM#6

In March 2009, members of the C&Y Branch facilitated a discussion with nine members of the FC. Six staff members from the WCHS and two guests also participated. FC members were

asked about the unmet needs and the barriers to service that families face. Active discussion revealed strong opinions and emotions based on the experiences that families have had as they negotiate the system. Analysis of the qualitative data suggests several overarching themes.

These themes include a need for:

- Trained and reliable community support workers
- Early and ongoing care coordination
- Parent to parent support and self advocacy training
- Strengthened parent/provider relationships around transition
- Identifying statewide resources for successful transition
- Provider training on transition

Latino Families with Children with Special Health Care Needs

Through funding from the State Systems Development Initiative, the WCHS contracted with the NCHSF to do a qualitative study on Latino families with CSHCN. A narrative approach was used to consider the meaning and significance that Latino mothers of CSHCN attach to disability, with the idea that views of disability may differ with race, ethnicity and culture in ways that are important to the medical and public health communities. To complement the mothers' perspectives and to gain a fuller understanding of how disability is understood among Latinos in general, focus groups with Latinos who did not have CSHCN were also conducted. Questions guiding this research were:

- How do Latinos talk about, think about and understand disability?
- In what way are understandings of disability informed by culture?
- How do people create meaning surrounding disability?
- How and with what expectations do parents of children with special health care needs access services for their children?
- What barriers to health service access and utilization do Latinos face?
- What are the practical implications of Latino beliefs surrounding disability for service providers?

A mixed method qualitative design approach was used. Twenty-two families with CSHCN were interviewed using a semi-structured interview guide developed by the researcher in conjunction with the Advisory Board at the WCHS. Interviewees were queried on four topic areas: 1) cultural construction of disability, 2) health care access and utilization, 3) barriers, and 4) experiences with the health care system in North Carolina. Questions were open-ended and participants were allowed and encouraged to speak about the things that were most important to them in conveying their experiences with the CSHCN. With the exception of one interview where the participants were most comfortable speaking English, all interviews were conducted in Spanish and took place in the participants' homes. Interviews lasted an average of two hours. With the exception of three families who chose not to have their conversation with us recorded, interviews were recorded. In addition to the semi-structured interview, participants also completed a demographic survey. All interviewees signed an informed consent statement. All families who participated received a \$25 Wal-Mart gift card and gift for their child valued at approximately \$25. In addition to the individual interviews, we conducted two focus groups with Latinos (both men and women) who did not have CSHCN. Focus groups were conducted using a focus group guide, which contained questions similar to those posed to the mothers, but

were not specific to parents of children with special health care needs. As with mothers, topics covered included cultural construction of disability, health care access and utilization, barriers and experiences with the health care system in North Carolina. Focus group participants received \$20 gift cards and a meal was provided at each site.

The findings of this study warn against the tendency to homogenize Latinos. Similar to other racial/ethnic groups, the varied experiences of Latinos shape their points of view and actions. In the case of disability, Latina mothers of children with special health care needs share many views about disability that differ in many ways from those of Latinos without CSHCN.

Key findings of the study were the following:

1. Latinos share a common set of cultural values, beliefs and perceptions surrounding disability.
2. Understandings and perceptions of disability are shaped by culture and experience.
3. Structural, rather than “cultural” barriers to service access and utilization were the most frequently noted among participants.
4. Mothers expressed a desire for formal social support for themselves and their families.

Mothers in the study did not bring up the themes of pity, shame and punishment which were discussed in focus groups with Latinos without CSHCN. Among the most common themes found among mothers was a strong desire to ensure that their children’s needs were being met. They were strongly motivated despite fear due to immigration status, language difficulty, financial hardship and perceived racism. Lack of information about community resources and difficulty in accessing services were common challenges. Some specific themes which surfaced in the conversations with mothers are summarized below:

1. Mothers want to understand their children’s conditions. Other studies have shown that Latino children are often diagnosed late and one possible explanation offered is that Latinos accept a broader range of “normal” behaviors in their children. The mothers interviewed did not dismiss that their children may have special health care needs; instead, they worked hard to find answers to their children’s specific condition.
2. Resistance towards labeling children. The mothers participating in the interviews wanted to know how to help their children. Yet, they did not define their children by their disability. They preferred to talk about their children’s strengths and down play their limitations.
3. Expertise of professionals is highly valued. Family is very important in Latino culture and, in some cases, bringing in outsiders to deal with a “family matter” can be frowned upon. Yet, in the case of the mothers in the study, obtaining help for their children from professionals was a high priority. This was not always easy and mothers had a high learning curve (for example, not understanding their children’s condition completely).
4. Mothers see their role as important in advocating for their children and locating services. Mothers perceived a lack of services but they did their best to pursue possible leads. Many also saw advocacy as part of being good mothers. Advocacy for them included searching for resources, sharing information with others, speaking with school administration and teachers, and educating others about their children’s needs. Many also expressed that they needed to advocate for their children in partnership with professionals.
5. Support groups can be great help. There is a commonly held notion that Latinos do not value or attend support groups. For mothers in an autism support group, the existence of the group

meant a source of empowerment and information. Through the support group they were able to locate resources and become good advocates for their children.

Provided the transformative effect that simply being included in “the loop” of information, resources, and support can have on families, the following are practical strategies gleaned from this research for improving the inclusion of Latino families with CSHCN into the formal support structures in North Carolina:

1. Alleviate the barrier that language presents for many Latinos.
 - Hire bilingual/bicultural staff.
 - Adapt written materials into Spanish.
 - Hire professional interpreters.
 - Ensure that the supply meets the demand.
2. Increase the capacity of community resources to work with Latinos.
 - Provide cultural competency training and support.
3. Prepare Latinos for leadership roles in community resources.
 - Recruit, train and utilize talented individuals.
4. Create a network of community resource communication and referral.
 - Identify community resources engaged with Latinos.
 - Ensure network visibility and up-to-date information.
 - Put the word out (in Spanish) about where to go/who to talk to if you have a child with special health care needs or suspect your child might have a special health care need.
5. Refer families to community resources.
 - Train staff at community resources to respond and to refer.
6. Make program information widely accessible for the Latino community.
 - Use assessable language, creative design and distribution.
 - Encourage agencies to develop plans about how to work together to identify families and provide information about services and support.
7. Conduct Latino specific program assessments of key community resources.
 - Assess how well specific programs are serving their Latino clients.
 - Identify good models.
 - Identify and respond to areas of concern.

The 2009 Child Health Needs Assessment Survey for Providers

Of the providers surveyed, 87% served CSHCN in their practices, with 9% not serving them and 4% not sure if they did. The providers who served CSHCN identified the following as the most significant barriers to a successful transition of children from pediatric to adult health care providers:

- 47% of providers stated difficulty in identifying adult primary care providers or specialists
- 44.29% of providers stated difficulty in communicating with or lack of response between providers
- 33.85% of providers stated lack of reimbursement for time spent preparing for and coordinating transition.

The most predominant response from providers regarding the most critical emerging needs and gaps in health services for CSHCN is concern for coordination of care and services. Access to care was a common concern as well as inadequate insurance coverage.

The 2009 Child Health Needs Assessment Survey for Physicians

Of the physicians surveyed, 91% serve CSHCN and 9% do not. The providers who served CSHCN identified the following as the most significant barriers to a successful transition of children from pediatric to adult health care providers:

- 49.37% of physicians stated difficulty in identifying adult primary care providers or specialists
- 34.02% of physicians stated lack of reimbursement for time spent preparing for and coordinating transition.
- 32.36% of physicians stated difficulty in communicating with or lack of response between providers

The most predominant response from physicians regarding the most critical emerging needs and gaps in health services for CSHCN is concern of lack of resources, with one respondent stating that the critical needs are “Time to do it effectively, lack of local resources, [and] difficulty in coordinating/communicating with other agencies.” Mental health arises as a common concern, along with access to services, communication between physicians, coordination of community resources, and reimbursement.

North Carolina Office on Disability and Health (NCODH) and the North Carolina Plan for Promoting the Health of People with Disabilities

In 2009, the NCODH began the development of *The North Carolina Plan for Promoting the Health of People with Disabilities*. Promoting the health and wellness of people with disabilities and eliminating health disparities between people with and without disabilities in North Carolina will require long-term strategies and action steps regarding changes in surveillance, media and education campaigns, health and social interventions, policy, and environment. The plan is being developed with the Advisory Committee on Disability and Health (ACDH) to accomplish this as well as to identify integration opportunities in already existing health promotion plans. The ACDH represents the collaborations NCODH has created with individuals with disabilities, state agencies, and community organizations that provide services and advocacy for persons with disabilities. This plan is the third in a series.

The ACDH elected to focus the plan objectives on each of the 10 Healthy People 2010 leading health indicators: physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization, and access to care. Oral health and emergency preparedness are also represented due to their high importance. Selected questions and their results from NC BRFSS, NC CHAMP, and NC YRBSS are some of the indicators to be used to track the progress of North Carolinians.

Collaborations were established with key partners to better access information and for integration of disability issues throughout each of the twelve health indicators. The goals for each health

indicator are adapted from corresponding state agencies. The goals identify the anticipated results in achieving the vision, while action steps identify strategies that will be used to accomplish the goals.

Twelve key informant discussions were held with NCDHHS partners, community partners, individuals with disabilities, and families to identify the gaps and needs addressed in each of the health indicators. Partners such as NC DMH/DD/SAS, Tobacco Prevention and Control Branch, Physical Activity and Nutrition (PAN) Branch, Injury and Violence Prevention Branch (IVPB), Immunization Branch (IB), C&Y Branch, NC Oral Health Section, The Office of Public Health Preparedness and Response, and Communicable Disease Branch represented NCDHHS partners. Be Active NC, NC Assistive Technology, NC Center for Public Health Preparedness, Alliance of Disability Advocates, Autism Society, Mental Health Association in NC, Easter Seals UCP NC, The ARC of NC, NC Statewide Independent Living Council, NC Health and Wellness Trust Fund, YMCA Charlotte, NC Council on Developmental Disabilities, and the FC for CSHCN represented community partners, individuals with disabilities, and families.

The NCDHHS partners provided the first round feedback on the preliminary draft strategies and action steps that emerged from the key informant discussions. The ACDH, community partners, individuals with disabilities, and families review all elements of the plan and provide the second round of feedback. The feedback received is being considered and will be integrated into the plan.

Some examples of draft strategies and action steps include:

Data

Strategy - Collect, analyze, and disseminate data on people with disabilities and access to care across the lifespan.

Action Step - Ensure all applicable North Carolina immunization data collection systems use recommended standardized questions to include and identify people with disabilities and are protected by meeting privacy standards.

Media and Education Campaign

Strategy - Ensure public awareness messages on issues relating to obesity and physical activity are inclusive of people with disabilities.

Action Step – Ensure media campaigns promoting physical activity and healthy eating are accessible and inclusive of people with disabilities through the use of disability images, person first language, literacy level, and the availability of alternate formats.

Health and Social Interventions

Strategy - Provide health and social interventions to promote tobacco use cessation for people with disabilities across the lifespan.

Action Step - Promote healthcare providers implementing standard questions for people with disabilities in regards to tobacco use status, tobacco cessation, exposure to second hand smoke, and provide counseling, information, and resources as appropriate.

Policy

Strategy - Support the inclusion of people with disabilities in policies and law that address emergency preparedness and response.

Action Step - Prioritize families for disaster housing assistance and expedited transition into permanent housing, especially families with people who have disabilities or other health, mental health or educational needs.

Environment

Strategy - Ensure that all sites that provide counseling, testing, referral, and treatment for HIV/STD and/or pregnancy prevention meet the minimum meet the minimum Americans with Disabilities Act accessibility standards.

Action Step - Provide training and technical assistance on the Americans with Disabilities Act universal design principles to ensure testing, treatment, and education programs are accessible to people with disabilities.

The NC School Health Nurse Survey on Care Coordination for Children with Special Health Care Needs

This survey was conducted by the C&Y Branch in the fall of 2008 at the 25th Annual School Nurse Conference. The survey was completed by 193 nurses from 65 LEAs. Nurses responded to a series of questions about the ease with which they are able to make referrals in their communities. Most responded that it is often easy to refer a student to a doctor or medical service (79%), often (43%) or rarely (48%) easy to refer a student to a dentist or dental service and less easy to refer a student to a mental health provider or behavioral health service (often-34%, rarely-51%), with 12% of nurses responding that it is never easy to refer a student to mental health services. The majority of respondents (84%) reported that they feel their current role in care coordination is appropriate, with 70% spending about as much time as they would expect helping to coordinate care for students. About one quarter (26%) spend more time than they feel they should, and 5% spend less time than they feel they should in care coordination. Despite nurse participation in care coordination, only about 28% of nurses reported that their school system has a planned, intentional way to help students get health care services. Of those whose school systems have an intentional plan, 63% report that the plan works moderately well, 19% report their plan works very well, and 18% say their plan does not work very well. Nurses use various methods to ensure that health care providers share information with school health personnel, the most common being signed release of information forms (97%) and personal relationships (52%). A majority of respondents (57%) reported that they were the person most likely to coordinate care for their students, 35% responded that a parent/guardian was most likely to coordinate care, followed by social worker (4%), child's doctor or medical home (1%) and other (5%). Many said that they needed more time to carry out case management and would like to participate within schools in the process to develop the Individualized Education Plans and 504 plans for/with students.

The Integrated, Collaborative, Accessible, Respectful and Evidence-Based (ICARE) Partnership Survey

The ICARE Partnership is collaborative of agencies and individuals dedicated to improving patient health and wellness by fostering integrated care of mind and body and collaboration in

patient centered care. ICARE seeks to improve patient outcomes by increasing effective collaboration and communication between primary care and DMH/DD/SAS providers in communities and increasing the capacity of primary care providers and DMH/DD/SAS providers to screen, identify needs, and appropriately treat or refer their patients for both medical and mental health concerns or conditions. ICARE efforts have included providing tools and information to practices, encouraging relationships among providers, working to remove and reduce barriers to delivery of integrated care services, creating incentives for delivery of integrated care, building system capacity, and testing models of care. The ICARE Partnership has funding and advisory group partners which include but are not limited to the Autism Society of NC; NC Psychological Association; Governor's Institute on Alcohol and Substance Abuse; NC Division of Medical Assistance; NC DMH/DD/SAS; NC School Community Health Alliance; NC Foundation for Advanced Health Programs; NC Academy of Family Physicians; NC Pediatric Society; NC Psychiatric Society; NC Area Health Education Centers; and The Sheps Center.

A survey of primary care and mental health providers was conducted in October 2008 to help ICARE gather information and develop strategies based on the experiences of these professionals in providing behavioral health care services to their patients. For purposes of this survey, "behavioral health" was defined as the domain of health care encompassing prevention, management and treatment of mental and emotional illness, developmental disabilities, and substance abuse. An online survey was sent to members of the NC Academy of Family Physicians, the NC Pediatric Society, the NC Psychiatric Association, the NC Psychological Association, and the NC Chapter of the National Association of Social Workers

Of the 140 respondents from members of the NC Academy of Family Physicians, 62% were reported to be in an urban practice. These respondents cited bipolar disorders, substance abuse, and personality disorders as the most challenging behavioral health conditions that they encountered. Providers responded that the top three most challenging aspects of managed care for behavioral health patients were finding a referral for publicly insured or uninsured patients, dealing with a crisis, and the amount of time that was needed to assess and manage a patient. "Lack of reimbursement" was noted as a significant challenge by many family physicians for the care they could provide to behavioral health patients.

Providers stated that the three most beneficial resources were the use of community based psychiatrists for consultation, the availability of community counseling/psychotherapy resources, and co-located behavioral health professionals within the practice for consultation and referral.

Of the 25 respondents from NC Pediatric Society members, 32% were reported to be in an urban practice. The most challenging behavioral health conditions encountered by pediatricians were reported to be conduct or oppositional defiant disorders, autism spectrum disorders, and depression. Pediatricians shared that the three most challenging aspects of care for behavioral health patients were finding referrals for publicly or uninsured patients, dealing with a crisis, and psychiatric medication management. "Poor continuity of care for public and uninsured" and not having enough mental health providers in communities were noted as additional challenges.

Of the 85 mental health provider responses, 73% reported to be in an urban practice. Providers responded that the three factors that would be most helpful for mental health providers in

facilitating interactions with PCPs were having a working relationship with PCPs, having permission from patients to communicate with their PCP, and having a standard approach or form to provide feedback to PCPs. Providers shared the following as three factors that would make it easier for mental health providers to address their clients' overall health care needs: more time to communicate with PCPs; routine availability of email and telemedicine; and improved communications between the PCP and mental health provider. "Reimbursement issues" and "worries about sharing patient information due to long term implications for the patient" were shared as significant challenges.

4. MCH Program Capacity by Pyramid Levels

A. Description of the NC Title V Agency

The NC Title V program is housed within the NCDHHS in the DPH. NCDHHS is a cabinet-level agency created in October 1997 when the health divisions of the Department of Environment, Health and Natural Resources were combined with the existing Department of Human Resources. Lanier M. Cansler was appointed as Secretary of the NCDHHS by the Governor, Beverly Perdue, in January 2009. Serving as State Health Director and Division Director for DPH since March 2009 is Dr. Jeff Engel. Dr. Engel served as the State Epidemiologist beginning in 2002. In 2006, he was named Chief of the Epidemiology Section of the Division.

The Department is divided into 32 divisions and offices which fall under four broad service areas – health, human services, administrative, and support functions. Divisions and offices include: Aging and Adult Services; Budget and Analysis; Child Development; Citizen Services; Controller; Council on Developmental Disabilities; Economic Opportunity; Education Services; Environmental Health; General Counsel; Government Relations; Health Service Regulation; Human Resources; Information Resource Management; Internal Audit; Medicaid Management Information Systems; Medical Assistance; Mental Health, Developmental Disabilities, and Substance Abuse Services; Privacy and Security Office; Procurement and Contract Services; Property and Construction; Public Affairs; Public Health, Rural Health and Community Care; Secretary's Office; Services for the Blind; Services for the Deaf and Hard of Hearing; Social Services; State Center for Health Statistics; State Operated Healthcare Facilities; Vital Records; and Vocational Rehabilitation. NCDHHS also oversees 18 facilities: mental retardation centers, psychiatric hospitals, alcohol and drug abuse treatment centers, schools, early intervention programs, and one special care center.

The mission of the NCDHHS is to provide efficient services that enhance the quality of life of North Carolina individuals and families so that they have opportunities for healthier and safer lives resulting ultimately in the achievement of economic and personal independence.

DPH is comprised of the Director's Office and ten other offices and sections: Administrative, Local, and Community Support; Chronic Disease and Injury; Epidemiology; Human Resources; Office of Minority Health and Health Disparities; Oral Health; State Center for Health Statistics; State Laboratory of Public Health; Vital Records; and Women's and Children's Health.

The WCHS is responsible for overseeing the administration of the programs carried out with allotments under Title V. Kevin Ryan, Section Chief, is the Title V Program Director and Carol Tant, C&Y Branch Head, is the CSHCN Program Director. The mission of WCHS is to assure, promote and protect the health and development of families with emphasis on women, infants, children and youth. WCHS programs place a major emphasis on the provision of preventive health services beginning in the pre-pregnancy period and extending throughout childhood. The Section also administers several programs serving individuals who are developmentally disabled or chronically ill.

WCHS is comprised of five Branches: Children & Youth, Early Intervention, Immunization, Nutrition Services, and Women's Health. The Section Management Team, which is comprised of the Chief, Section Operations Manager, and the five Branch Heads, meets weekly to facilitate joint planning, to keep key staff informed of current activities and issues, and to plan short and long term strategies for addressing current issues. A similar process occurs within the Branches which are responsible for assessing and responding to the needs of its target population(s).

The public health system in North Carolina is not state administered, but there are general statutes in place for assuring that a wide array of maternal and child health programs and services are available and accessible to North Carolina residents. Using federal Title V funds and other funding sources, WCHS must contract with LHDs and other community agencies to assure that these services are available. There are 85 local health department clinics which provide clinic and preventive services in all 100 counties. In addition, there are many community health centers and other agencies providing services. Each contract contains a scope of work or agreement addenda that specifies the standards of the services to be provided. The public health departments, which have local autonomy, have a long-standing commitment to the provision of multidisciplinary perinatal, child health, and family planning services, including medical prenatal care, case management, health education, nutrition counseling, psychosocial assessment and counseling, postpartum services, child service coordination, well-child care, and primary care services for children.

A wide range of preventive health services are offered in virtually all of these health departments, allowing most clients to receive a continuum of reproductive health services at a single site. Standards for provision of WCHS supported prenatal and postpartum services are based on the American College of Obstetrics and Gynecology (ACOG) guidelines. These standards have been revised to be consistent with best practices derived from the current scientific literature as well as with the relevant NC regulations and are provided in soon to be published Maternal Health Resource Manual. They are also generally quite consistent with the new fourth edition of the American Academy of Pediatrics/American College of Obstetricians and Gynecologists' *Guidelines for Perinatal Care*. Because of this consistency with these nationally recognized guidelines, there is a good case to be made that these standards should also provide the basis for standards for the prenatal care provided by Medicaid managed care and ultimately commercial managed care agencies. Local health agencies receiving Title X funding to provide family planning services must abide by the January 2001 Program Guidelines for Project Grants for Family Planning Services and the subsequent Title X Program Instruction Series developed by the Office of Population Affairs, US Department of Health and Human Services.

Consultation and technical assistance for all contractors is available from WCHS staff members with expertise in nursing, social work, nutrition, health education and medical services. Staff includes regional child health and women's health nursing and social work consultants who routinely work with agencies within assigned regions.

In 2002, the NC DPH and the North Carolina Association of Local Health Directors undertook an initiative to develop a mandatory, standards-based system for accrediting local public health departments throughout the state. Since 2002, the North Carolina Institute for Public Health has provided accreditation staff support.

The focus of North Carolina's Local Health Department Accreditation (NCLHDA) is on the capacity of the local health department to perform at a prescribed, basic level of quality the three core functions of assessment, assurance, and policy development and the ten essential services as detailed in the *National Public Health Performance Standards Program*. The program focuses on a set of minimal standards that must be provided to ensure the protection of the health of the public, but does not limit the services or activities an agency may provide to address specific local needs. NCLHDA does not create a wholly new accountability system; rather it links basic standards to current state statutes and administrative code, and the many DPH and DEH contractual and program monitoring requirements that are already in place.

The program comprises three functional components:

- An agency self assessment, which includes 41 benchmarks and 148 activities
- A three day site visit by a multidisciplinary team of peer volunteers, and
- Determination of accreditation status by the NCLHDA Board.

The program process is adjudicated by an independent entity, the NCLHDA Board. Its members are appointed by North Carolina's Department of Health and Human Services Secretary. The Accreditation Administrator, within the North Carolina Institute for Public Health, serves by legislative mandate.

Accreditation is achieved by appropriately meeting a set of capacity-based Benchmarks as evidenced by documented completion of prescribed Activities. Benchmarks may be met by either direct provision or assurance (through contracts, memoranda of understanding, or other arrangements with community providers) of required services and activities. While the Benchmarks being applied are similar to the Operational Definition of a Functional Local Public Health Agency (2004) used by the National Association of County and City Health Officials and drawn from work done in other states, the Activities are specific to practices in North Carolina local public health agencies.

As of July 2009, 50 local health departments had been accredited. Due to budget cuts in FY10, the accreditation program was suspended for the FY10 period. It is hoped that accreditation activities will resume in July 2010.

B. Overarching Capacity Issues for the Women's and Children's Health Section

In reviewing the capacity assessment for the different population groups, there were three areas that crossed over each of the population groups, the Maternal and Child Health (MCH) Hotline in the population-based services level of the pyramid, and data collection and comparability and development of the North Carolina Plan for Promoting the Health of People with Disabilities in the infrastructure-building services level.

Population-Based Services

MCH Hotline - NC's Family Health Resource Line (1-800-FOR-BABY or 1-800-327-2229) has evolved from a prenatal care hotline to a multi-program resource. The hotline averages 3,500-4,000 calls a month and operates 24 hours a day, including holidays.

In 1990, North Carolina launched First Step, an infant mortality public awareness campaign, which included a statewide toll-free number. The line responded to calls related to preconceptional, prenatal, postpartum, and infant care; breastfeeding and nutrition; and Baby Love (Medicaid for pregnant women). In 1994, the Health Check Hotline (Medicaid for children) was launched. The line was co-located with the First Step Hotline, using the same staff but a separate toll-free number. With this expansion, the hotline's mission broadened to encompass child health topics. That same year, the First Step Hotline added a focus on prenatal substance use prevention and treatment. In 1998, programs pooled resources to create the NC Family Health Resource Line. The state's Smart Start Program, a public-private initiative that provides early education funding to all of the state's counties, became a partner and contributed early child development and parenting resources, and the NC Health Choice program marketed the line as their "call to action" to learn more about free and low-cost health insurance. In 2002, the NC Child Care Health and Safety Resource Center was merged into the NC Family Health Resource Line, again expanding breadth of services and resources. The NC Family Health Resource Line is funded by state dollars, federal Medicaid matching dollars and MCHB grant funds.

In December 2009, the NC Family Health Resource Line became an automated system to triage calls and forward them to existing call centers based on the choices made by the caller. This change in service was prompted by a state budget crisis that required consolidation of existing hotline services. Calls relating to maternal and child health issues, family health, Health Check, and NC Health Choice are routed directly to the CARE-LINE, NCDHHS's toll-free information and referral telephone service. Information and Referral Specialists provide information and referrals regarding human services in government and non-profit agencies. Currently, sixteen individuals staff the CARE-LINE. Of these staff, one specialist is the Office of Citizen Service's CARE-LINE Hispanic Citizen Services Representative and is dedicated to handling calls from Spanish-speaking customers. CARE-LINE staff members are well trained and have a wealth of knowledge regarding human service programs across North Carolina. Many staff persons are Certified Information and Referral Specialist by the National Alliance of Information and Referral Services. In FY 2009, these professionals provided information to more than 300,000 callers.

A second option in the NC Family Health Resource Line menu will direct families of CSHCN to the Title V CSHCN hotline which is operated (but not funded) by Title V.

Collaboration is a key strength of the NC Family Health Resource Line. The hotline is one of the few that has an advisory committee exclusively dedicated to oversight. Members of the committee include representatives from UNC-Chapel Hill, Title V, Medicaid, CSHCN, CARE-LINE, and other key stakeholders. With the hiring of a full-time parent liaison in the C&Y Branch and her work with the FC, the resource line has greater parental involvement.

In addition, the NCDHHS Office of Citizen Services that supports the CARE-LINE has also developed a website (NCcareLINK.gov) that provides up-to-date information about programs and services across North Carolina for families, seniors, youths and everyone in-between. It is a collaborative effort of NCDHHS and many other government and non-profit information and referral stakeholders across North Carolina.

Infrastructure-Building Services

Data Collection

Two major emerging issues on the horizon are in the area of data collection and comparability. In 2010, the NC SCHS plans to roll out the National 2003 birth certificate. This roll out will be in phases, and as a result, data compatibility for the calendar year of 2010 will be difficult. In addition to not being able to compare ourselves with all of the US because some states are using the old certificate, we will also not be able to compare ourselves backwards in all measures. Also, any data collected in 2010 will not be able to be compared within the year because part of the year will be the old certificate and some the new.

In addition the birth certificate, as mentioned in the data sources, North Carolina is in the process of implementing a new Health Information System (HIS) to replace the old HSIS. Statewide rollout is scheduled to take place from April to August 2010. This system will be used by all local health departments, directly or indirectly through batch reporting from another data collection system. Data comparability between the two systems might be a little problematic, but it is hoped that the requirement that the system replicate all functions of the old system will make those problems less severe. In addition all the old data will be ported over to the new HIS. HIS was developed using the Avatar PH off-the-shelf software with significant modifications. This should allow Program Staff and Managers to begin doing more in-depth evaluation because there will be more access to data previously uncollected or unavailable. In addition, improved data reporting functions as well as the ability to run reports on specific items of interest will help with evaluation. In the past, program managers have been stymied because of their inability to access data except through canned reports. The new system's capacity to run ad-hoc reports and to produce electronic reports is seen as a real benefit for evaluation and needs assessment.

C. Capacity Assessment for Pregnant Women, Mothers, Infants, and Women of Reproductive Age

In discussing the various issues that impact women and children, there was one that clearly affected each of the categories in the service pyramid. In order that it was not omitted, this issue

is listed first, and then each of the service areas within the pyramid contains discussions of the issues that surround the provision of care.

1. Overarching Theme: Changing Population Dynamics

The growing Latino population has put a strain on the public health community, not only in terms of the increase in non-Medicaid eligible persons with no insurance, but also in terms of public health's ability to deal with a population with more intensive clinical and social needs. Even if one disregards the number of clients who do not have, and cannot qualify for, Medicaid, there still exists a population with language barriers, transportation barriers, and cultural barriers.

These problems are exacerbated by the population dynamic of the public health workforce: almost exclusively white or African American, largely female, and largely middle-aged. In fact, if one looks at the population trends, it is apparent that in some areas of the state, African Americans will soon be replaced by Latinos as the largest minority population. Therefore, it is imperative that public health does something to address the recruitment and retention of young public health professionals, especially those with language and cultural sensitivity skills used by a priority population, such as Spanish, Hmong, and Arabic. While local staff may reflect the diversity of the local population, some disciplines may also be in need of staff members that know the languages and cultures of the persons they serve.

The aging female population in North Carolina may have implications for the delivery of family planning and maternal health services in the near future. This may also require a change in the definition and calculation of the number of women in need of services, which has traditionally included women 15-44 years of age. As a tacit acknowledgement of the shift in the age distribution of the female population in North Carolina, the Family Planning Section 1115 Medicaid Waiver has extended the upper age range of eligibility for women up to age 55, and men age 19-60. The shift in the age distribution of the female population continues to be reflected in the current patient characteristic data for the state family planning program. Whereas, in 1990, no woman over age 45 was reported in the data system as having received family planning services, 2,380 women over age 45 received family planning services in CY 2008 (FPAR 2009). This number is only 2% of the total patients served by Title X clinics in NC. However, a number of local providers in the eastern part of the State have higher proportions of women over 45 in their patient population. Given current population projections, the numbers will increase, and consequently may require the state family planning program to consider other women's health services beyond family planning for this emerging population subgroup. Since 1999, the number of women 45 and above served by the program has increased from 676 to 2,380, or a percent increase of 252%. Conversely, the number of teens being served by the Family Planning program continued to decline over the same period. Since 1999, the number of teens age 15-19 served by the program declined from 40,966 to 29,169 or a 29 percent decrease.

In addition, special emphasis needs to be on retaining the institutional memory of the persons retiring so that their understanding of the history of programs and relationships with local agencies do not get lost. Currently, the WHB has five Regional Nurse Consultants in the field and two unfilled positions

2. *Direct Health Care Services*

Available Providers - Data from the Health Resources and Services Administration indicates that 68 of North Carolina’s 100 counties are designated as medically underserved in 2009. An additional 24 counties have specific census tracts and populations that were also designated as medically underserved.

Data from the Sheps Center’s NC Health Professions Data System for 2007 indicated that metropolitan counties fare better than rural counties in the state, with 24.1 licensed physicians per 10,000 people in the urban areas, compared to 13.5 in non-metropolitan areas. Of these, 9.8 physicians per 10,000 were primary care doctors in urban areas, and 6.9 were primary care providers in rural areas. The Raleigh-Durham area, PCR IV, had the most doctors per 10,000 people in the state, at 28.8 per 10,000 people, while the southeastern part of the state, PCR V, had the least at 15.1 per 10,000 people. (<http://www.shepscenter.unc.edu/hp>)

The number of providers per population was fairly stable for the state as a whole from 2003 to 2007, despite a 6.9% increase in population.

Table 58
NC Health Care Providers per 10,000 People per Year
2003 - 2007

	2003	2004	2005	2006	2007
<i>Population</i>	8,485,802	8,562,210	8,663,674	8,860,341	9,069,398
Physicians	20.1	20.3	20.7	20.8	20.9
Primary Care Physicians	8.6	8.6	8.8	9.0	8.9
Dentists	4.1	4.2	4.4	4.4	4.3
Registered Nurses	90.0	90.7	92.1	92.9	93.5
Pharmacists	8.5	8.5	8.4	8.9	9.0
Nurse Practitioners	2.5	2.6	2.82	3.0	3.0
Certified Nurse Midwives	0.2	0.2	0.23	1.1	1.1
Physician Assistants	2.8	2.9	3.09	3.2	3.2

Source: North Carolina Health Professions Data System, Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill

NC depends heavily on its linkages at the local level between the local physicians and hospitals and the LHDs. In addition, the state’s six AHECs provide health education services, continuing education credits and other certifications for health professionals, and clinical services. The AHECs and LHDs often work hand-in-glove to assure patients are provided high-quality health care and health professionals are kept up-to-date in their certifications.

Very few LHDs provide comprehensive medical services for clients in their service areas. In a recent survey conducted by the NC SCHS, of the 85 county and district health departments in the state, only 36 reported providing primary care for adults and 51 reported primary care for children. Seventy-four (74) reported that they provide prenatal care. (LHD Staffing and Services Summary for FY07, SCHS, 2008).

Sickle Cell and other Hemoglobinopathies – The WHB provides only one service that is essentially a direct client service that of serving clients with sickle cell disease and other hemoglobinopathies. The North Carolina Sickle Cell Syndrome Program (NCSCSP) has been serving clients with sickle cell disease and other abnormal hemoglobins for over 30 years. The program is comprised of the unit manager, program supervisor, education consultant, program consultant, nine educator counselors, four community-based organizations, and six comprehensive sickle cell medical centers. The program staff members work together to ensure the timely follow-up of all newborns diagnosed with sickle cell disease as well as their placement on penicillin therapy before three months of age. Assuring that diseased babies are placed on penicillin is a vital part of the program's care coordination plan. Placement on penicillin significantly reduces the chance of these children contracting life-threatening infections and thereby improves their quality of life.

Although the NCSCSP was established in 1973, universal newborn screening for all babies regardless of race was implemented in May of 1994. All babies born in North Carolina are screened for sickle cell disease and other abnormal hemoglobins through the State Laboratory of Public Health. This effort is conducted through the North Carolina Newborn Screening Program.

The NCSCSP serves approximately 4,000 individuals and families living with sickle cell disease and other related hemoglobinopathies. Many thousands more receive general sickle cell information and education from the program staff and regional educator counselors. The NCSCSP provides follow-up to newborns identified with sickle cell and other abnormal hemoglobins. In addition, the program also provides case management, referral to medical services, and education to clients and their families about sickle cell disease and other related hemoglobin disorders.

The nine sickle cell educator counselors and four community-based organizations do an excellent job of locating approximately 120 newborn cases with sickle cell disease and other abnormal hemoglobin each year. However, an important issue in the way sickle cell services are provided is the need to ensure that young children actually take their prescribed penicillin regimen until age five. Once the babies receive their medical assessment and prescription for penicillin, it is almost impossible to ensure that mothers will be compliant in giving their babies the needed penicillin regimen until they are five years of age. While each educator counselor handles about 200 cases (includes all persons, regardless of age), it is impossible to do more than two yearly visits with children under the age of 19.

The new web-based computer system, WCSWeb (SCCELL), is used to track and monitor the services provided to the clients with sickle cell disease and other related hemoglobin disorders. The program services tracked by the web-based data system include prophylactic penicillin data, genetic and trait counseling, education sessions, medical referral services, case management, and child service coordination. The database system also provides demographic, medical, and financial information. From this database, the program consultant uses the information to generate statistical data on various topics related to sickle cell disease and disseminate the data to requesting public agencies or individuals. The information captured in WCSWeb (SCCELL)

allows program staff to monitor their caseloads and examine ways of enhancing current case management practices.

The NCSCSP website provides information about the program, including referral services, public awareness, and education. The site describes the components of sickle cell disease and highlights services provided by the program. In addition, the education consultant coordinates annual meetings, staff training, and workshops. These activities keep staff up-to-date on issues related to sickle cell disease and other related hemoglobinopathies, as well as enhancing individual development. Educational materials, such as brochures, are distributed to medical centers, community-based organizations, and program staff. All of these efforts result in NCSCSP staying at the forefront of public health and keeping North Carolina citizens informed about sickle cell disease and sickle cell trait.

Finally, the NCSCSP held a strategic planning session in October of 2006 to begin looking at ways of enhancing the quality of service to clients and families. The program staff, along with members of the North Carolina Governor's Council on Sickle Cell Syndrome and Related Disorders, participated in an informal but structured review of program activities, components, and services. This review helped identify the components of standard of care and identify gaps and barriers that influenced the continuity in service delivery. The program also has been able to build capacity and better serve clients through the development of a logic model. This model outlines short and long-term goals set by the program. In the coming years, the program will work toward these goals and use the logic model as a tool to better measure its success and draw attention to any areas needing improvement.

STDs and HIV - A number of new initiatives being conducted by the FPRHU are worth noting for their potential impact on increases in Chlamydia disease cases and rates and increases in HIV/STD testing in a number of local health departments.

The FPRHU has been participating in the Infertility Prevention Project in US DHHS Region IV for the past several years. The major goal of the project is to assess and reduce the prevalence and incidence of Chlamydia infection and prevent associated complications including infertility. Towards this end significant increases in local testing and case finding have contributed to corresponding increases in cases and rates. Currently, the emphasis is also extending to education, screening, and treatment of gonorrhea. Chlamydia and gonorrhea prevalence remains a major public health concern in this region of the country. The project is an important component for Maternal and Child Health and Family Planning in ensuring healthy reproductive health in the women served by these programs.

In addition, beginning in FY08 special initiatives funds from the Office of Population Affairs were awarded to three local agencies to increase the testing rates for HIV/AIDS in their family planning patient population. Located in the poor, and rural eastern part of North Carolina, these counties also were in the top ten in HIV/AIDS disease rates in the NC. In addition to increasing the testing rates up to 80% of the total family planning patient population, the agencies also had to test the implementation of the revised CDC testing guidelines. (Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings, CDC, MMWR, September 2006.)

3. *Enabling Services*

The health department maternity clinics and the high risk maternity clinics screen for many risks and conditions during pregnancy and provide monitoring and counseling to improve the health of women so that they have healthier pregnancies and better birth outcomes. However, many of these women lose their health insurance coverage 60 days after delivery and have difficulty accessing medical services when they are not pregnant. Without continued care, women who have chronic health problems and risk behaviors may not be able to stay healthy and their future pregnancies may be at risk.

Maternity Services: WCHS supports a statewide network of 85 LHD clinics which help ensure prenatal services to women in all 100 counties. These clinics provide multidisciplinary perinatal services including medical prenatal care, case management, health education, nutrition counseling, psychosocial assessment and counseling, and postpartum services. A wide range of preventive health services are offered in virtually all of the LHDs, allowing most clients to receive a continuum of reproductive health services at a single site. Standards for provision of WCHS supported prenatal and postpartum services are based on the ACOG guidelines. WCHS staff includes regional nursing and social work consultants who routinely work with local health departments and agencies to monitor compliance with clinical standards for both prenatal and postpartum services.

High Risk Maternity Services - The High Risk Maternity Program serves more than 7,300 high risk women through 13 local health department high risk maternity clinics and 4 tertiary care centers each year. As the numbers of non citizens seeking high risk maternity services increase, High Risk centers are stretched to provide care for women with high risk conditions who do not qualify for Medicaid and have no third-party insurance. The economic downturn has also placed a huge stress on families, triggering risky behaviors and stress-related medical conditions. These clinics provide a needed safety net so that women who have no other source for high risk care are provided the full continuum of services to assure that not only are their medical conditions cared for, but they have additional resources to help with other problems these women may have, such as domestic violence or substance abuse.

Over the past several years North Carolina's growing immigrant population has added to the demand for prenatal care services. This is due to the fact that a great majority of this population is employed in jobs that do not provide health insurance and/or cannot qualify for Medicaid programs due to their undocumented status. According to NC BRFSS 2008 data, 67.5% of Hispanic women ages 18 – 44 years old did not have health insurance. Not only adults, but children depend on the local health departments for services. Many of these individuals fall below the 100% FPL, and therefore qualify for free services at their local health departments. This situation places a large financial burden on the local health departments and the state to continue to provide these essential services for the residents of North Carolina. An increase in prenatal clients, provider shortages, and the increase in the amount of uncompensated care has resulted in both delays in scheduling initial prenatal care appointments due to unavailability of appointment slots and long waiting times in the health departments for services.

Maternity Care Coordination and Support Services for Pregnant Women and Infants - The Baby Love Program includes the Maternity Care Coordination Program (MCCP) and Health and Behavior Intervention (HBI) services. The program serves low-income pregnant and postpartum women with the goal of reducing infant deaths. (Postpartum is defined as the period of time from the last day of pregnancy through the last day of the month in which the 60th postpartum day occurs.) Four Regional Social Work Consultants, a Clinical Social Work Consultant, and a Social Work Program Supervisor serve as a comprehensive team in liaison roles with the local provider agencies and in collaboration with other relevant disciplines. The Baby Love Program seeks to improve maternal health and reduce infant mortality through the availability of a comprehensive series of maternal and infant health services. The MCCP provides formal case management services to eligible women during and after pregnancy and intervention as early in pregnancy as possible to promote healthy pregnancies and positive birth outcomes. HBI services provide intensive, focused counseling for pregnant and postpartum women who have serious psychosocial needs, which include individualized problem-solving, priority setting, instruction, and action planning to affect behavior modification or environmental change. The expected impact of HBI services for the recipient is an improvement in their psychosocial issues with a subsequent positive impact on their overall health status and pregnancy outcomes.

Until FY10, Baby Love included the Maternal Outreach Worker (MOW) Program, but this program was discontinued in FY10 due to budget constraints. The MOW program was an enhancement to the Baby Love Program and the Child Service Coordination Program. MOWs offered outreach and support services through home visitation to Medicaid-eligible pregnant women and infants up to one year. This community-based program extended support to isolated and alienated women and children who did not typically receive preventive health services.

Electronic communication is used broadly to share information effectively and efficiently with local provider agencies. Utilization of the WHB website and list serve continues to improve communication between counties and the State central office. In addition, a statewide directory of MCCP provider agencies was recently updated and is used as a resource for referrals and networking. Web-based teleconferencing is currently being explored as a new avenue for providing provider updates and training.

A key factor in the smooth operation of the Baby Love Program is the relationship between DPH and DMA, North Carolina's Medicaid administration agency. A clear definition of the roles and responsibilities of the two Divisions supports effective technical assistance to local MCCP and HBI provider agencies. Additionally, collaboration between DPH and DMA on Baby Love Program policy and program issues is essential to ensure the effective implementation of services to meet the needs of North Carolina's pregnant women and infants.

A comprehensive evaluation of the Baby Love Program and its component services has been needed to demonstrate program activities and outcomes. Comprehensive evaluation-relevant data was made available beginning on July 1, 2007, through the implementation of two new data collection instruments, thus giving the program the potential to conduct new evaluation reviews. Plans are underway to utilize these data sets to improve programs and to build on successes and evidence-based case management practices.

Continuing increases in the population of non-Medicaid eligible women who access local health department care impacts the provision of support services for pregnant women and those with infants. Insufficient funding to provide MCCP and HBI services to non-Medicaid eligible women means that many non-Medicaid eligible women who present for care in provider agencies and are in need of services cannot access these services because there is no payer source. Medicaid reimbursement is currently the sole structured mechanism for covering the cost of these services. A small allocation of state and federal funds assists with providing prenatal case management services for a small percentage of the non-Medicaid population; however, no additional funding is available for HBI services. A sliding fee scale system has not been formally approved for these services.

SIDS Counseling and Information Program – This program serves NC parents and families who are affected by the unexpected death of their seemingly healthy infant, birth to 12 months age. All 100 counties in NC have a SIDS counselor located in their local public health department, or have a written agreement with another agency/counselor to provide counseling to SIDS families. The majority of counselors are nurses and social workers. Upon learning of a possible SIDS death, the counselor reports the death to the SIDS Program Manager in the WHB where a case is opened for the decedent child. The SIDS Program Manager facilitates communication with the family in writing, through sending a condolence letter, SIDS literature, and information about the services available from the SIDS Program. The counselors provide grief counseling, linkage to appropriate resources, and autopsy review with the family. A minimum of two home visits is recommended; however, four visits provide optimum service provision. Some families will desire a shorter or lengthier involvement with the SIDS counselor. These voluntary services are provided in the family's home, unless the family desires to meet at another location.

A major barrier to the SIDS Program is late reporting of possible SIDS deaths to the SIDS Program Manager, as this delays the provision of services to parents and families. First responders (Emergency Medical Services, medical examiners, police and hospitals) may contribute to this issue by not informing SIDS counselors of unexplained infant deaths. To reduce late reporting, SIDS counselors are strongly encouraged to form relationships with first responders and their vital statistics office, so they can learn of deaths in a timely manner. Additionally, SIDS counselors are encouraged to report these deaths to the SIDS Program Manager as soon as possible.

Minority Infant Mortality Reduction Efforts - The Healthy Beginnings (Minority Infant Mortality Reduction) Program was established in 1994 to provide funding to community-based organizations that developed programs to reduce infant mortality and low birth weight births among minority populations in North Carolina.

In an order to strengthen community-based efforts to address perinatal health disparities, and thereby improve birth outcomes among communities of color, the Targeted Infant Mortality Reduction program has merged with the Healthy Beginnings Program. Community based organizations and local health departments with experience working in minority communities would be eligible to apply for Healthy Beginnings funding.

Grant recipients are expected to implement programs that will impact the reduction of minority infant mortality and low birth weight births in their communities and thereby improve minority birth outcomes.

Specifically, funded agencies are expected to provide to minority pregnant women (or women within the 60 day post partum period):

- Case management/care coordination
- Health education and support - This includes education in the following areas: breastfeeding initiation and maintenance up to at least 6 weeks, eliminating use and exposure to tobacco, safe sleep, folic acid consumption, reproductive life planning, healthy weight and exercise.
- Ensure well child visits and proper immunizations for their babies
- Outreach
- And work with their male partners when applicable

Funding is available for 3 years, contingent upon performance. Between 10 and 14 sites are funded at an award level of \$75,000 to \$100,000 annually.

Baby Love Plus - The NC Baby Love Plus Program serves African American and Native American pregnant women enrolled in the Baby Love MCCP and receiving care at a project area local health department or pre-determined clinic. The NC Baby Love Plus Program is one of the federally funded Healthy Start infant mortality reduction projects designed to focus on eliminating racial disparities. While each of the programs is designed to serve a specific geographic region (Northeastern, Triad, or Eastern counties), they collectively serve pregnant and parenting families through the following core components: outreach, case management, interconceptional care, depression screening, strengthening perinatal systems of care, and local consortium development. The Northeastern Project also has a focus on the prevention of family violence during and around the time of pregnancy.

The NC Baby Love Plus Program partners with the local health departments for implementation of the program. Local health department staff members carry out the outreach and case management efforts. Local staff includes Community Health Advocates and Family Care Coordinators. Approximately 120,000 women are served through this program. The Baby Love Plus Program also subcontracts with community and faith-based organizations that provide support services and education to women of childbearing age (15-44 years), infants, fathers/male partners, and families in areas including health promotion, healthy life styles, parenting, safe sleep practices, and fatherhood development.

The major barriers to service delivery in the Baby Love Plus Program are due to the grant-funded nature of the project. While the funded amount seems sizeable, there are insufficient funds available to serve the total needs of the communities. This often means cutting in one area to save another area. In addition, the four-year grant period means that as headway is made with the program, the funding period is ending.

Despite these barriers, the outreach team has made an impressive number of outreach contacts with the vast majority of the contacts being primary contacts, African-American and Native American women of childbearing age. The local program staff is also able to connect women

with the systems of care, arranging transportation and childcare services as needed. Another major strength of this program is that education is provided to the general public (community participants), program participants, faith-based partners, and Health and Human Services staff around a variety of perinatal health and psychosocial issues.

Teen Pregnancy – In addition to family planning services for all women of childbearing ages, the FPRHU also manages the TPPI. The initiative, which was funded with state appropriation beginning in 1989, initially supported programs designed to prevent first pregnancies among high-risk youth in specifically targeted communities. A unique component of this program is a legislatively mandated requirement for funded programs to conduct outcome evaluations. Over time, results of the evaluations have enabled TPPI staff not only to identify "best practice" models in primary pregnancy prevention, but also be more prescriptive in their guidance to prospective and currently funded programs. In the FY11 application cycle, TPPI staff prescribed 9 best practice models. Applicants are strongly encouraged, though not required, to use the prescribed models. However, all TPPI projects are required to participate in an ongoing evaluation using a web-based system administered by the state Office of Information Technology Services.

TPPI is designed to prevent adolescent pregnancy and support teen parents through grants to community agencies for local interventions, including family life education, youth development programs, parent workshops, community awareness campaigns, male involvement efforts and support services. Program coordinators provide case management, counseling, parenting skills training, peer groups and advocacy to teens 17 years of age or younger, who are either pregnant or parenting for the first time.

Through 53 Adolescent Parenting Programs (APP) and Adolescent Pregnancy Prevention Programs (APPP) in 38 of the 100 North Carolina counties, less than 1% (approximately 6,000) of young people between the ages of 10 and 18 in the state is currently being served. There continues to be great need for teen pregnancy prevention and teen parenting programs in North Carolina. Additional funding is needed to expand primary and secondary pregnancy prevention programs to more young people and more counties across the state.

In response to the rapidly growing Hispanic/Latino population in the State, the TPPI program continues to seek additional funding to support Hispanic/Latino teen pregnancy prevention initiatives. In FY06, the TPPI program implemented an Annie E. Casey initiative Plain Talk. A request for application issued in the fall of 2004 resulted in one proposal selected for funding. Plain Talk (*Hablando Claro*) is a neighborhood-based initiative aimed at helping adults, parents and community leaders develop the skills and tools they need to communicate effectively with young people about reducing adolescent sexual risk-taking. Additionally, ¡Cuidate! (Take Care of Yourself), a primary prevention model aimed at reducing sexual risk among Latino youth, is among the science-based best practice models recommended by TPPI for the FY11 funding cycle. TPPI is able to address ethnic and racial disparities by collaborating with private foundations, federal grantees agencies, local government, and local Hispanic advocacy groups to support initiatives that address the reduction of unintended teen pregnancies among Hispanic/Latino teens.

Inadequate transportation continues to be the most frequent barrier to services stated by agencies resulting in fewer participants who are able to consistently participate. Consequently, there remains a gap between the teens who need to be served and the number who ultimately benefit from teen pregnancy prevention programs. Another gap is not directly related to a service provided but rather family units and their cyclical behaviors and beliefs. This has been widely written about in journals. An increasing number of families are living below the level of poverty due to single parent homes, fatherless homes, single income earners, and unplanned pregnancies. According to national pregnancy prevention advocates, this problem persists even though the average teen pregnancy rate of the US continues to fall. What is most difficult is assessing how to reach families caught up in cyclical and intergenerational behaviors that are living below the federal level of poverty. More prevention and education is needed to address these cyclical and intergenerational realities.

One of the priority recommendations made by the NCIOM Task Force on Adolescent Health was to expand Teen Pregnancy and STD Prevention Programs and social marketing campaigns. (Recommendation 9.3) The Task Force suggested that the NC General Assembly appropriate \$5.9 million in recurring funds to NCDPH to develop and disseminate an unintended pregnancy prevention campaign, expand the TPPI, and expand the *Get Real. Get Tested* Campaign for HIV prevention to include other STDs and reach more adolescents.

4. *Population-Based Services*

Pregnancy-related deaths - As described in the health status assessment, NC is fortunate to have an enhanced surveillance system for pregnancy-related deaths. While more work could be done to publicize the findings from this system, there are many services provided to women during pregnancy to try to help prevent pregnancy-related deaths.

Mortality - The leading causes of death for women in North Carolina in 2007 include heart disease, cancer and cerebrovascular disease. The WHB is fortunate to be able to work closely with employees from other branches and sections with the DPH to help prevent premature mortality and morbidity from these causes in women. Several branches with which the staff of the WHB collaborates include: IVPB, Diabetes Branch, PAN Branch, NSB, IB, C&Y Branch, HIV/STD Prevention and Care, Cancer Prevention and Control, and Heart Disease and Stroke Prevention. There are committees and workgroups that include staff from various branches that work hard to enhance communication regarding the work being done by each group.

There are several specific activities which have helped increase the Section's capacity to prevent the leading causes of death in women. One is that the IVPB developed a state and local public health response to violence against women by joining with the WHB to lead a Public Health Alliance to Prevent Violence against Women Violence. This combined effort resulted in the 2004 release of "Responding to Violence against Women: A Guide for Local Health Departments," as well as a series of trainings around the state for LHD staff and community partners. The guide and trainings focused on screening and appropriate response to violence experienced by clients and ways the local health department staff and partner agencies can lead or participate on community wide prevention efforts. Current efforts at the IVPB are focused specifically on the primary prevention of sexual and intimate partner violence. The IVPB

administers funding to 14 local rape crisis centers and other community agencies to provide primary prevention strategies and to mobilize their communities to prevent sexual violence. In addition, the IVPB is leading a state capacity building project called EMPOWER that brings together state and local stakeholders to develop, implement, and evaluate a state plan to prevent sexual violence. Staff in the IVPB also serve on a sister project named DELTA, which is led by the NC Coalition against Domestic Violence. The DELTA Project convenes a group of state and local stakeholders to develop, implement, and evaluate a state plan to prevent intimate partner violence.

The NC Council for Women/Domestic Violence Commission distributes state funding to local programs in all 100 counties for victims of domestic violence and to the North Carolina Coalition against Domestic Violence which provides technical assistance to the programs. In addition, the Council funds seventy-five local county programs for victims of sexual assault and to the North Carolina Coalition against Sexual Assault which provides technical assistance to these programs. Each local county domestic violence program provides a 24 hour confidential crisis hotline, crisis intervention services, referrals to other community resources as needed, emergency shelter or shelter referral, advocacy, counseling, and community education. While these efforts are extremely important to serve the needs of clients and to mobilize communities and state agencies to prevent violence against women, the burden of violence on the citizens of North Carolina continues. In addition to the people who receive services, many individuals do not seek out services due to fear, lack of transportation, lack of areas services, or other reasons.

The WHB is also helped by the work of the WISEWOMAN Project, which is coordinated in the Cancer Prevention and Control Branch. Monitoring key risk factors, exercising, and practicing healthy nutritional habits can affect the patterns and occurrence of cardiovascular disease. In 1995, the Centers for Disease Control and Prevention (CDC) funded this demonstration project in 3 states including North Carolina. The purpose was to screen the Breast and Cervical Cancer Control Program (BCCCP) priority population for the risk factors associated with cardiovascular disease and to analyze the effects of exercise and nutrition on those BCCCP women. Today, the project is active in 48 counties across the state and consists of screening tests for blood pressure, total cholesterol including high-density lipoprotein and blood glucose or hemoglobin A1C. Those BCCCP women determined to be at risk are provided with specially developed nutrition, exercise, and smoking cessation interventions.

Another strong collaboration which may help in the prevention of the deaths of women is between the WCHS and UNC's Center for Women's Health Research, within the UNC School of Medicine. Every other year the Center pulls together a workgroup which includes staff from the WCHS to produce the Women's Health Report Card. Other collaborators include staff from the N.C. Office of Disability and Health, NCDHHS, UNC School of Medicine, UNC School of Public Health, UNC Cecil G. Sheps for Health Care Research, NC SCHS and NC AHEC. This report card is used as an advocacy tool to increase awareness of the health status of women in NC. The most recent report card was released in April 2009. For a copy of the 2009 report card, access the following url: http://www.cwhr.unc.edu/pdf/2009_RC_Eng.pdf

Nutrition - In 2001, of the 12.8 million women aged 18 and older living with incomes below the Federal poverty level, those aged 18 –24 were most likely to be poor. Women heading

households with no spouse had the highest rates of poverty. Furthermore, the most recent Food Insecurity and Hunger by State study highlighted NC as the only state to show a statistically significant increase in the prevalence of food insecurity with hunger when comparing average rates for the years 1996-98 to the years 2001-03. (Nord et al. 2004, 56)

The lack of focus on community food security ignores the poor access and affordability of healthy food for these women. Several recent studies show that in low income neighborhoods there is less access to quality fruits and vegetables, more overpriced staple food items like milk and cereal, and more fast food establishments providing high fat, high salt, highly processed food at a low cost to an already vulnerable population for chronic diseases. Furthermore, there is a lack of community gardens, which could help people in low-income neighborhoods become more self-sufficient, learn to grow food and prepare it, introduce fresh fruit and vegetables to their children, and engage in neighborhood development.

The United States Department of Agriculture (USDA) Economic Research Service has shown that education has more of an effect on fruit and vegetable purchases than does income. The WCHS coordinates NC WIC Program, which provides supplemental nutritious foods, nutrition education, breastfeeding support, and referrals to health care and community resources. The WIC Program encourages families to move toward better health by promoting these healthy habits:

- Breastfeed your baby
- Increase fiber
- Lower the fat
- Eat more fruits and vegetables
- Eat more whole grains
- Drink less juice and sweetened beverages
- Make family meals matter

The North Carolina WIC Program currently serves more than 270,000 participants each month. WIC participation is for a limited time and is applicable only to those with certain medical issues.

On October 1, 2009, a new WIC food package was introduced in North Carolina which includes healthier food choices, including more fruits and vegetables. The new foods included in the package are intended to: 1) reduce the prevalence of inadequate and excessive nutrient intakes in participants; 2) contribute to an overall dietary pattern consistent with the *2005 Dietary Guidelines for Americans*; 3) contribute to an overall diet that is consistent with established dietary recommendations for infants and children less than two years of age, including encouragement and support for breastfeeding; 4) be suitable for low-income persons who may have limited transportation, storage and cooking facilities; 5) be readily acceptable, widely available and commonly consumed; 6) consider cultural food preferences; 7) provide incentives for families to participate in the WIC program; and 8) consider the impact that changes will have on vendors and WIC agencies. The changes in the WIC food packages have the potential for improving the nutrition and health of North Carolina's low-income pregnant women, new mothers, infants and young children.

WCHS branches also work in partnership with the PAN Branch and others to promote fruit and vegetable intake and the establishment of policies, practices and environments in schools, worksites and communities at large that support healthy eating. Such efforts include but are not limited to the work of the NC Fruits and Veggies Nutrition Coalition, the NC Farm to Fork Initiative, the 21st Century Farmers' Market Program (equipping farmers' markets to accept payment via Electronic Benefits Transfer), and the USDA Fresh Fruit and Vegetable Program (providing fresh fruits and vegetables to 62 schools in North Carolina). There is also a statewide community garden workgroup coordinated by the DPH and the North Carolina Cooperative Extension. Through these and other efforts, the Division works with other state agencies, local health departments, community based organizations, and others to address local food system and access issues.

The epidemic of overweight and obesity comes with increasing rates for many known health risks such as diabetes and hypertension. For women of reproductive age, overweight and obesity contribute additional negative health consequences. Historically, the focus has been on low pre-gravid weight and inadequate weight gain during pregnancy as it is associated with poor birth outcomes. With even more women overweight and obese and with more and more health risks associated for mother and baby as a result, the focus may need to shift in order to meet the demands of this new health crisis. In order to ascertain the woman's weight category, her BMI should be calculated in order to classify services she may benefit from and those for which she is in need. Ideally, BMI data should be collected for all women of childbearing age so that health promotion programs can focus on weight prior to pregnancy, as well as appropriate weight gain during pregnancy and postpartum weight and weight retention. Currently, most programs collect weight gains at various times, but the data are not put into any electronic reporting system; therefore, they are only available as raw data within that local facility. A comprehensive collection of BMI in electronic form for women seeking all services, not just pregnant women, would allow a better picture of the physical health women in the state.

Public and private health care providers in family planning and maternal health must translate a patient's weight for height to BMI to properly assess their weight status. Weight management counseling must then be offered (and/or appropriate resources identified and referred to) for women who are underweight or overweight prior to pregnancy, pregnant women who gain outside of the IOM guidelines, and women who are overweight following pregnancy or between pregnancies.

To treat overweight and obesity, both environmental and individual responsibility issues need to be addressed. In 2006, the ESMM North Carolina Leadership Team developed an obesity prevention plan for North Carolina called *Eat Smart, Move More: North Carolina's Plan to Prevent Overweight, Obesity and Related Chronic Diseases*. However, all DPH sections need to be familiar with and incorporate activities of the NC obesity prevention plan for addressing the increasing rates of overweight and obesity in North Carolina if significant progress in reversing this trend is to be made.

Most people in North Carolina do not eat the recommended servings of fruit and vegetables each day. Optimum fruit and vegetable intake often reflects an adequate overall diet and correlates with better weight status. Encouraging increased fruit and vegetable consumption is also an easy

and positive nutrition message to promote. The PAN Branch coordinates the North Carolina Fruits and Veggies Nutrition Program. This program has developed a strategic plan that identifies priorities and activities for the fruit and vegetable grower, grocer, consumer, health care provider, teacher, etc. to promote fruit and vegetable availability and intake. The PAN Branch also developed the strategic plan for addressing overweight and obesity which includes components that highlight fruit and vegetable consumption as part of a healthy diet. All sections in DPH need to be familiar with the Fruits and Veggies Nutrition program and incorporate such messages whenever improving dietary habits for good or better health is the goal. The WHB is planning looking into more effective messages for women before pregnancy and better training for young mothers so that they maintain healthy lifestyles after the pregnancy, for better breastfeeding, as well as to continue throughout their lives.

Adequate folic acid intake prior to pregnancy is known to decrease the risk of NTDs. The WHB has been instrumental in promoting folic acid intake through various programs, campaigns and activities to women of childbearing age. It must now expand that message and promote multivitamin use for good health to reach a younger audience. These young women are the least likely to take a multivitamin supplement and ignore messages about folic acid and NTD if they are not considering pregnancy (despite the fact that almost half of pregnancies are unplanned). Additionally, given their generally poor diet, it is suspected that multivitamins will provide other essential nutrients that these women may be lacking. The WHB has the capacity to promote this message in all programs that reach women of reproductive age.

In August 2009 the NC General Assembly passed SB374/HB523 which provided funding for the statewide distribution of multivitamins with folic acid to low income women of childbearing age through the health departments and other safety net providers. The legislation provides \$480,000 to implement a multivitamin distribution program. The program will include: the purchase and distribution of multivitamins to low income non-pregnant women of childbearing potential, training for local health department and community health center staff, and technical assistance for participating agencies as they set up this program. All components of the program will be funded with the allotted \$480,000 for FY 09-10 and all qualified women wishing to participate in the program will be served. Program details are as follows:

- Any low income non-pregnant woman of childbearing potential is eligible to receive a free six-month supply of multivitamins with folic acid from a participating health agency.
- Agencies may distribute multivitamins via any appropriate setting (for example: WIC, family planning clinics, home visiting programs, front desk, etc.) as long as the multivitamins are distributed as part of a brief face-to-face educational encounter with a trained staff member.
- Patients do not have to be registered with the agency to receive the multivitamins.
- A Multivitamin Coordinator will be designated for each agency and staff will be trained to provide brief patient education along with the multivitamins and maintain an issuance log.

Breastfeeding - It is widely known that breastfeeding is healthiest for mother and baby. The WCHS is generally responsible for encouraging and promoting breastfeeding initiation, duration, and exclusivity in NC. The NSB coordinates the WIC Program that identifies breastfeeding as a priority and mandates education of clients. Additional funds are also utilized for breastfeeding peer counseling programs, continuing education in lactation for health care professionals, and for the purchase of breast pumps and supplies for WIC mothers. NSB and WHB have worked

together to build infrastructure for breastfeeding support using the perinatal region concept for delivery of services and training. A state plan of action entitled, *"Promoting, Protecting and Supporting Breastfeeding a North Carolina Blueprint for Action"* was released in late 2006. Since that time the NSB has worked with other partners within WCHS and DPH, the NC Child Fatality Task Force, the North Carolina Breastfeeding Coalition, and other community stakeholders to help implement strategies outlined in the state plan and identify gaps. The WCHS will be leading the effort (in collaboration with the NC Hospital Association) to develop and implement a voluntary hospital-based awards program for NC hospitals striving to become breastfeeding friendly

The DPH Breastfeeding Workgroup (originally comprised of participants from the NSB and the PAN Branch) has recently expanded to include representation from the WHB and the C&Y Branch.

A WHB Breastfeeding Workgroup has recently been organized and serves to:

- Share NC breastfeeding initiative updates with WHB
- Provide a networking opportunity for WHB staff to discuss breastfeeding promotion in their programs
- Identify gaps in WHB programs where breastfeeding messages/trainings can be included
- Identify consistent messaging for BF promotion in WHB programs

The FY10 WIC Breastfeeding Promotion & Support Perinatal Mini-Grant recipients will use the \$12,000 in each perinatal region to develop breastfeeding friendly workplace initiatives and provide region-specific continuing education in lactation to medical professionals. For the past two years, the recipients of these grants have worked closely with the Perinatal Outreach Program Coordinators to implement these grants, so this is another area where this resource will be missed.

The North Carolina Breastfeeding Coalition was one of ten agencies selected for the 2009-10 Business Case for Breastfeeding Train the Trainer Event sponsored by the US DHHS, Health Resources and Services Administration (HRSA), and MCHB. The Train the Trainer event is an interactive 2-day training experience designed to equip health care professionals, breastfeeding educators, and community educators and advocates with strategies to improve workplace support for employed breastfeeding women.

A new resource from Eat Smart Move More NC was released in 2009. *Businesses Leading the Way in Support of Breastfeeding* is a planning and resource primer for employers looking for suggestions to become a breastfeeding-friendly worksite or business. It can be used in a variety of worksite settings including private & non-profit businesses, faith based organizations, schools, and government agencies as well as community organizations.

Additionally, DPH is developing a Hospital Awards Program, a concept recently endorsed by the NC Hospital Association, to encourage breastfeeding friendly policies and activities in North Carolina hospitals. First applications will be accepted for review in January 2011. The Health & Wellness Trust Fund has \$200,000 for a Breastfeeding Awareness Media Campaign and will target Northeastern NC where breastfeeding rates are lowest. The North Carolina Lactation

Educator Training Program is offered twice per year twice per year in collaboration with Northwest AHEC, Wake Forest University Medical School, Novant Health Care, Forsyth County Health Department and the Nutrition Services Branch. It is the only International Lactation Consultant Association accredited course in the state.

Maternal Smoking - It is estimated that if women stopped smoking, 11% of low weight births and prematurity could be eliminated. (ACOG, Education Bulletin No. 260, 2000) Cigarette smoking during pregnancy is the number one preventable risk factor for low birth weight and infant mortality. Smoking during pregnancy is associated with poor health outcomes, such as low birth weight, premature birth, growth retardation, and SIDS. (Yu et al. 2002)

The WHB has contracted with all local health departments to screen pregnant women for tobacco smoking. Women who admit smoking are encouraged to quit and are referred to the proactive NC Tobacco Use Quitline (1-800-QUIT-NOW). The objective is to reduce tobacco smoking among pregnant women.

In large measure, tobacco cessation education training has been provided through the Perinatal Outreach Coordination Program, which was discontinued in November 2009 due to budget cuts. The Perinatal Outreach Coordinators provided training and continuing education programs to health care providers in a variety of areas related to perinatal and neonatal health. The Perinatal Outreach Coordination Program's tobacco cessation intervention training program was developed to assist and provide a best practice approach to tobacco cessation education program to local county health departments and perinatal health care providers throughout the community.

The Perinatal Outreach Coordination Program smoking cessation intervention training program utilized the 5A's best practice approach - Ask, Advise, Assess, Assist and Arrange. The importance is to ask the women about smoking at every visit and to document their smoking status. In addition, it is important to provide clear strong advice to quit smoking and discuss health benefits of quitting and the health risk of smoking; to assess their willingness to quit smoking and provide motivational interventions (rewards, risks, roadblocks, relevance and repetition); and assist with providing educational and self-help materials, setting a quit date and developing a quit plan, discussing triggers, coping strategies and providing support networks. Additional steps are arranging for follow-up or the next appointment, contacting women on or near their quit date, and repeating cessation advice for women who continue to smoke. This best practice approach is currently being implemented in all local health departments and throughout much of the medical community.

During FY09, the Perinatal Outreach Coordinators conducted 13 tobacco cessation counseling specific trainings. Tobacco cessation was a training emphasis in 23 other educational sessions.

To further support the 5A's tobacco cessation counseling efforts, local health departments were provided with the updated 2008 *Guide for Counseling Women Who Smoke* and the companion *Counseling From The Heart* video. The Guide supports the 5A's best practice model, which has been proven to be the most effective approach to tobacco cessation counseling. The Guide includes sections on Secondhand Smoke, Smokeless Tobacco, Counseling through the Lifespan,

Cultural Perspectives of Counseling, and Pharmacotherapy along with and other resources to aid the counseling efforts. The video includes the 5A's method of counseling and tips for counseling through the reproductive lifespan. Both the Guide and video are available on the web.

In addition to the Perinatal Outreach Coordination Program, there are several resource programs in the state that offer smoking intervention programs. The NC Tobacco Prevention and Control Branch (TPCB) works closely with the WHB to build capacity of diverse organizations and communities to carry out effective, culturally appropriate strategies to reduce deaths and health problems due to tobacco use and secondhand smoke, especially in families with infants, young children, and pregnant women.

Additional smoking cessation activities that are underway in North Carolina include:

- StepUpNC: The NCDHHS has developed a web site designed for teens so that they can learn about the perils of smoking, find out how to quit, become an activist, or see what other teens around NC are doing about tobacco. Youngest mothers have a higher percentage of smoking than any other group; therefore working with teens to prevent smoking initiation is a high priority.
- Smoke-Free Families: This is a national program supported by the Robert Wood Johnson Foundation working to discover the best ways to help pregnant smokers quit and to spread the word about effective, evidence-based treatments.
- Other organizations that provide services to women smoking during pregnancy are Quit Now NC, FISH Project, NC Group to Alleviate Smoking Pollution, Inc., NCHSF, NC Prevention Partners, Women's Health: Intervention for Smoking Cessation, and Women and Tobacco Coalition for Health (WATCH).
- The WHB partnered with Northwest AHEC to update their online tobacco cessation training program, Counseling for Change. The updates include linking the training with *Guide for Counseling Women Who Smoke* and the companion *Counseling From The Heart* video.

In the LHDs, many different approaches are being used. Programs commonly employed are: 5 A's, Families in Smoke-free Households, ASSIST, Breath of Fresh Air, Freedom From Smoking, Great American Smokeout, and Question Why Youth Programs. Despite the known hazards of smoking, there is no systematic state-supported mechanism for counseling and support for persons who wish to stop smoking. As a result, counties have varying abilities to provide smoking cessation services. The WHB, in conjunction with the C&Y Branch and the TPCB, is field testing a tobacco cessation counseling and documentation form.

One of the largest changes in the capacity of low-income women to access counseling and drugs for smoking cessation is expansion of Medicaid rules to allow payment for counseling and nicotine replacement therapy and some prescription drugs.

One of the recommendations included in the NCIOM *Prevention Action Plan* is to increase North Carolina tobacco taxes (Recommendation 3.2). North Carolina increased the cigarette tax from 5 cents to 35 cents per pack and other tobacco products tax from 3% to 10% of wholesale price in 2005. In 2006, there was an 18% decline in consumption and a \$110 million increase in state resources as a result of the cigarette tax increase. In 2009, the cigarette tax increased to 45

cents; the 10 cent increase was not enough to impact smoking rates but does raise revenue. The NCIOM recommendation is to increase the cigarette tax to the national average (\$1.34/pack).

Outreach & Education Campaigns - The WCHS oversees many outreach and education campaigns with local agencies that promote maternal and infant health and related services conducted in partnership with the NCHSF. These campaigns use the Title V hotline as a referral point and to manage requests for more information on topics and applications for services. These campaigns include the *First Step Campaign* which emphasizes women's health and lifestyle choices between pregnancies while maintaining a strong emphasis on having a healthy pregnancy. The *Minority Infant Reduction Campaign* addresses infant mortality reduction strategies and behaviors for African American and American Indian individuals, organizations and community groups. The *Ana Maria Latino Campaign* increases awareness of women's health services among North Carolina's Spanish speaking community and use of the bilingual NC Family Health Resource Line. The *Infant Safe Sleep Campaign* promotes safe sleep positioning and other SIDS risk factors. The *Health Check/NC Health Choice Campaign* provides effective and consistent messaging and materials that increase awareness and enrollment in Health Check and NC Health Choice in the state and ensures that enrolled children re-enroll in a timely manner each year. The *Medical Home Campaign* increases awareness and importance of parents establishing a Medical Home for their children. NC's Family Planning Waiver program, *Be Smart, Be Ready*, is intended to reduce unplanned pregnancies and improve reproductive health care so that ultimately North Carolina babies will get a better start in life. The campaign involves development, production and distribution of educational and promotional information for men and women who may be eligible for the Family Planning Waiver.

Although WHB is developing and promoting outreach campaigns to reach priority populations in an effort to help eliminate health disparities in our infant mortality rates, there is still a need to continue to analyze and possibly redesign some of these approaches as information on what works and what does not work in each priority population is acquired.

North Carolina's Preconception Health Initiative - Leaders from the NC DPH have collaborated in guiding North Carolina's Preconception Health Initiative since January 2007. Partners in this initiative include over 80 representatives from the DPH, DPI, LHDs, public and private universities, NCDHHS, community based organizations, non-profit agencies and consumers. The two current priority areas of the state's strategic plan are promotion of pregnancy intendedness and healthy weight. The North Carolina Preconception Health Strategic Plan was released in November 2008 after extensive research into qualitative and quantitative data related to the health of women of childbearing age in North Carolina and efforts by workgroups involved in this initiative. There are 4 workgroups that continue to implement action steps that include increasing consumer, provider, policy maker and public awareness and knowledge of preconception health. The state's efforts are targeted towards ensuring that community support services, the health care system and environments supporting healthy living are more accessible, comprehensive and cost-effective.

The WCHS currently coordinates preconception health grant funding provided by MCHB. This grant focuses on a social marketing campaign, increasing utilization of the Title V hotline and training of health care providers, community outreach workers, and faith-based communities.

However this grant is only for a two-year period and the funding available limits the activities to very small area of the state. Continued funding is needed on a more state-wide basis to help promote the health of both men and women of childbearing age in an effort to better their health and to improve birth outcomes. Many health departments and local agencies are interested in implementing programs that will improve the health of men and women of childbearing age.

Communicable Disease- North Carolina's 76 prenatal clinics have a set of state-mandated requirements based on Public Health Law, ACOG Guidelines and Best Practices. For communicable diseases, women are required to be tested for syphilis, gonorrhea, Chlamydia and HIV. Annual site visits are conducted to assure that LHDs are using the proper procedures in medical care, education, high risk identification, counseling and identification of women for maternity care coordination, documentation, and reporting.

In North Carolina, HIV/STD testing is available at all local health departments and a number of community-based organizations. This testing program is known as the Counseling and Testing System (CTS), in reference to the data management system used for the collection and analysis of the data. Since the level of risk-taking behaviors is an essential component of identifying "who is at greatest risk" and may vary significantly from community to community, it is important for members of each community to be involved in designing and implementing HIV/STD prevention and care programs. The daily work of HIV/STD partner notification, community-based outreach encounters and surveillance activities is the foundation and focus of HIV/STD intervention activities. In addition, all persons who need HIV/STD care services deserve rapid referral to high quality care.

In 1997, the NC Commission for Health Services ruled that anonymous testing would be discontinued. Because of this ruling, the HIV/STD Branch implemented procedures to make HIV testing available in nontraditional settings. Nontraditional HIV test sites (NTS) operate as either stand-alone test sites that deliver HIV testing in non-routine settings and times through a CBO or LHD, or are physically located in a health department but have hours of operation other than the normal working hours for the health department. Traditional test sites are predominantly LHDs and some CBOs. Funding for primary medical care and support services for HIV/AIDS comes primarily through federal sources – Ryan White, Titles I-IV, etc. In 1999, the CDC received \$10 million from the U.S. Congress to fund perinatal HIV elimination efforts. These funds were distributed to various states and local health departments to fund prevention efforts, enhanced perinatal surveillance, and professional education/training. NC is funded as an enhanced perinatal surveillance site.

In addition to HIV/AIDS, 18 other sexually transmitted conditions are reportable to NCDHHS. Cases of syphilis (8 possible stages), gonorrhea, chancroid, and granuloma inguinale must be reported to local health departments within 24 hours of diagnosis. Lab-confirmed Chlamydia, lymphogranuloma venereum, nongonococcal urethritis and pelvic inflammatory disease (due to any cause, usually gonorrhea or Chlamydia, females only) must be reported within seven days. Hepatitis A and B can be transmitted through sexual contact, but the HIV/STD Prevention & Care Branch does not provide surveillance for those reports. Acute cases are reportable within 24 hours to the local health department and statewide surveillance is directed by the Communicable Disease Branch.

The NC Syphilis Elimination Project began in 1998 when 28 counties were identified as reporting more than 50% of the nation's morbidity for infectious syphilis. North Carolina was the only state with five counties (Forsyth, Guilford, Mecklenburg, Robeson and Wake) on that list. In addition Durham County was also funded. Each county has a local coordinator, has convened a community task force and conducted a Rapid Ethnographic Community Assessment Process, which was used in the development of local plans to eliminate syphilis. Some of the local plans include weekly outreach and education involvement, establishing or enhancing jail screening programs, creating condom distribution centers and social marketing. The Elimination Project strives to reduce primary and secondary syphilis through community involvement, surveillance, rapid outbreak response, and health promotion.

Family Planning - The FPRHU continues to provide comprehensive family planning services through a network of approximately 140 service sites throughout the state, which include all local health departments, as well as some community health centers and Planned Parenthood affiliates. Title X of the Public Health Service Act, Medicaid reimbursements, patient fee collections, and State and local appropriations comprise the funding sources for clinical and administrative services.

In CY08, these clinics served 138,723 unduplicated patients, a modest .5% increase from the previous year's total of 138,076 (FPAR 2009). Over the past three years the trend in patient numbers had been declining slightly. As a response to this declining patient numbers, FPRHU staff, and Regional Nurse Consultant Staff conducted a series of Key Informant Interviews of 26 local agencies which had significant declines in patient numbers in the past three years, as well as four local agencies that have been able to maintain, or increase their patient enrollment over the same period. Data from the Key Informant Interviews were used to re-establish a special initiative project beginning in FY08, with modest additional funding to the 26 local agencies. The project is designed specifically to increase patient numbers through particular activities identified by the local funded agencies in the interviews.

In addition to the special initiative project funding, the FPRHU continued to employ a performance based funding strategy in distributing additional funds in FY09 which rewarded health departments "bonus" funds commensurate with long term and short term patient increases. In addition to this new funding scheme, there is a greater emphasis in the monitoring of process and outcome objectives specified in contracts with all local family planning providers. These outcome objectives include reducing unintended pregnancies and extending birth intervals.

In conjunction with the Division-wide accountability initiative, the FPRHU, as part of the WHB, participated in the development of logic models that address improvements in the health of women of childbearing age, and reductions in infant mortality. Towards this end, the Unit has adopted intermediate outcomes that specifically address reductions in unintended pregnancies and teen births, decreasing the percent of live births with short birth intervals, and increasing the proportion of females at risk of unintended pregnancies that are using the most effective contraceptive methods.

The FPRHU continues to implement the specific action steps prescribed for the Unit in the Division's Recommendations for Eliminating Health Disparities. Included in these action steps is also the reduction of unintended pregnancies in the minority populations.

In cooperation with staff from DMA, the FPRHU is currently in the fifth year of implementation of an 1115(a) demonstration waiver. The Medicaid waiver extends eligibility for family planning services to all women age 19-55, and men age 19-60, with incomes at or below 185% of the federal poverty level regardless of receipt of previous Medicaid reimbursed service (pregnancy-related or otherwise). The major goal of the waiver is to reduce unintended pregnancies and improve the well being of children and families in North Carolina. Among several objectives, two specifically target reductions in the number of inadequately spaced pregnancies and in the number of unintended and unwanted pregnancies among women eligible for Medicaid. Under the new Affordable Care Act, eligibility requirements for family planning services will be expanded, thus the waiver will no longer be needed.

The FPRHU is continuing to develop an internal capacity to apply social marketing principles to its programs, as well as provide consultation and technical assistance to local delegate agencies wishing to use this approach. These efforts are intended to further the goals of the program to prevent unintended pregnancies by enhancing the ability of local providers to recruit clients and provide outreach and education to the communities they serve.

The significant increase in the Hispanic/Latino population of the state continues to be a challenge for local maternal health and family planning clinics. To help meet this challenge, the FPRHU is continuing to fund and expand the Latino Family Planning Outreach Initiative with \$500,000 in special Title X funds, and to support special Latino Adolescent Pregnancy Prevention programs.

A recent reorganization of the Women's Health Regional Nurse Consultants facilitates the continuing implementation of the aforementioned Division wide accountability system. In addition, the new structure is designed to improve and streamline the provision of technical assistance and consultation to local grantee agencies related to the Medicaid waiver in particular, and family planning issues that impact on efficiency and cost effectiveness of clinical services. In addition, Regional Nurse Consultants will work closely with the four regional Women's Health Social Work Consultants to provide coordinated consultation to local agencies around family planning, maternal health, and infant mortality issues.

The introduction of new contraceptive methods, such as the transdermal contraceptive patch, new IUDs, and Implanon, and significant improvements to established methods such as the contraceptive ring, FemCap, and the intrauterine device, have greatly increased the contraceptive options available to women, thereby increasing the likelihood of a better contraceptive "fit". This, in turn, should increase contraceptive use continuation rates and reduce the likelihood of an unplanned pregnancy. There is also an increased emphasis in encouraging local agencies, as well as the Family Planning Waiver providers, to promote the use of long-acting reversible contraception. The distribution formula for the State supported Women's Health Service Funds, an additional source of local funding to purchase contraceptive supplies, is being revised incrementally to encourage local programs to promote the uses of long-acting reversible contraception.

However, the FPRHU continues to face a number of challenges not only in its current capacity to meet the existing needs, but also the emerging reproductive health care needs of an aging patient population. The percent of need met is a measure of how well the program is serving the estimated population in need, as defined by Title X. In 2006, approximately 504,160 women age 13-44 were in need of subsidized family planning services in NC. (Contraceptive Needs and Services, 2006, Alan Guttmacher Institute) For the past five years, the FPRHU has served, on average, less than half of all the women in need (38%), and less than a third (29%) of teens in need. (RNDMU, 2009, 64-65). While the Unit continues to implement a number of initiatives designed to increase patients served, the number of women in need has also increased commensurately, up by 8% since 2006. Modest funding increases in the past couple of years have not been enough to offset inflationary costs and the significant increases in the cost of contraceptives and lab supplies (thin Prep). The Medicaid waiver should enable local providers to reallocate “savings” in Title X funds for increased service capacity.

The aging of the patient population may pose unique challenges to the service capacity of the statewide family planning and maternal health programs. State population projections estimate that by year 2020, women age 40-44 will constitute the largest age group in the total female population. Whereas five years ago, the program did not serve a woman over age 44, recent population service data indicate that almost 2% of women served by the program are 44 years or older. Anecdotal data suggests that this percentage maybe undercounted because a number of local providers have recently passed local policies restricting family services to the <45 age group or referring these women to local Adult Health programs which may not adequately address their continuing reproductive health care needs. There seems to be a mistaken assumption among local agencies that women over age 44 no longer qualify for, or need, family planning services, perhaps because the traditional definition of women in need includes women between 13 to 44 years of age. Regardless, as the data show, women in this age group continue to seek “family planning” services especially from health departments in the poorer, coastal plain area of the state. At the national level, it may be necessary to explicitly redefine the upper age limit for family planning services, and revise the age criteria for eligibility, and the need formula, accordingly. Incidentally, the eligibility range for the NC Medicaid Waiver includes women age 19 to 55.

The risk factors for both mother and child in pregnancies with advanced maternal age are well documented. However, the increasing use of Assisted Reproductive Technology (ART) in these pregnancies may pose a new challenge to family planning and maternal health programs. Between 1996 and 2001, there was a 94% increase in infants conceived through ART in the United States. (Wright et al. 2004, 7) Demographic data indicate that the women who use ART are predominantly white, older, college educated, and higher income. They also tend to require more intensive prenatal care services and well baby care, suggesting overuse of health care resources that may not be reflective of their “true” medical risk status. More significantly, access to this technology seems to be limited only to those that can afford it. Thus, poor women may be denied the option to have the “personal choice in determining the number and spacing of their children,” contrary to the explicit language in the Title X legislation. As the female population ages, and later marriage and later childbearing become norms, the demand for this technology is expected to increase. Yet access for poor patients and the capacity of local maternal health and

family planning programs to provide this service will be very limited without a fundamental shift in federal funding for programs that reflect the emerging reproductive health care needs of an aging population.

Teen Pregnancy -In June 2009, the Healthy Youth Act, a new law that will significantly expand the requirements for reproductive health education in North Carolina public schools beginning in SY11, was passed. The revision of General Statute 115C-81(e1) requires all school systems to offer a reproductive health and safety education program to students in grades seven, eight, and nine that utilizes age appropriate and scientifically based materials. In addition to the focus on abstinence of the previous requirements, this instruction will include information about sexual assault and abuse, the prevention and transmission of sexually transmitted diseases (STDs), the effects of contracting the Human Papilloma Virus, and the effectiveness and safety of contraceptives for pregnancy and STD prevention.

A staff member of the FPRHU is serving on the Healthy Youth Act Collaborative (HYAC), which serves as a resource for DPI and the North Carolina Board of Education to support effective reproductive health and safety education through comprehensive health education instruction in the public schools of North Carolina. The HYAC will provide recommendations regarding science based approaches to reproductive health education, local board policies related to the new law, and opportunities for the professional development of local health educators who will be providing the instructions.

A recently implemented program policy which ensures the availability of emergency contraception in all local grantee agencies, and another policy which requires local staff to provide counseling to teens to prevent and avoid sexual coercion will also contribute to a reduction in unintended pregnancies, especially among teens.

5. Infrastructure-Building Services

North Carolina was one of the first states to implement a systematic biennial needs assessment process, now called Community Diagnosis. This process was a bottom-up assessment by the local agency, along with their partners, stakeholders, and clients, to evaluate problems and make plans to address the gaps in services. Over the years the program has changed slightly and has now merged with the Healthy Carolinians process. While the local capacity to assess and evaluate their problems and needs has grown over the years, it still is not as strong as it could be. Even on a state level, assessment is a process that is done, but the results may not be acted upon because of political or monetary restrictions.

Evaluation is an area that is sorely needed in many programs, but, due to the limitations of data collection systems and staff capacity, may not be carried out well. The change to the HIS system was described in the overarching capacity issues for WCHS portion of this document.

Within the WHB, there are five people who spend some portions of their time dedicated to program evaluation, planning and needs assessment. The Branch is lucky to have parts of some positions designated in this role, as most Branches have not identified persons to routinely perform these functions. In addition, the WHB has developed a Data Team, which seeks to

develop data tools for regional and state staff to assist them in evaluating their programs. Requests from regional staff have spurred the development of small data profiles that provide utilization of maternal health data by county over a 5-year span. While previous data products were more comprehensive, they were not used as much as the Data Team members had hoped. These smaller, more targeted data profiles have been welcomed as a replacement for TEACH (Tool for Evaluating and Assessing Community Health).

The state has excellent vital statistics data and a top-notch SCHS. These add to the quality of the assessments, planning, and evaluations done by the WHB and other public health agencies.

The WHB also has several Health Educators and a full-time training coordinator to provide training and support services for state staff, consultants, local health department staffs, and others health providers, such as our contracting agencies. Trainings are provided in such things as Domestic Violence Prevention, contraception, and cultural diversity and sensitivity.

In January 2008, the WHB Training Needs Assessment 2008-2009 was offered as an online survey for LHDs and CBOs which the Branch funds. Eighty-four out of eighty-five health departments responded to the survey representing a 99% response rate. Twenty-six out of seventy-eight CBOs responded to the survey for a 33% response rate. A total of 420 surveys were analyzed. The top ten training priorities for all disciplines (nursing, social work, nutrition, health education, management support, physician assistant, and midwife) and sites were:

1. Contraceptive Update
2. Improving Clinic Efficiency
3. Adolescent Health Promotion
4. Team Building Among Staff
5. Enhance Customer Service Skills
6. Writing Policies and Procedures
7. Administrative/Secretary Roles in Family Planning Services
8. Weight Management
9. Grant Writing and Fundraising
10. Community Advocacy to Promote Family Planning and Maternal Health Services

The WHB policies are based on adaptations of national best practice standards set by the United States Preventive Services Task Force, ACOG, and guided by Title X regulations. The Central Office Family Planning Nurse Consultant and the Maternal Health Nurse Consultant are charged with assuring that program issues and services impacting women's health are identified through monitoring nationally recognized best practices; and developing program and policy requirements in the Agreement Addendum for Family Planning and Maternal Health services. The Women's Health Regional Nurse Consultants are charged with assuring that the contracted sites have adopted these policies and are conducting their clinical/administrative services according to the mandated requirements/policies in the Agreement Addendum. These mechanisms assure that the most current policies and procedures are adopted as standards within the branch and incorporated into the contracts for local service providers.

D. Capacity Assessment for Children

Children in NC are served by a wide array of public and private programs to address health, social-emotional, childcare, school health, and developmental and educational needs. In addition to interventions and assistance provided to children and family members through state and local governmental agencies, private not for profit, religious, and other community-based organizations provide vital services across the state. Awareness of the need to provide strong linkages among these provider groups continues to grow and influence the bridging of services and funding efforts for children and families in North Carolina. Granting agencies are also restructuring their funding parameters to facilitate this type of service interaction and planning, which greatly influences the public, private, and community response to such efforts. Significant reorganization of delivery systems has occurred over the past several years in state government, including the mental health system, EI Branch, C&Y Branch, DSS, and others. Severe reductions in resources and a greater focus on outcomes of service programs (performance based focus) have shifted the traditional approaches to delivery models and increased awareness for the need to identify and implement evidence-based programs to better address and impact the needs of children and families.

1. Overarching Themes

School nurses - The work of school nurses cut across all four MCHB pyramid levels. Changing needs of students (e.g., technology, increasing numbers of children in pre-K through 12th grades with complex health problems) and changing social trends (e.g., working parents, immigrant/migrant families, homeless and uninsured children) have created challenges for families, health care providers, and schools. The effects of these changes can be addressed at least in part through health promotion activities directed toward reducing risk taking behaviors, treatment of acute illness and injury, management of chronic illnesses, and psychosocial assessment and supportive counseling, all of which can and should be available in a school setting. School health nurses are uniquely qualified to provide or oversee the provision of such services.

While a few new nurse positions are established in the state each year, the simultaneous increase in the number of students caused the ratios to plateau in the early 2000s. A 1:750 ratio has been recommended by the National Association of School Nurses and adopted as objectives of the US DHHS Healthy People 2010 and Healthy Carolinians 2010. The school nurse to student ratio during SY97 was 1:2,594. Through aggressive action by DPH, by SY09 the ratio had improved to 1:1,207.

In order to help increase the school nurse availability in NC counties, in July 2004, the NC General Assembly appropriated funds to establish 145 additional school health nurse positions across the state through the School Nurse Funding Initiative (SNFI). This included 80 permanent and 65 two-year positions. The legislation required that DPH and DPI provide funds to communities to hire school nurses based on need and local financial resources in order to move toward the recommended nurse-to-student ratios and to improve student health. In SFY06, the temporary positions became permanent positions, and in SFY07, a second allocation of state funding was established, bringing the total number of SNFI nurses to 212.

The SNFI may be used for full time employment of nationally certified school nurses or registered nurses working toward national certification to address specified outcome measures related to:

- Preventing and responding to communicable disease outbreaks;
- Developing and implementing plans for emergency medical assistance for students and staff;
- Supervising specialized clinical services and associated health teaching for students with chronic conditions and other special health needs;
- Providing oversight of medication administration and associated health teaching for other school staff who provide this service;
- Providing or arranging for routine health assessments, such as vision, hearing, or dental screening, and follow-up of referrals; and
- Assuring that mandated health-related activities are completed, i.e. Kindergarten Health Assessments, Occupational Safety and Health Administration requirements, etc.

In addition, there are six Regional School Nurse Consultants (RSNCs) in the WCHS, who, along with the state School Nurse Consultant, provide guidance, training, and support to these new school nurses in order to improve services to and outcomes for school children. Each of the school nurses under SNFI, regardless of years of service, develops an individual work plan that addresses the 6 major directives of the legislation creating those positions. Performance measures from the work activities of the 212 nurses are reflected in the SNFI Annual Report. The Annual Report addresses the overall progress toward meeting outcomes, detailing the activities and strategies utilized in 6 basic school health service areas. Several LEAs and health departments have adopted the work plan template for their non-SNFI school nurses as well, providing a statewide model for the work activities of school nurses.

In addition, the RSNCs continue to work within their regions to promote the development and expansion of school health services. They collaborate with representatives of other components of the Coordinated School Health Program such as teachers, school administrators, PTA members, students, community leaders, and state agencies and organizations. The RSNCs also collaborate with AHECs and the NC Institute for Public Health to plan, develop, implement and evaluate continuing education activities for school nurses statewide, including an Annual School Nurse Conference. Regional and state school nurse consultants conduct site visits of school based health centers and review sections of the credentialing assessments. Workshops on Case Management, Pediatric Physical Assessment, Orientation for New School Nurses, Managing Asthma Triggers, School Nurse Certification Review, and other topics are offered to school nurses across the state.

The RSNCs continue to assess the quality indicators for school nurses including the number and percent of school nurses who are nationally certified in school nursing and who hold advanced degrees. School nurses will be asked to gather outcome data on their activities, beginning with benchmarks during school year 2009-2010. These data will be included in future NC Annual School Health Services reports and the outcomes, along with other information, will be analyzed and used to identify trends in student needs and service delivery and to support recommendations for improving the student to school nurse ratio, a priority goal of DPH. The successful implementation of any legislative action for that goal will be a key activity in the following year. School nurses are also developing instruments that will assess the impact of their services on

school children and families. The instruments to be adopted will be those that identify strengths and weaknesses and opportunities for improving the delivery of services to children and families, and will offer feedback on the level of satisfaction that school children and their families have with the school health services and programs.

2. Direct Health Care Services

Local Health Department Services - According to the Local Health Department Staffing and Services Summary survey conducted in 2007, well child health services are provided at 76 of the 85 local health departments in North Carolina. Regional child health nurse consultants provide technical assistance and consultation to health departments across the state to help assure consistency and quality in service delivery; the consultants are also responsible for a monitoring system, which focuses on quality assurance. Regional audiology, speech, physical therapy, school health nurses and genetic consultants are also available to health department staff to improve and expand service delivery. A minority outreach specialist who is bilingual (English/Spanish) is also available to health departments to improve services for the increasing Hispanic population across the state. The breakdown of types of services by the number of health departments offering services is found in Table 59.

Table 59
Child Health Services offered in Local Health Departments in NC, 2007

Type of Child Health Service	# Of LHDs offering service	% Of all 85 LHDs
Well-Child Services	76	89
Genetic Services	25	29
Services to Developmentally Disabled Children	27	32
Child Service Coordination	85	100
Adolescent Health Services	59	69
School Health Services	44	52
Lead Poisoning Prevention	75	88
WIC Services - Children	80	94
Immunizations	85	100
Newborn Home Visiting Services	81	95
Behavioral Health Services	24	28
CSHCN Services	29	34

Source: LHD Staffing and Services Summary for FY07, April 2008, NC SCHS

Genetic Counseling - The genetic counseling program focuses on consultation, education, diagnostic testing, counseling, and family support related to various genetic conditions. Recent program activities have included the provision of genetic counseling in satellite clinics, an expansion of consultation services to families and private/public providers, creation and distribution of satisfaction surveys, and the development of on-line training through webinars. With the hiring of a sixth genetic counselor in the fall of 2009, the DPH genetic counseling team is again complete. Because genetic disorders affect the whole family, the regional genetic

counselors may have several interactions with families regarding the evaluation process and the types of genetic testing available. Families may be seen at the home, the CDSA, or LHD.

During the last five years, the regional genetic counselors have continued to increase their educational efforts directed toward health care professional and community groups. More than 25 PowerPoint presentations have been developed for the purpose of expanding genetics education and program awareness. These talks are now presented over the internet with continuing education credits available. New topics include *A Family Pedigree* and *46 Chromosomes*. In 2007, both the English and Spanish versions of the Genetic Services brochures were updated. These brochures are distributed to health care providers across the state and are now located on the C&Y Branch website for easy access and individual printing. An insert in these brochures lists the NC Genetic Counseling providers across the state.

In January 2010, the lead genetic counselor assumed the responsibility for direct supervision of the Genetic Counseling Program and staff while retaining the service provision for five counties and the administrative duties for the team.

In addition to the work of the regional consultants, the C&Y Branch administers genetic service contracts with 5 medical centers in North Carolina: Carolinas Medical Center, East Carolina University, Fullerton Genetics Center, University of North Carolina at Chapel Hill, and Wake Forest University. The primary objective of these contracts is to provide state of the art genetic services for patients with highly complex needs and their families, regardless of their ability to pay. This includes providing diagnosis, counseling, and management to citizens of North Carolina with genetically caused or influenced health concerns; serving as a support and resource to other genetic centers in the state in providing genetic health care; improving training in genetic medicine for healthcare providers-in-training from medicine, nursing, and allied health professions; educating health providers on important advances in medical genetics and genomics; and reducing state health care costs by preventing birth defects and other physical and mental handicaps caused by genetic disorders.

The C&Y Branch also has two Maternal Serum Screening contracts with the University of North Carolina at Chapel Hill and Wake Forest University. The purpose of these contracts is to provide maternal serum screening to any pregnant woman in North Carolina in order to identify at-risk infants with neural tube defects; to educate physicians and other health care providers about this program and about the importance of screening; to accurately interpret lab results to physicians; to provide counseling to patients; and to provide additional types of testing to the pregnant woman if indicated by the first test result. The contractors provide maternal serum screening services (i.e., diagnostic) for pregnant women in North Carolina which neither Medicaid nor other third party payers cover.

The School Health Center Program – There are at least 52 school-based and school-linked health centers in 26 different counties in North Carolina; 31 of the centers in 19 counties are funded through the DPH. In FY09 there were 16,626 students enrolled in these 31 school health centers (SHCs). The SHCs provided services to 13,581 students, primarily in middle schools and high schools. The Program's primary goals are:

1. To improve adolescent health and readiness to learn by providing accessible preventive services through school-based and school-linked health centers that are planned and developed through community collaborations;
2. To provide comprehensive and coordinated school health services and programs that address health challenges and risks prevalent in school aged youth ages 10 to 19; and
3. To provide school-centered services and programs in collaboration with community-based programs and systems of care.

Performance measures for SHCs include:

1. number and percentage of enrollees per school;
2. number of unduplicated students using the SHC;
3. number of visits by type including preventive/medical services, behavioral/mental health and nutrition visits;
4. number of enrollees and users covered by Medicaid or NC Health Choice; and
5. number of enrollees and users covered by Medicaid or NC Health Choice who receive comprehensive health assessments and behavioral risk assessments.

Most centers are located in the school (school-based), although some are located near schools or working collaboratively with multiple schools in the community (school-linked). Administrating agencies include local health departments, hospitals, community health centers, and community-based organizations. The centers are usually in middle and high schools where large numbers of students are engaging in behaviors that place them at greater risks for disease, injury, early pregnancy, substance abuse, and academic failure, etc. - often schools with excessive mental health and behavioral problems. Funding is obtained through a variety of sources including (limited) state funds, grants, receipts and school systems. The emphasis of these centers is on the early identification of health problem and health risks and the ongoing treatment and prevention of disease, injury, and high-risk behaviors, as well as health promotion and positive life style development. Services are provided by an interdisciplinary team using a community-oriented approach. Service teams are composed of a combination of physicians, nurses, nurse practitioners, physician assistants, mental health professionals, health educators, and nutritionists.

One of the priority recommendations of the NCIOM Task Force on Adolescent Health (Recommendation 4.3) was to fund school-based health services in middle schools and high schools. The Task Force advocates an appropriation of \$7.8 million in recurring funding in SFY11, \$13.1 million in SFY12, and additional funding in future years to support school-based health services, including school-based and school-linked health centers, school nurses, and Child and Family Support Teams. The Task Force also supports funding evaluations of these initiatives to determine their effectiveness.

3. *Enabling Services*

Change in Demographics - Access to appropriate on-site interpreter services varies across the state. Local health departments are responsible for procuring interpreter services as needed. WCHS funds are available to support these efforts, but such funding is limited.

Medicaid – Health Check is the largest publicly funded source of insurance for North Carolina children from birth to 21 years of age. The program is administered by DMA at the state level and locally by county DSSs.

The NC Medicaid program provides coverage for a comprehensive array of primary and preventive services. The majority of children are eligible under the Medicaid for Infants and Children coverage category which insures infants and children up to age 6 at or below 200% of federal poverty level and children and youth ages 6 through 18 at or below poverty. Other children/youth are eligible through Medicaid for Families with Dependent Children; Work First Family Assistance (TANF); Medicaid for Pregnant Women; Medicaid Family Planning Waiver (age 19+); SSI-Disabled Children; Special Assistance to the Blind; and Children in Foster Care coverage categories.

Most participating families with children must enroll in Medicaid's managed care program – known as Carolina ACCESS by recipients. This is a fee-for-service primary care gatekeeper model program. Community Care of North Carolina further developed this infrastructure by creating networks of community medical and service providers. Under this program, physicians more closely manage the care of Medicaid recipients with high-cost, complex, or chronic conditions utilizing the support of care managers. In addition to receiving fee for service payment, primary care providers participating in Community Care of North Carolina/Carolina ACCESS are paid a per member/per month case management fee.

NC Health Choice for Children – The NC Health Choice program, NC's Children's Health Insurance Program, is administered by DMA. WCHS has lead responsibility for outreach to assure that eligible children are enrolled and for oversight and management of Health Choice services for children with special health care needs. C&Y Branch staff members have worked collaboratively with DMA staff to assure effective implementation of the program beginning with the earliest planning meetings before state legislation was introduced and passed in 1998.

The NC Health Choice program provides coverage for a comprehensive array of primary and preventive services for children and youth ages 6 through 18 between 100-200% federal poverty level. While children less than six years old were previously covered by Health Choice, on January 1, 2006 all NC Health Choice children birth through 5 years were moved into Medicaid (M-CHIP Category).

The benefits package is the same as that provided through the former state employees' health plan indemnity plan (NC Teachers' and State Employees Comprehensive Major Medical Plan), with the addition of vision, hearing and dental preventive and maintenance benefits. Benefits for children with special health care needs are modeled on Medicaid services guidelines, except that services for long-term care are not covered, and respite care may be provided only under emergency circumstances. Behavioral health services are the most utilized of the special needs services. NC Health Choice is not required to meet the non-covered service provisions of Early and Periodic Screening, Diagnostic, and Treatment.

Families with incomes \leq 150% of the federal poverty level, have no annual enrollment fee, but do have copayments which effective 12/1/09 will be as follows:

- \$2 for generic drug or brand drug with no generic available
- \$5 for brand drug with generic available
- \$0 for office visits
- \$10 for non-emergency visit to emergency room

Families with incomes >150% of the federal poverty level must pay an annual enrollment fee of \$50 per child or \$100 maximum for two or more children. Children must be uninsured on the date that NC Health Choice enrollment begins. Effective 12/1/09, co-payments required for these families are as follows:

- \$ 2 for generic drug or brand drug with no generic available
- \$10 for brand drug with generic available
- \$5 for office visits, and
- \$25 for non-emergency visit to emergency room

For children who are members of a Federally-recognized tribe, there are no annual enrollment fees or co-payments. Parents never have a co-payment for preventive services like check-ups, immunizations or regular teeth cleaning.

Enrollees whose income has risen to 200%-225% FPL by re-enrollment may buy-in for one year at the full monthly premium cost.

North Carolina has had an open enrollment except for a “freeze on new enrollment” in 2001 when costs outstripped state and federal financial resources. (Because NC Health Choice is not an entitlement program, the number served is dependent upon availability of funds). Since the freeze of 2001, additional freezes or caps have been threatened for NC Health Choice, but in each of those cases, the General Assembly either stepped in and either added funding or permitted the NCDHHS Secretary to transfer funds into the program to avoid a freeze.

Total expenditures for the NC Health Choice program have varied a bit during the FFY04 to FFY08 period, with the lowest expenditures being \$221,722,800 in FFY07 and the highest amount being \$ 283,044,392 in FFY05. Although the federal financial participation varies slightly from year to year, generally the federal government contributes approximately 75 percent to the North Carolina program and the State General Fund contributes 25 percent.

The number of children enrolled and the per-member-per-month service rates determine funding needs for the program. Since 7/1/06, the NC Health Choice fee schedule has been based on the Medicaid fee schedule. The per-member-per-month rate for FY10 is \$180.73.

NC Health Choice Outreach and Enrollment - As of 10/1/09, 129,694 children and youth ages 6 through 18 are currently enrolled in NC Health Choice. Effective 1/1/06, children birth through 5, who were formerly eligible for NC Health Choice, were moved to Medicaid. As of 10/1/09, there are 39,744 children birth through 5 who would have formerly qualified for NC Health Choice, but now qualify for Medicaid.

Enrollment has risen steadily over the life of the NC Health Choice program. Initially, the focus was on broad-based outreach to all families and organizations that serve children at the state and

local level. As programs matured, outreach efforts were refocused on building infrastructure with partners to institutionalize and sustain outreach. Grassroots outreach has always been a major focus and local outreach efforts have been led by Health Check Coordinators who cover 98 (out of 100) counties and the Qualla Boundary.

Since the beginning of Health Choice, North Carolina has always focused on a seamless outreach and enrollment effort for Health Check and NC Health Choice. North Carolina has developed and designed an array of family-friendly outreach and enrollment materials. Seamless marketing has been possible because both programs offer very comparable benefits packages and one application form and process is used to determine eligibility for both programs. Major partners include early childhood organizations, child care facilities, schools, health care providers, governmental partners, private not-for-profits, the community college system, businesses, faith-based organizations, and community-based groups who jointly participate in efforts to encourage families to enroll. Many of these groups have made outreach and enrollment in children's health insurance a part of the job descriptions for their staff. Annual re-enrollment is also promoted in this work.

Targeted outreach to special populations (minority and CSHCN) has always been a priority, and indeed one fulltime position in WCHS is dedicated to this work exclusively. This position works through community-based organizations and social networks who serve our targeted minority communities including Latinos, American Indians, African-Americans and diverse other refugee/immigrant groups. Our Health Check/NC Health Choice Fact Sheet (primary outreach piece) has been translated into 7 foreign languages including Spanish, Arabic, Chinese, Hmong, Korean, Montagnard, and Vietnamese. These languages were chosen as they represent the top seven limited English proficient populations in the state. Through mobile consulate visits, Latino heritage festivals, American Indian Pow-Wows, Hmong Festivals, other cultural events/celebrations as well as attendance at faith-based services within the Catholic (Latino, Vietnamese, Congolese), Baptist (Korean), and Muslim (Arabic) traditions, outreach is happening one cultural group and one family at a time. Likewise, outreach to families who have children with special health care needs occurs through our C&Y Branch FC and the many organizations who serve this special population.

North Carolina's outreach/education efforts also focus on assisting families to fully benefit from their health insurance coverage once their children are enrolled. Through our "The Right Call Every Time: Your Medical Home" Campaign, families are encouraged to choose a quality medical home for their children and to quickly establish themselves with that practice by going in for regularly-scheduled well child check-ups. That way, when problems arise they will have someone to turn to "where the staff knows you, your child and your child's medical history." Printed materials and public service announcements for television and radio have been developed to further support the campaign. Ultimately, it is felt that this effort will reduce costs for the program by assuring that families treat primary care conditions (e.g. fever, colds, ear infections) in a timely way and in the appropriate setting, thus avoiding expensive emergency room visits.

The School-based Child and Family Support Team (CFST) Initiative - The CFST initiative was established by the NC General Assembly in 2005. It became operational when the funded staff was hired in the selected schools during SY07. Its purpose is to ease service access for children

at risk of school failure or out-of-home placement. Beginning in FY06, state funds have supported one certified school nurse and one licensed school social worker to work as a team in each of 101 schools with a large proportion of high-risk students across the state. State allocations also fund mental health professionals to connect the schools and families with their agencies in each local school system. Each of the CFST-connected county social services agencies also assigns a staff person to function in the same manner as mental health agencies, but not all of them received state funds to do this. The local public health agencies and juvenile justice agencies also support the teams and families, but received no funds to hire additional staff.

The CFST teams work full time in their selected schools. Their first duty is to identify students who are at-risk, then coordinate services for them among education, health, social service, and juvenile justice agencies. They partner with families who have been referred to the program to determine if the CFST is a resource that meets their needs. If so, they schedule and facilitate child and family team meetings with parents, service providers, and community partners to plan the services and monitor their progress. The teams make home visits for several purposes. These include assisting the parents who lack transportation, building trust among families, and becoming familiar with the students' home environment. The teams are required to engage the families in locations outside the school buildings and at times outside of the normal school hours if that is what is needed by the families. In most schools, the nurses and social workers share responsibility for the majority of cases. In others, they each assume the lead on cases based upon their relative expertise. In either instance, they support one another throughout this in-depth process.

Duke University's Center for Child and Family Policy is the CFST Initiative's contracted evaluation provider. As part of its work, it created a web-based case management system used by the teams to report information concerning the students and their work with the program and evaluation team. That system was developed during the 2006-07 school year and continues to be revised to best meet the needs of all the stake holders. The information in the table below reflects the number of students referred to, and served by the CFSTs.

Table 60
Students Referred and Served by CFSTs
North Carolina SFY07, SFY08, & SFY09

CFST Data	SFY07	SFY08	SFY09
# of students referred/identified (unduplicated)	8,550	8,117	8,282
# of referrals received	10,015	9,588	10,251
# of service needs identified	47,459	44,363	27,631
# of service plans developed	7,558	10,507	14,118
# of service plans with a follow up	5,001	6,440	8,657
# of Child & Family Team Meetings	8,561	14,128	11,431

More information on the CFST and its evaluation may be found on its two related web sites - www.ncdhhs.gov/childandfamilyteams/index.htm and childandfamilypolicy.duke.edu/project_detail.php?id=36)

4. *Population-Based Services*

Change in Demographics - WCHS is responsive to the need for Spanish language educational materials and all materials have been or are in the process of being translated to Spanish. A contract at the Section level covers the cost of translation of materials. The state Office of Minority Health and Health Disparities produced guidelines for obtaining appropriate translation and interpreter services.

For services provided directly to individuals, the C&Y Branch reimburses for needed interpretative services, including individuals who are deaf or hard of hearing.

Newborn Metabolic Screening Services - Universal newborn screening services have been available in NC since 1966. In 1991, provision of such services became a legislative mandate with the passage of House Bill 890 "An Act to Establish a Newborn Screening Program." The State Public Health Laboratory began its program screening all newborns born in NC for phenylketonuria, then added tests for congenital hypothyroidism and later for galactosemia, congenital adrenal hyperplasia, and hemoglobinopathy disease (e.g., sickle cell). Beginning in July 1997, screening was expanded to include a broader array of metabolic disorders using tandem mass spectrometry technology. Screening for Biotinidase deficiency was added in 2004 and screening for Cystic Fibrosis was added in 2009. The Genetics and Newborn Screening Unit, the NC Sickle Cell Program, and the University of North Carolina at Chapel Hill collaboratively provide timely follow-up services for all infants with suspicious laboratory results. (Capacity information on the NC Sickle Cell Program can be found under Direct Health Care Services in Capacity Assessment for Pregnant Women, Mothers, Infants, and Women of Reproductive Age Section.)

Between 1999 and the present, many important activities have occurred within the Newborn Metabolic Screening Program. In 2002, a new method of newborn screening for congenital hypothyroidism was implemented so that each infant is screened for T4 and TSH simultaneously. With the implementation of this method of T4 and TSH screening, low abnormal cut-off levels were established in order to safely evaluate the change in methodology. In 2004, the State Laboratory of Public Health and pediatric endocrinologists from the University of North Carolina at Chapel Hill and Wake Forest University Baptist Medical Center completed an evaluation of the T4 and TSH cut-off levels. The evaluation data was used to determine new abnormal and borderline cut-off levels for congenital hypothyroidism. With approval by the Newborn Metabolic Screening Advisory Committee, the new abnormal and borderline cut-offs were established for congenital hypothyroidism in November 2004, resulting in a significant reduction in false positive congenital hypothyroidism newborn screen results without decrease in the number of confirmed cases evident through 2009 .

Cut-off levels and primary analytes/analyte combinations used in tandem mass spectrometry (MS/MS) are being evaluated to fine-tune the determination of normal, borderline, and abnormal classifications of MS/MS newborn screen results. The adoption of a software program to increase quality control and standardization is being considered. The NC MS/MS program is part of an international data collection project that evaluates each program's cutoffs, diagnoses,

and laboratory techniques. The follow-up for out-of-range MS/MS newborn screening results is done by the metabolic team at the University of North Carolina at Chapel Hill. This team meets on a regular basis with the MS/MS Newborn Screening laboratory group and the MS/MS facility scientists to review results, and make recommendations.

Congenital Adrenal Hyperplasia (CAH) saw a sharp increase in abnormal screens following a Perkin-Elmer kit antibody change occurring in August 2005. In response to the elevation of false positives a change was made in the follow-up protocol for CAH in November 2005 so that serum 17-OHP was no longer requested for every abnormal screen. Rather, a repeat newborn screen is now collected. The abnormal cut-off value was raised in September 2006. Although the false positive rate is still elevated compared to what it had been prior to the antibody change, it has improved significantly. These changes were implemented with approval from the consulting endocrinologists and the Newborn Screening Advisory committee.

Cystic Fibrosis (CF) testing was added to the newborn screen in 2009. The newborn screening advisory committee approved the addition of CF to the newborn screen in April 2005. The State Laboratory of Public Health added CF to the newborn screen in April 2009 and uses a two-tier method of screening involving IRT and DNA testing. During 2009 a total of 394 infants had abnormal CF newborn screen results. There have been 22 confirmed cases of CF and 7 confirmed cases of CFTR metabolic syndrome detected in NC since the implementation of the program in April. The Unit Manager for the Genetics Program provided follow-up for newborn metabolic screening of infants until September 2003 when a position was established specifically for this purpose. This coordinator uses data provided by the State Laboratory for Public Health to track infants who have abnormal results on screening for Congenital Hypothyroidism, CAH, Galactosemia, and Biotinidase deficiency. In 2009 a second follow-up position was created to provide follow-up for abnormal CF newborn screening results. The CF Newborn Screening Follow-up Coordinator joined the follow-up program in September 2009.

In the case of an abnormal newborn screening result, the infant's health care provider is called, and the report of an abnormal screen is made, along with recommendations for further screening, testing, and medical care (e.g., through connections to an endocrinologist, a metabolic specialist, or a pulmonologist). Beginning in January 2004, data of these activities has been compiled into a summary report that indicates the numbers of infants followed as well as the number of infants with confirmed conditions and receiving treatment. A Protocol Manual for follow-up coordination for Congenital Hypothyroidism, CAH, and Galactosemia was initially completed with consultation by the University of North Carolina at Chapel Hill metabolic geneticists and by the University of North Carolina at Chapel Hill and Wake Forest University Baptist Medical Center pediatric endocrinologists. The Manual was further reviewed by the DPH attorney and approved by the Newborn Screening Advisory committee in April 2005. The Manual was updated to include Biotinidase deficiency in 2004 and CF in 2009. The new protocols met with the approval of the Newborn Screening Advisory committee as well as consulting metabolic specialists and pulmonologists.

Newborn Hearing Screening – 2010 marks the 10th anniversary of newborn hearing screening in North Carolina. The Early Hearing Detection and Intervention (EHDI) Program, located in the C&Y Branch, is working with NCDHHS Public Affairs, the EHDI Advisory Committee, and

other stakeholders to develop materials and activities to increase public awareness and celebrate accomplishments in recognition of this significant milestone.

During these ten years, the WCHS built and refined the system for assuring delivery of newborn hearing screening and follow up services. Six regional audiologists and six regional speech and language consultants provide statewide training, consultation and technical assistance to providers, hospitals, local health departments and parents. In order to support our community EHDI Programs, our regional consultants perform initial newborn hearing screenings and re-screenings when necessary. They follow and track infants suspected of a permanent hearing loss to ensure early identification, diagnosis, and intervention throughout the state. Our regional audiologists are available to participate in diagnostic hearing evaluations with public or private audiologists as needed.

Through a CDC grant, WCHS developed, and continues to refine, a web-based system for direct data entry, WCSWeb. This system was piloted by six birthing hospitals. Since the conclusion of the pilot in August 2006, birthing facilities and audiologists have been systematically added statewide. Currently, 57 birthing facilities, 2 midwifery practices, and 93 audiologists utilize this system for reporting hearing screening and follow-up results. Continued enhancements of the data system will provide improved data reporting for diagnoses, amplification, and intervention services. Enhancements will also provide data related to late-onset hearing loss and outcome measures.

A Universal Newborn Hearing Screening grant has been continuously funded by MCHB since April 1, 2000. The 2004-2008 funding cycle focused on development of Medical Home for children with hearing loss. Twelve physicians were involved in identifying effective strategies for monitoring children with hearing loss in a Medical Home. Families of children with hearing loss were interviewed concerning their perceptions of a Medical Home and decisions they made regarding communication options. These interviews and those of their Medical Home providers were compiled into a DVD entitled “Views of a Medical Home – Six Families Share Their Stories.” The current Universal Newborn Hearing Screening grant cycle focuses on reducing the number of children lost to follow-up in the newborn hearing screening process. Activities include education of stakeholders at every stage throughout the process, emphasis on hospitals providing their own rescreening programs, and development of materials for hospitals, parents and physicians. The EHDI Program has been involved in a National Initiative for Child Healthcare Quality since mid-2009. This quality improvement program is working extensively with two hospitals to systematically develop effective follow-up procedures. In 2009, North Carolina was awarded supplemental funding through the MCHB Universal Newborn Hearing Screening funding stream. The additional funding is being used to develop a pilot project to complete infant audiological evaluations using telemedicine technology in the eastern, sparsely populated part of the state. East Carolina University has an existing Telemedicine Program that is world renowned. The Department of Communication Sciences and Disorders and the Telemedicine Program are collaborating with DPH to develop this pilot project. North Carolina will be the second state to utilize telemedicine in the infant diagnostic process.

Blood Lead Exposure - DEH in DENR is responsible for planning and implementing clinical and environmental services to eliminate childhood lead poisoning. DENR assures early

identification through screening, surveillance, technical assistance, training, and oversight for local inspectors, abatement enforcement, monitoring inspections, and risk assessments. Currently over 75% of blood lead screening tests are done in the private sector. C&Y Branch staff members provide a link between DEH and local health department child health nurses on lead issues.

In July 2003, DEH convened a workgroup to develop a comprehensive plan to eliminate childhood lead poisoning by 2010. WCHS was represented on this broadly representative work group to identify goals, objectives, and activities that will “eliminate lead poisoning in NC’s children by 2010 through health and housing initiatives.” One of the early issues the group discussed concerned the blood lead level used to determine “lead poisoning.” The group adopted a target level of 10 mg/dL, although the current legal standard in North Carolina requiring environmental investigation and abatement is 20 mg/dL. That plan was adopted in June 2004 and DEH updated the plan with an accomplishment summary in July 2006. Many of the more than 50 objectives stated in the original plan had been accomplished by that time. The WCHS is represented at periodic lead advisory group meetings and contributes to the implementation plan as appropriate.

Eat Smart, Move More North Carolina (ESMM) – ESMM is a statewide movement that promotes increased opportunities for healthy eating and physical activity wherever people live, learn, earn, play and pray. The ESMM Movement is guided by the work of the ESMM Leadership Team, a multi-disciplinary team comprised of statewide partners working together to increase opportunities for healthy eating and physical activity.

The ESMM North Carolina Movement was born out of efforts that began nearly a decade ago with the NC Healthy Weight Initiative (HWI). The HWI was established in October 2000 as an impetus to prevent overweight in children. Originally funded by an obesity prevention grant from the CDC, the Initiative was housed within the C&Y Branch of the WCHS.

The NC Task Force for Healthy Weight in Children and Youth created a comprehensive state plan, *Moving Our Children Toward a Healthy Weight - Finding the Will and the Way*, to reduce and prevent childhood overweight. The plan was developed by a 100-member Task Force, chaired by John B. Longenecker, PhD, Director of the UNC-Chapel Hill Institute of Nutrition. The Healthy Weight Plan outlined twelve key recommendations for action by families, schools and child care agencies, communities, health care providers, media and researchers. Some of the recommendations encouraged individuals and families to eat healthier and be more active. Others were broader in scope. They provided direction for policy and environmental change to make healthy eating and physical activity easy, fun, and popular, so they would become a way of life for children and teens. Other recommendations focused on health care policy change and improved surveillance and research.

In 2002, DPH released two complementary documents to the Healthy Weight Plan:

- *North Carolina Blueprint for Changing Policies and Environments in Support of Healthy Eating*
- *North Carolina Blueprint for Changing Policies and Environments in Support of Increased Physical Activity*

When the CDC grant was renewed in October 2003, the decision was made by the management staff of DPH to relocate this initiative to the DPH, Chronic Disease and Injury Section's PAN Branch. WCHS staff members continued to be involved in this initiative, however, particularly staff from the NSB and the C&Y Branch.

The three plans listed above collectively became the cornerstone of the ESMM Movement. The ESMM Leadership Team was established in 2003 to guide the ESMM Movement. By early 2006, the Leadership Team identified the need for an overarching plan with measurable objectives influenced by the three original plans and two additional plans [the *NC Fruit and Vegetable Coalition Strategic Plan (2004)* and *Promoting, Protecting and Supporting Breastfeeding: A North Carolina Blueprint for Action (2006)*].

In 2006, DPH and other ESMM NC partner organizations, along with Trust for America's Health, released *Eat Smart, Move More: North Carolina's Plan to Prevent Overweight, Obesity and Related Chronic Diseases 2007-2012* (referred to as the *NC Obesity Prevention Plan*). The *NC Obesity Prevention Plan* provides a unique opportunity for every organization working in obesity prevention to focus on common goals and objectives, and use the same strategies. The *NC Obesity Prevention Plan* guides the implementation of the ESMM Movement.

The *NC Obesity Prevention Plan* defines goals for North Carolina with regard to physical activity, healthy eating, and prevalence of obesity and overweight. The four goals in the plan are:

- Increase healthy eating and physical activity opportunities for all North Carolinians by fostering supportive policies and environments
- Increase the percentage of North Carolinians who are at a healthy weight
- Increase the percentage of North Carolinians who consume a healthy diet
- Increase the percentage of North Carolina adults and children ages 2 and up who participate in the recommended amounts of physical activity

Each goal has objectives that provide benchmarks for reaching the goals by 2012. These objectives will be attained by implementing strategies outlined in the *NC Obesity Prevention Plan*. The key to implementing the strategies in the *NC Obesity Prevention Plan* is to maintain existing and create new partnerships with diverse organizations across the state. The ESMM Leadership Team consists of 60 state, local, public and private partners, one of which is the NC Division of Public Health. The ESMM Leadership Team collectively works to change policies, practices and environments to make eating smart and moving more possible for all North Carolina residents. ESMM Leadership Team members include government agencies, hospitals, health systems, universities, healthcare professional associations, advocacy organizations and non-profits.

The following are only a few examples of how, over the past decade, the ESMM NC Movement has helped to bring about purposeful change to address the overweight and obesity epidemic:

- Eat Smart: NC's Standards for All Foods Available in School were released in May 2004 for local education agencies and others to use to establish policies that will create healthy school nutrition environments across the state.

- The NC Health & Wellness Trust Fund Commission allocated \$10.2 million for obesity prevention over three years (2004-2007), awarding grants to 20 local and state organizations.
- In January 2003, the State Board of Education adopted the Healthy Active Children Policy that supports increased physical education and physical activity in schools. In addition, each local education agency was required to form a School Health Advisory Council and develop a Coordinated School Health plan.
- In partnership with the University of North Carolina Center for Health Promotion and Disease Prevention, the Nutrition and Physical Activity Self-Assessment for Childcare (NAPSACC) was developed and pilot tested as a means of increasing opportunities for physical activity and access to healthy foods in child care settings.
- NC Action for Healthy Kids adopted two of the Healthy Weight Initiative recommendations as its top priorities.
- The Charlotte-Mecklenburg Task Force for Healthy Weight in Children and Youth, established by the Mecklenburg County Health Department at the direction of the County Commissioners, used the HWI state plan in the development of its recommendations and actions. The intervention centerpiece was Fit City Challenge, a community-wide call to action designed to get individuals eating smart and moving more. The Mecklenburg Board of Commissioners adopted the Action Item on May 20, 2003.
- The ESMM NC websites, www.EatSmartMoveMoreNC.com (for professionals) and www.MyEatSmartMoveMore.com (for consumers) offer up-to-date information on healthy eating and physical activity. As of March 2008, the Web sites attracted more than 7,400 visits per month.
- DPH has worked with other ESMM NC partner organizations to create innovative resources for multiple audiences to be delivered in diverse settings, such as *Color Me Healthy, Eat Smart, Move More, Weigh Less, Families Eating Smart and Moving More, and Worksites Eating Smart and Moving More*.
- The ESMM Community Grant program has provided critical resources for local communities. Each year, PAN uses CDC Cooperative Agreement funds to provide up to \$20,000 each to 15-20 local health departments through a competitive application process. Since 2003, DPH has funded 90 grants totaling \$1,366,735, and grantees' accomplishments include the following:
 - Increased physical activity by:
 - Building 26 trails and three playgrounds.
 - Conducting nine walking challenges in schools and communities.
 - Implementing 21 school district policies to increase daily physical activity in at least one school per district.
 - Developing two master recreation/greenway plans.
 - Increased fruit and vegetable consumption by building community gardens in eight schools and two communities.
 - Decreased sugar-sweetened beverage consumption or reduced the consumption of energy-dense foods by:
 - Labeling healthy food in nine restaurants.
 - Implementing seven school district policies to increase healthy food options in at least one school per district.
 - Decreased television viewing by adopting a healthy homework program that assigns physical activity after school hours in one school district.

- Increased breastfeeding by creating a breastfeeding room in one worksite.

The involvement of WCHS staff in the ESMM NC Movement, has included the following:

Objective: Eat Smart Recommendations for all Foods Available in School

- Healthy Schools supported the Consensus Panel financially and the School Health Initiatives Coordinator was the Consensus Panel coordinator and lead writer.

Objective: Move More Recommendations for Physical Activity in School

- Senior Advisor for Healthy Schools and the School Health Initiatives Coordinator are members of the writing team and the C&Y Branch provided financial support to the Consensus Panel and the event to release the plan, which will be held in August 2005.

Objective: School Health Advisory Council Training

- School Health Unit staff helped plan and implement training for local School Health Advisory Council teams in 3 areas of the state. Nutrition and Physical Activity were major parts of the training.

Objective: Wellness Policy Development

- School Health Unit staff collaborated with the Nutrition Services Branch on training for local teams to develop Wellness Policies required by schools participating in USDA meal programs as part of obesity prevention.

Objective: Expanded Food and Nutrition Education Program (EFNEP) *Families Eating Smart and Moving More*

- NSB staff members helped develop this curriculum, which EFNEP associates used to teach more than 11,582 food-stamp eligible families from 2006 – 2008, and continue to use.

Objective: ESMM Leadership Team (to guide the ESMM Movement)

- The Training and Field Services Unit Supervisor of the NSB served as the voting member for DPH on the ESMM Leadership Team

Objective: Successful Students Eating Smart and Move More

- A Nutrition Consultant with the NSB helped develop and disseminate the Successful Students campaign, a social marketing intervention intended to create a buzz around school wellness policies, so that policies are implemented, monitored, evaluated, discussed regularly and modified as needed to meet the changing needs of schools, staff and students

The C&Y Branch actively integrates obesity prevention into its programs as appropriate. Among the strategies are the following:

1. All well child exams are required to assess BMI-for-age and to provide counseling when needed.
2. The Nutrition Component of C&Y Branch's School Based/ School Linked Health Center Credentialing Criteria is being updated to include:
 - a. Documentation of Student Underweight, Normal weight, Overweight, or Obese weight Status.
 - b. Follow-up Assessments for Underweight and Overweight Students
 - c. Obesity Counseling
3. Support the collaborative initiative between the C&Y Branch and the PAN Branch's ESMM Coalitions committee to develop local community coalitions that concentrate on nutrition and physical activity projects

4. Build school nurse capacity in LEAs that do not currently meet the 1:750 recommended school nurse to student ratio to allow increased school nurse involvement in obesity prevention. Obesity prevention is integrated in local action plans for the nurses.
5. Support the NCODH in developing appropriate nutritional and physical education activities and environments for children and youth with special health care needs. Develop obesity and physical activity strategies in collaboration with NCODH and the ACDH for *The State Plan Promoting the Health of People with Disabilities*

Immunizations - In 1994, North Carolina began the Universal Childhood Vaccine Distribution Program (UCVDP) to meet two goals: 1) to keep children in their medical homes, and 2) to remove cost as a barrier to age-appropriate immunizations. The UCVDP program provided all of the required vaccines - at no charge - for any child present in the state from birth through 18 years of age. Well over 95 percent of health care providers in North Carolina who administer vaccines to children participated in this program. Health care providers could not charge the patient for the cost of the vaccine; however, they could charge an administration fee not to exceed the rate established by North Carolina's Medicaid program. Local health departments could not charge an administration fee for immunizations. In June 2010, however, the UCVDP was discontinued due to a state budget shortfall. The state legislature cut all state funds to provide vaccines to the insured population, which is approximately 33% of the children in the state. The newly named North Carolina Immunization Program (NCIP) will continue to provide vaccine at no cost to qualified children through the federally funded Vaccines For Children program.

The IB is located in the WCHS. Its mission is to promote public health by identifying and eliminating the spread of vaccine-preventable diseases. The Branch consists of five units: Communication Outreach and Professional Development (COPD), Customer Service, Field Services, Operations, and Registry.

The primary purposes for the COPD unit are to:

- Develop educational materials based on CDC recommendations, program focus and new initiatives
- Proactively work with media to develop strategies to expedite dissemination of critical information.
- Design and layout graphically aesthetic website
- Provide outreach services beyond conventional limits, as to particular segments of a community; and
- Enhance knowledge and skills of health care workers administering vaccine and supporting vaccine delivery through traditional and non-traditional educational strategies.

The mission of this unit is to plan and implement strategies which encourage and result in behavior change that ultimately increase the number of North Carolinian's throughout the lifespan who are age-appropriately vaccinated.

The primary functions of the Customer Service unit are to:

- Manage the federal Vaccines for Children program
- Handle processing, distributing and accounting for over 4 million doses of vaccine annually

- Provide technical assistance to over 1,300 public and private health care providers on the safety, storage, and handling of vaccines
- Provide support to providers using the North Carolina Immunization Registry (NCIR)
- Monitor vaccine accountability, a major state and federal component of this unit; and
- Manage the Yellow Fever Vaccine Program
- Manage the vaccine budget
- Determine funding allocations based on population estimates

Monitoring vaccine accountability ensures that providers are being responsible for the vaccines they administer to their patients including proper dosage, storage and handling of the vaccine, and correct route and site of vaccine administration. Accurate reporting by our health care providers helps to ensure an adequate supply of vaccines and/or the funds to purchase the vaccines. Health care providers are allotted enough vaccine to maintain a two to three month inventory based upon their historical usage, inventory on hand, and national supply of the vaccine. Health care providers who negligently waste vaccine are subject to the Financial Restitution Program and must pay for the cost of the wasted vaccine.

The primary functions of the Field Services Unit are to:

- Monitor the frequency of vaccine-preventable diseases through ongoing surveillance and investigation of disease outbreaks
- Work with local health departments, hospitals, private provider offices, child care facilities, schools and colleges/universities to ensure all individuals from birth through 18 years of age have received age-appropriate immunizations
- Consult with the above facilities regarding immunization laws and compliance requirements
- Focus on community outreach programs to educate parents, health care providers and senior adults about the importance of timely immunizations
- Conduct immunization assessments

Regional Immunization Consultants and Regional Immunization Nurses provide consultation, technical support and education regarding immunization issues to the entire community of vaccine providers in their regions. This includes local health departments, private providers, community/migrant rural health centers, child care centers, hospitals and student health services at schools, colleges and universities. The consultants conduct formal annual site visits to at least 25 percent (about 280) of the public and private providers currently enrolled in NCIP. These visits ensure that state-supplied vaccine is being stored, handled and accounted for properly. These visits also allow providers the opportunity to receive on-site technical assistance on complex immunization issues. Consultants work with local health departments to develop plans to improve immunization rates in their counties. They also provide advice and assistance when cases of vaccine-preventable disease occur, such as pertussis.

The Operations Unit handles behind the scenes support functions that make the IB run smoothly. The primary functions of this unit are to:

- Work with the Branch budget including: vaccine purchasing, required travel, office equipment, and general office supplies
- Disseminate memos/materials to vaccine providers, child cares, and schools
- Provide data entry support for lab reports, annual immunization reports; and

- Serve as first point of contact for physician's offices, child cares, schools, and inquiries from the general public

The primary function of the Registry Unit is to improve and maintain a quality immunization information system, by offering resources that enhance and assist healthcare providers with documentation of vaccine information for all North Carolinians.

The NCIR is a secure, web-based clinical tool which will become the official source for North Carolina immunization information. The NCIR will take the place of handwritten charting of immunizations administered in the state. Immunization providers may access all recorded childhood immunizations administered in North Carolina, regardless of where the immunizations were given. The primary purposes of the NCIR are:

- To give patients, parents, health care providers, schools and child care facilities timely access to complete, accurate and relevant immunization data
- To assist in the evaluation of a child's immunization status and identify children who need (or are past due for) immunizations
- To assist communities in assessing their immunization coverage and identifying areas of under-immunization
- To fulfill federal and state immunization reporting needs
- To conduct data analysis and data quality improvement tasks of NCIR data; and
- To field requests from the general public for immunization rate information.

Immunization assessments are performed in order to monitor childhood immunization rates statewide. The IB encourages and supports activities to measure and improve childhood immunization coverage, working both with providers and other state agencies including the Medicaid Program. Immunization assessments are conducted with both public and private providers, and are accompanied by technical assistance to improve the provider's delivery of immunization services. The Assessment, Feedback, Incentives and eXchange (AFIX) program offers personalized quality improvement service to private providers.

As mentioned in the health status assessment, an emerging area of work for the IB is to ensure that adolescents receive appropriate immunizations. An Adolescent Immunization Program Coordinator position has been created to organize these efforts. One of her primary responsibilities is to conduct North Carolina Immunization Program's Adolescent AFIX assessments. Adolescent AFIX is an opportunity for vaccine providers to get a current snapshot of their vaccination coverage rates, specific to their practice, for the adolescents that they treat. The primary goal for these assessments is to increase knowledge and utilization of adolescent vaccines and to improve adolescent vaccination rates. During an Adolescent AFIX assessment, practices receive:

- Current vaccination coverage rates for the 11-12 and 13-18 year olds seen by the practice for the following vaccines: Tdap, HPV, MCV4, MMR, Varicella, and Hep B;
- An analysis of missed opportunities and a list of patients who are missing immunizations;
- Strategies on how to improve adolescent rates; and
- Training on how to use the request/reminder function of the NCIR.

5. Infrastructure-Building Services

Early Childhood Comprehensive System - In 2004 the Division of Public Health obtained the support of NCDHHS Secretary for use of the state ECCS grant as a core vehicle for increasing coordination and collaboration within and outside the department with respect to early childhood issues. North Carolina's ECCS Implementation Plan was created by a multi-agency state-level partnership that met throughout the ECCS planning period and agreed to develop a plan for a comprehensive, integrated early childhood system that supports school readiness and builds on existing efforts and initiatives.

The challenge facing the ECCS planning group was to focus on system-level deficits that were getting in the way of continued improvement in child outcomes in NC and to develop strategies that would help stakeholders in various sub-systems "connect the dots." The biggest challenge is to create new pathways that connect critical components of the early childhood system in an environment where the old pathways are well worn and quite comfortable. The ECCS planning process was designed to allow a state-level partnership to consider alternatives to the old pathways in order to develop an integrated system that works optimally for young children and their families.

The vision for the ECCS Plan was intentionally created to be consistent with the visions of established early childhood partners (e.g., the NC Partnership for Children (Smart Start) and NC's SPARK Supporting Partnerships to Assure Ready Kids™ initiative funded by the Kellogg Foundation), so that it could serve as a bridge rather than a barrier in system-building efforts. As stakeholders focused on the fact that there are multiple and interacting factors affecting child outcomes, the need for engagement across systems (health, early care and education, families, etc.) became a primary objective of the planning process.

The goals of the ECCS Plan are:

1. Share accountability for an effective, comprehensive, and integrated early childhood system in North Carolina in a multi-agency state-level partnership.
2. Use a set of shared indicators for school readiness to evaluate success at all levels of the early childhood system.
3. Develop a shared early childhood data system.
4. Infuse the early childhood system with people who have core competencies in early childhood (based in developmental science) as well as the practical approaches and community relationships necessary to provide effective services to children and families.
5. Foster a philanthropic and government consortium to nurture and build state and local partnerships.
6. Secure the commitment of families, stakeholders, and decision makers about the costs, benefits, and consequences of building or neglecting a comprehensive, integrated early childhood system.
7. Improve our systems of care by using evidence-based practices to positively affect child outcomes for all critical components of a comprehensive early childhood system.

North Carolina's ECCS Plan was created during the planning phase (September 1, 2003 – August 31, 2005) of the ECCS grant. During the first four years of the implementation phase

(September 1, 2005 – May 31, 2009), stakeholders were successful in implementing a number of strategies outlined in the original ECCS plan. Highlights include:

- A cross-agency early childhood leaders group (FutureThink) served as an informal forum for leaders from key early childhood agencies and organizations to consider policy and program options from a whole system perspective. While early childhood leaders used the opportunity to build relationships and to learn more about how strategies like funding evidence based family strengthening programs, assuring access to health insurance and medical homes, increasing the number of children in high quality care, addressing disparities in well being by race, etc., could affect the success of their programs, the group did not develop into a shared leadership structure with a whole system orientation.
- A cross-agency group of experts developed a set of Shared Indicators for School Readiness (population based) to focus attention on the results of *collective* efforts to improve outcomes for all young children. The indicator project served as a mechanism to improve connections among subcomponents of the early childhood system.
- The shared indicators have helped stakeholders at all levels of the system make policy and program decisions that support positive developmental outcomes for children. Some examples include:
 1. The indicators were used to expand discussions about an effective child maltreatment surveillance system in NC since the indicators overlap significantly with risk and protective factors associated with maltreatment
 2. The Child Care Health Consultant (CCHC) Professional Practice Statement was changed to reflect the shared indicators and is used to guide CCHCs to address a wide range of factors affecting child outcomes;
 3. The Kindergarten Health Assessment was refined to better reflect the Shared Indicators for School Readiness to encourage parents, providers and schools to address a wider range of factors that affect child outcomes;
 4. The Division of Public Health’s protocol for newborn home visits has been revised to include “oral health care” to encourage early attention to oral health and to increase the percent of children with a dental home;
 5. Smart Start’s Performance Based Incentive System was changed to align better with the shared indicators;
 6. The state pre-K program (More at Four) added a program standard that requires children in that program to have health insurance and a medical home;
 7. The NC Division of Social Services agreed to add the question “Does your child have health insurance?” to their list of universal questions asked in all intake procedures and to provide outreach materials when necessary; and
 8. Smart Start’s SPARK Initiative launched North Carolina’s Ready Schools Initiative to encourage the development of school improvement plans based on findings from Ready Schools Self Assessments.
- Partners created the Alliance for Family Strengthening Programs to collaboratively fund evidence based programs at the state level. Initially, the Alliance agreed to launch the Nurse-Family Partnership program in 6 to 8 sites; develop state-level implementation support or scaffolding for any community implementing The Incredible Years; collaboratively fund facilitator training and peer networking opportunities for local communities implementing the Strengthening Families Program.

- Communities are using the Kindergarten Health Assessment to improve communication among families, schools and primary care physicians to address the needs of children entering kindergarten.
- Early childhood leaders participated in a leadership forum, “Preparing North Carolina for a Prosperous Future: Advancing Our Investments in Young Children” with Jack Shonkoff, M.D., on February 3, 2009, and are discussing a shared policy agenda based on the science of early childhood development.

The ECCS Grant Program provided North Carolina with a neutral platform to plan, develop, and ultimately implement collaborations and partnerships to support families and communities in their development of children who are healthy and ready to learn at school entry.” This included: 1) identifying and linking with individual and groups with expertise in system-building and relevant content expertise (access to health insurance and medical homes, mental health and social-emotional development, early care and education, parent education and family support), and 2) managing structures, e.g., a facilitated strategy session, a series of meetings designed to create a shared understanding of effective interventions, etc., designed to ensure progress toward accomplishing goals outlined in the planning phase of the grant. To facilitate the development of a meaningful plan, staff identified and invited experts in the five critical component areas to present at Think Tank meetings. The goal was to bring the diverse members up to speed on each of the critical components and to focus their attention on identifying strategies that would link those components in an integrated system. In an effort to capture creative ideas, thoughtful recommendations and innovative strategies from a wider range of key stakeholders across North Carolina, staff developed a process called "Voices from the Field". Information was solicited from providers across the State to help influence and guide the planning efforts. This process allowed members of the Think Tank to hear relevant information as they worked to shape a plan for a comprehensive and integrated early childhood system.

It is important to note that the need for shared indicators for school readiness as well as shared accountability for addressing those indicators was a consistent message in the Think Tank’s early discussions. In fact, some members of the Think Tank argued that this step was critical if NC intended to continue to make progress in improving child outcomes. Given the consistency of that message, the group decided to design and implement a "Shared Indicators/Shared Accountability" process during the planning phase of the ECCS grant. The 2009-2010 ECCS grant proposal also included a proposed organizational structure for an Early Childhood Advisory Council that included representation from all subcomponents of the early childhood system, a shared staffing structure that would involve staff from all key early childhood agencies and a funding partnership to support ongoing activities of the Council. The Governor has indicated that she intends for North Carolina’s Early Childhood Advisory Council to be comprehensive in nature, i.e., that it should be designed to address the whole early childhood system rather than a subcomponent of the system. The decision to take a comprehensive approach means that North Carolina’s Early Childhood Advisory Council will provide an opportunity to build on the comprehensive system building approach that has guided the ECCS grant project in North Carolina.

Child Care- North Carolina has been a leader in developing systems for providing child care health consultation for many years. Qualification for CCHCs in North Carolina requires

completion of one of the most rigorous training courses in the nation, the *North Carolina Child Care Health Consultant Training Course*, which awards 11.2 continuing education units. The North Carolina Child Care Health and Safety Resource Center (NCCCHSRC) updates and revises training based on best practice and ensures that newly hired CCHCs complete the training course. The NCCCHSRC works closely with the State Child Care Nurse Consultant (CCNC) who has been successful at integrating the CCHC curriculum into the nursing programs at North Carolina Central University and Western Carolina University. This upcoming year, the University of North Carolina at Wilmington plans to offer it as well. The Resource Center staff and the CCNC, graduates of the National Training Institute for Child Care Health Consultation (NTI), rely on the NTI curriculum as the foundation of their training. From January 2005 through June 2010, 131 North Carolina CCHCs and 4 CCHCs from other states will be qualified, and 46 nursing students will have completed the course. Currently 58 of 100 counties in North Carolina receive CCHC services, falling short of reaching all 100 counties.

North Carolina's active Child Care Health Consultants Association (NC CCHCA) provides a professional network for CCHCs throughout the state. In collaboration with the C&Y Branch and NCCCHSRC, a Professional Practice Statement and Code of Ethics for CCHCs was developed to assist with providing consistent and ethical practice throughout the state. The NC CCHCA works closely with the CCNC and the NCCCHSRC to provide mentoring and education opportunities at quarterly regional meetings and an annual educational conference, based on the 16 outcomes for children outlined in the Practice Statement. Members of the association have access to sample health policies, individual health plans, and action plans.

CCHCs participate in train-the-trainer courses on emergency preparedness and response, medication administration, pandemic flu, asthma, hygiene and sanitation, SIDS risk reduction, oral health, and parent/child relationships. CCHCs work closely with licensing consultants, environmental health specialists, their local child care resource and referral agencies, and higher education programs to provide education and training for early childhood educators. When child care facilities are out of compliance with health and safety regulations, their expertise in training and consultation is often requested or required as part of the plan for compliance.

The award winning *North Carolina Child Care Health & Safety Bulletins* and the *North Carolina Child Care Health and Safety Calendars* provide the only consistent publication mailed to all regulated child care facilities. They provide in-depth, accessible information for early childhood educators and parents on topics such as communicable diseases, respiratory illnesses, nutrition and physical activity, prevention of child maltreatment, social emotional health, and changes to the child care regulations. How to include children with special needs is integrated into the content. In addition, early childhood educators and families have access to the NCCCHSRC website (www.healthychildcarenc.org) which contains the Child Care Health Information Database, the Directory of Child Care Health Consultants and links to other websites and resources.

The CCNC and/or a representative from the NCCCHSRC participate on statewide committees and advisory boards to ensure that issues pertaining to the health and safety of young children are considered when discussing how to improve outcomes for children in North Carolina. Some results of these efforts include: facilitating the training of CCHCs on the *Asthma Education*

Curriculum for Child Care Providers; disseminating information to raise awareness and improve immunization rates for children and adults in child care settings; piloting and promoting the NAPSACC; promoting and providing information to all regulated child care programs about topics such as social and emotional health (Center on the Social and Emotional Foundations for Early Learning [CSEFEL] framework), high quality school age child care (NC School Age Coalition), and physical activity (Outdoor Learning Environment Alliance). The *North Carolina Child Care Health Advocacy Course*, now available to Head Start and the East Coast Migrant Head Start, and the *North Carolina Health and Safety Assessment Tool*, available to CCHCs, are evidence that representation on Health Advisory Committees for Smart Start, Head Start and East Coast Migrant Head Start led to positive collaborative efforts. Membership on the Task Force brought together by the NC Division of Child Development to develop the *Infant and Toddler Foundations: Guidelines for Development and Learning for North Carolina's Infants and Toddlers (Birth to 36 Months)*, continues to influence how early childhood professionals support the healthy development of young children in North Carolina.

Changes in the NC Child Care Regulations reflect the influence of collaboration at the state, regional, and county levels. *Caring For Our Children* is now a resource used by the Child Care Commission and Children's Environmental Health Branch to inform their decisions. Among the regulatory changes are improvements in sanitation requirements, hand washing and diapering procedures, criteria to follow when the air quality is poor, storage of emergency medications, criteria for physical activity, outdoor time, and limited screen time.

In the future, goals for CCHCs in North Carolina that effect health and safety of children include advocating for changes to State Licensing Rules and Regulations to require medication training for child care providers who administer medications, requiring annual health assessments for all children enrolled in licensed child care programs, requiring emergency preparedness plans for all licensed child care facilities, and further incorporating the need for CCHC services.

To date, the NC DPH, the NC DCD, the NC Partnership For Children, and the University of North Carolina have worked together to develop a system of child care health consultation that has had a positive effect on the lives of young children. To strengthen the system, North Carolina will explore ways to restructure, adding regional CCHCs to mentor and guide the work of CCHCs in three to six regions. Reliable and consistent CCHC services are needed in all 100 counties. In updating the *Healthy Child Care NC State Plan*, the CCNC will address the need to advocate for child care regulations such as requiring facilities to have emergency preparedness plans, that all children enrolled in regulated child care have an annual health assessment on file, that all early childhood educators be trained in medication administration if they will be administering medication, and that regulated child care facilities consult with a CCHC. A social marketing plan to increase awareness of CCHC services will be developed in collaboration with DPH, the NCCCHSRC and other state partners and agencies, including the state level advisory committee for health and safety in child care.

School Health Matrix Team - The School Health Matrix Team was created in FY04 to enhance the effectiveness of DPH programs that target the school age population, and/or focus on services available in or for schools. The DPH Matrix Team works in close collaboration with the Department of Public Instruction to improve the health and academic achievement of students by

supporting the development of and strengthening school health programs and policies across the state. The Matrix Team work is centered on the following eight components of the CDC Coordinated School Health Program (CSHP).

1. Comprehensive School Health Education (grades K-12)
2. School Health Services (e.g. nursing, school based health centers, dental health services)
3. Physical Education (grades K-12)
4. Nutrition Services (e.g. breakfast and lunch programs, a la carte, vending choices, fundraising items)
5. A Safe and Healthy Environment (e.g. tobacco use, violence, playground safety, indoor air quality)
6. School-Site Health Promotion for Staff
7. School Counseling, Psychological, and Social Services
8. Family and Community Involvement in Schools

The Matrix Team allows the DPH to effectively utilize staff across Branch and Section lines to create a multi-disciplinary, multi-agency focus on school health. The Section Chiefs for Oral Health, WCH, and Chronic Disease and Injury provide overall guidance in program planning, marketing, and implementation of services and to help build capacity for school health services.

Healthy Schools – North Carolina first received CDC Healthy Schools funding in 1997. This grant has supported collaborative efforts of DPH and DPI to address issues at the intersection of health and learning. The Senior Advisors (one each at DPH and DPI) lead activities designed to achieve Healthy Schools strategic plan goals that include:

- Creating school health policies supportive of inter-department collaboration,
- Creating long-term adequate funding,
- Creating a process for collaborative funding,
- Creating a school health lead person in all related departments of state government,
- Creating evaluation procedures and measurable outcomes for school health programs and student health,
- Creating an integrated information resource system accessible by state, local, and external agencies,
- Creating an on-going collaboration with higher education,
- Creating an on-going marketing strategy linking CSHP with improved school achievement and health outcomes,
- Creating forums for increased collaboration between leadership of NCDHHS and DPI and other school health leaders, and
- Creating communication strategies aimed at specific influential groups.

Previously the Senior Advisor for DPH was housed in the C&Y Branch, but this position has been moved to the Chronic Disease Section.

Dental Care - The DPH Oral Health Section has devoted substantial effort over the past decade to address the documented lack of accessible dental health services in the state. Activities include:

- Maintaining a database on the *Dental Care Safety Net* in North Carolina. The Dental Care Safety Net includes public and private non-profit facilities providing ongoing,

comprehensive dental care to low-income patients, including children and adolescents. Across North Carolina, there now are more than 134 dental clinics dedicated to serving low-income patients who have limited access to dental care. Typically, local public health departments, community health centers, or other non-profit organizations operate these clinics, in addition to the “free” volunteer clinics run by local dentists. Most accept patients enrolled in Medicaid or Health Choice, many provide services on a sliding-fee scale to low-income patients who have no dental insurance, and some provide services at no cost to the patient.

- Oral health risk assessments and referrals which link children needing dental care with providers willing to treat them. These referrals help educate parents as to the importance of dental care and help dental care safety net providers remain productive.
- Technical assistance for establishing new clinics and supporting the operation of existing safety net clinics in collaboration with similar services of the NCDHHS Office of Research, Demonstrations, and Rural Health Development.

In addition, the state Medicaid program reimburses physicians for dental evaluations/referral, fluoride varnish application, and parent counseling in medical offices for children up to three and a half years of age as part of a statewide initiative called *Into the Mouths of Babes* that began in 2000. Medicaid requires that physicians successfully complete a continuing medical education (CME) course before they are eligible for reimbursement through *Into the Mouths of Babes*. An Oral Health Section staff person provides training in collaboration with the NC Pediatric Society and the NC Academy of Family Physicians. In 2008 alone, Medicaid children, age birth to three and a half-years-old, had more than 134,000 visits to private physicians’ offices or local health departments in which they received the dental preventive package. About 425 physician practices, residency programs and health departments have been trained to provide the procedure. The pilot activities had been funded by grants from the CDC, the Centers for Medicare and Medicaid Services and HRSA. The Oral Health Section reclassified a position so that the program coordinator/trainer is a permanent state position. Housing the position in the Oral Health Section allows more active participation of the Oral Health Section’s public health dental hygienists in preschool preventive dentistry activities. Medicaid claims data indicate increases in preventive dental services for young Medicaid recipients.

Mental Health Systems of Care - Children with emotional disturbances face challenges in many aspects of their daily lives—at home, in school, in social situations and in the community. Because of this, they need coordinated services and supports from a variety of child-serving agencies as well as natural supports located in their home communities. Systems of care supported in North Carolina are coordinated networks of community services and supports that are organized to meet these challenges. The system of care model is not a program; it is a philosophy of how care should be delivered. This approach to services recognizes the importance of family, school and community and promotes each child's full potential by addressing physical, emotional, intellectual, cultural and social needs.

Both Medicaid and Health Choice in North Carolina provide a wide array of mental health services for CYSHCN, including 26 unmanaged psychological visits. The first six visits do not require a mental health diagnosis. CYSCHN in these programs can receive additional higher-level services based on medical necessity. In 2006, Medicaid adopted new mental health service

definitions. A workgroup involving a variety of stakeholders meet regularly to provide input and recommendations on the current array of Medicaid's mental health service definitions and policies. These recommendations are further reviewed by the NC Physicians' Advisory Group.

Other agencies are working to address the needs of infants and very young children, ages birth to three years. The North Carolina's ECCS Grant Program addresses the social emotional component in North Carolina through a cross agency work group designed to begin a strategic planning process for young child mental health in North Carolina. The North Carolina Young Child Social Emotional Design Team (the Design Team) included representatives from the NC Office of School Readiness; the Duke Center for Child and Family Policy; the NC EI Branch, the NC Office of Rural Health and Community Care; NC Partnership for Children, Inc. NC DSS; Region A Partnership for Children; NC DPH; NC DCD; Developmental & Behavioral Pediatrics/Wake County Human Services; FC; NC DMH/DD/SAS; Prevent Child Abuse North Carolina; and private consultants.

In Phase I (planning) of this project, the Design Team:

- Agreed that promoting social emotional development is a strategy that addresses a number of agency or organization-specific goals, including school readiness; school success; child well being; healthy development, etc.;
- Reviewed relevant literature;
- Participated in three technical assistance sessions with Georgetown's National Technical Assistance Center for Children's Mental Health to refine a work plan for North Carolina;
- Completed an environmental scan of current efforts in to promote social emotional development in North Carolina;
- Completed a state self assessment;
- Reviewed a public health model/approach to ensuring social emotional health;
- Reviewed other state approaches to applying a public health model to promoting social emotional development;
- Began a financial map to identify potential funding sources; and
- Considered options for an implementation phase (Phase II) in NC.

Moving toward implementation was a challenge because of limited resources. When the NC DPH decided to apply for a LAUNCH grant, the Design Team agreed that the LAUNCH project could provide an opportunity to implement strategies design to support social and emotional development in young children. All of the material developed by the Social Emotional Design Team would be made available to a NC LAUNCH project if the state received the grant

North Carolina did receive funding for a LAUNCH project in October 2009. Project LAUNCH is a SAMHSA funded program that is intended to ensure the healthy development of all young children (birth to age 8). NC LAUNCH will implement a state and local collaborative effort, based in Guilford County, that will promote environments for children ages 0-8 that support each child's physical, emotional, cognitive and behavioral health and provide children the resilience they need to enter school ready to achieve and on their way to success in life. Best practices identified in Guilford County will be disseminated widely in the state and sustainability strategies will be developed. The goal of NC LAUNCH will be achieved by implementing or enhancing evidence based and promising programs in the following five domains: developmental

assessments, integration of behavioral health care into primary care, home visiting programs, mental health consultation and family strengthening, and parent skills training. NC LAUNCH will provide services in these domains with attention to model fidelity, and will also promote the development of an integrated local system of care for early childhood. NC LAUNCH will implement a classic public health “pyramid” approach, with limited population-based support for all moving to more intensive services as family need increases.

Asthma - Asthma is improved by controlling environmental triggers, using appropriate medications, actively monitoring the disease, and patient education. WCHS provides statewide leadership in systems development and support for programmatic interventions to increase public awareness of the importance of preventive measures to decrease the burden of this disease in the state. The Chronic Disease and Injury Section of the DPH released *The North Carolina Asthma Plan 2007-2012* in March 2007. This plan was collaboratively developed by a number of stakeholders in North Carolina. The effort was coordinated by the North Carolina Asthma Program and the Asthma Alliance of North Carolina and was made possible under a planning grant from the CDC. Some of the priorities identified in the plan specifically related to children included: increase the number of North Carolina schools with full-time nurses on staff; increase the number of North Carolina schools educating staff about asthma; increase the number of North Carolina schools educating students with asthma about asthma management; and address challenges due to lack of uniformity in school asthma action plans.

A five-year CDC implementation grant followed a three year planning grant and two year limited implementation grant. These grants have made it possible for North Carolina to hire a program supervisor, coordinator, epidemiologist, and half time evaluator. Program priorities include:

- Enhanced asthma surveillance through CDC grant funding using existing Medicaid, hospital discharge, and death certificate data; work towards incorporation of childhood and work-site asthma modules into the state BRFSS in alternating years, and
- Training, consultation, and technical assistance to statewide network of local asthma coalitions.

Child Maltreatment - In North Carolina, the DSS is responsible for investigation, assessment, and treatment of child maltreatment through the child protective services and law enforcement systems. DSS is committed to high quality secondary and tertiary prevention efforts, but has few resources available for primary prevention albeit receiving all state and federal funding earmarked for the primary prevention of child maltreatment in North Carolina.

In September 2005, the NCIOM Task Force on Child Abuse Prevention issued a report which included 37 recommendations to improve child maltreatment prevention efforts and serves as a strategic blueprint to strengthen primary prevention efforts within the state. As a result, the DPH has been named as the state level agency responsible for the development and implementation of primary child maltreatment prevention efforts in North Carolina. This is a voluntarily role as DPH has no statutory or regulatory mandate. In SFY07, DPH received a recurring state appropriation to fund one staff position to carry out these activities. This position is located in the WCHS.

In response to building more effective state-level leadership capacity to lead child maltreatment prevention efforts and to implement the NCIOM recommendations, the C&Y Branch has taken the following action steps:

- undergone a reorganization designed to strengthen the connections among existing C&Y Branch staff;
- engaged in strategic planning to enhance the organizational capacity of the branch to lead child maltreatment prevention efforts;
- formed strategic public-private partnerships aimed at increasing child maltreatment prevention efforts; and
- coordinated efforts between the state-level public agencies leading child abuse prevention efforts (DPH and DSS).

The C&Y Branch has reorganized its staff that support multi-disciplinary groups charged with achieving the goals of reducing child fatalities, preventing child maltreatment, and promoting child well-being in the state (Child Fatality Task Force, the Child Maltreatment Leadership Team, the Early Childhood Comprehensive System grant efforts, the Family-Strengthening Parenting initiative, and the LAUNCH grant efforts). These staff members are working together as the Every Child Succeeds facilitation team and with a shared agenda that will:

1. focus on child outcomes by reducing child fatalities, preventing child maltreatment, and promoting evidence-based practices to support healthy children and families;
2. engage public and private state-level leadership to improve collaboration across systems and enhance communication among leaders; and
3. maximize funding and resources in order to increase efficiency and effectively share resources.

The C&Y Branch has engaged in a strategic planning process to build stronger internal organizational capacity, review priorities, and develop strategic plans across agencies and organizations for child maltreatment prevention activities in our state. Staff from the C&Y Branch participated in a nine-month process through the PREVENT (Preventing Violence through Education, Networking, and Technical Assistance) Institute, operated by the University of North Carolina Injury Prevention Research Center. Through this process, the Branch has developed five-year goal to develop an integrated, comprehensive state-wide infrastructure, led by the C&Y Branch, which builds on existing efforts and resolves systemic gaps to support and sustain the expansion of evidence-based child maltreatment prevention efforts and increases the health and well-being of North Carolina's children. C&Y Branch staff have collected and analyzed formative data to shape the development of an effective plan to enhance agency wide infrastructure to plan, implement, coordinate, evaluate, and sustain child maltreatment prevention efforts in North Carolina. Completed activities include: documented existing rates of child maltreatment nationally and in North Carolina; inventoried existing child maltreatment prevention resources (including programs, services, policies and funding) within DPH by how each addresses risk and protective factors; and development of a survey to measure baseline attitudes of public health staff. A literature review was completed to review evidence-based or promising approaches to build organizational capacity to prevent child maltreatment both at the state and community levels. C&Y Branch staff also reviewed organizational models for child

maltreatment prevention in all 50 states using the National Alliance of Children’s Trust and Prevention Funds membership.

An example of a strategic partnership aimed at increasing child maltreatment efforts is the Alliance for Evidence-Based Family Strengthening Programs (The Alliance). The Alliance is a collaborative network of public and private funders who support the replication of specific evidence-based programs for children and families across North Carolina. Alliance members are committed to funding programs that have strong track records of producing results for children, families, and communities, and to funding the needed infrastructure for quality implementation of those programs. The Alliance is a workgroup of the Child Maltreatment Prevention Leadership Team, and is staffed by Prevent Child Abuse NC and the Duke University Center for Child and Family Policy. The Alliance is composed of the following agencies:

- The Blue Cross-Blue Shield Foundation of NC (BCBS)
- The Duke Endowment (TDE)
- The Governor’s Crime Commission
- Kate B. Reynolds Charitable Trust (KBR)
- NC DMH/DD/SAS
- NC DPH (C&Y Branch)
- NC DSS
- NC Office of School Readiness
- NC Partnership for Children (NCPC)

To achieve the best possible outcomes for children and families, Alliance members joined together to collaboratively develop and fund scaffolding for a select number of evidence-based programs at the state level. This will allow community-based agencies to access the training, consultation, and evaluative supports they need with minimal cost and increased efficiency. As a result of a statewide assessment and the support of the Alliance members, the C&Y Branch shifted funding to support nurse family partnership (NFP) programs and evidence based parenting programs, including Incredible Years (IY) and the Strengthening Families Program (SFP). The Alliance partnership resulted in a combined commitment from the philanthropic organizations and DPH to fund eight NFP programs for seven years at a total of over 20 million dollars.

With collaborative funding from the C&Y Branch, BCBS, TDE, and KBR, North Carolina has expanded the NFP program to nine counties (Buncombe, Cleveland, McDowell, Mecklenburg, Pitt, Polk, Robeson, Rutherford and Wake) in addition to the existing site in Guilford County that has operated for 10 years. The C&Y Branch is currently working towards building internal capacity to serve as the organizational home for NFP.

North Carolina has developed state-level support for any local community-based agency or group implementing IY. This support was is through collaborative funding from the C&Y Branch, TDE, DSS, and NCPC. Technical assistance with organizational and community readiness, model fidelity and quality service delivery, and program evaluation is available. Alliance members are also working together to ensure funds are available to support local implementation of the IY Parent Training program. The C&Y Branch has funded seven additional IY programs across the state.

The C&Y Branch, KBR, and DSS have also developed similar state-level support for the SFP 6-11 and are working together to ensure funds are available to support local implementation of the SFP Parent Training program. The C&Y Branch is providing the same level of support for SFP 12-16 and 10-14 and has funded six additional SFP programs across the state.

Another example of strategic partnerships to enhance child maltreatment prevention is the NC Frameworks Strategic Frame Analysis (SFA) Study Circle funded by the C&Y Branch and TDE. The SFA Study Circle brought together a diverse group of private nonprofits and public agencies who are working to promote child and youth well-being – whether it is child maltreatment prevention, child health promotion, early childhood care and education, delinquency prevention, or other areas, to learn how to more effectively influence policy change through SFA, a form of communications research and practice developed by the Frameworks Institute which focuses on changing the public conversation on key social problems. The SFA Study Circle had over 40 participants representing the following organizations:

- DPH (C&Y Branch, WHB, and IVP Branch)
- DSS
- NCPC
- Orange County Local Partnership for Young Children
- Prevent Child Abuse-NC
- The Children’s Home Society
- NC Coalition against Domestic Violence
- NC Coalition against Sexual Assault
- Division of Child Development
- The Center for Child & Family Health
- Action for Children NC
- Center for Child & Family Policy- Durham Connects
- The Children’s Trust Fund (CTF)
- The Duke Endowment
- Family Support Network of NC
- Wake County Human Services
- UNC- Injury Prevention Research Center
- Good Shepherd Lutheran Church
- Children & Family Services Association of North Carolina
- FRIENDS National Resource Center for Community-Based Child Abuse Prevention

The goal of the SFA Study Circle is to increase the capacity of NC public agencies and private organizations working to promote child well-being to change public attitudes and discourse about the importance of investing in programs and policies that support healthy child development. Through the SFA Study Circle, participants and their organizations:

- increased their knowledge and understanding of SFA, and became conversant in the most current communications research on children and youth issues;
- built their communications skills and learned new communications strategies to more effectively influence public conversation about prevention and child development; and

- learned how the “early childhood development” frame can be used by diverse groups to develop a common language among multiple advocates and policy leaders to effect policy change.

The Study Circle Participants worked together for a period of six months – primarily “virtually” (i.e. web based and conference calls) – to learn, discuss, and incorporate new communications strategies into their policy and communications work. While the initial Study Circle has concluded, members of the Study Circle continue to meet to enhance messaging.

The C&Y Branch also continues to partner with both internal and external partners to build child maltreatment prevention efforts. These partners are listed in the following table.

**Table 61
Partners in Child Maltreatment Prevention Efforts**

Internal partners	External Partners
EI Branch	Child Fatality Task Force members
School Health	Child Maltreatment Prevention Leadership Team members/ Alliance members
WHB	Governor’s Early Childhood Council
IVP Branch	Domestic violence funders
Child Service Coordination Program	State Systems of Care Collaborative
SIDS prevention	LAUNCH Oversight Council
Family health resource line	Non-profit groups such as: Action for Children Prevent Child Abuse Pediatric Society Covenant, etc
Medical home	
TPPI	
Well child succeeds	
Oral health	

In 2009, the NC General Assembly moved the NC CTF from DPI to DSS. Prior to this move, the C&Y Branch worked closely with DPI to ensure that child maltreatment prevention activities were coordinated and non-duplicative. Since the CTF has been moved to DSS and DSS receives all dedicated child maltreatment prevention state and federal funding, staff members from the C&Y Branch continue to work collaboratively with DSS to ensure coordinated efforts.

Under the leadership of the C&Y Branch, significant progress has been made toward accomplishing the original Task Force recommendations with a high degree of voluntary collaboration of many agencies, organizations and individuals. However, the C&Y Branch and its partners continue to examine the leadership structure and authority for child maltreatment prevention efforts in the state, the task force priorities, future strategic planning across agencies, and ownership and accountability for these activities across agencies and within agencies. While the C&Y Branch has made great strides over the past three years toward the development of a comprehensive child maltreatment system, there remain significant gaps which will require a paradigm shift in public policy, funding priorities, and acknowledgment of child maltreatment as a major public health priority for the state.

Childhood Injuries - In North Carolina, as in other states, responsibility for addressing child injuries is spread across a number of state agencies, including: WCHS; the Department of Insurance; the Governor’s Highway Safety Program; the Governor’s Crime Commission; DMH/DD/SAS; the Office of Emergency Medical Services; DPI; the Department of Juvenile Justice and Delinquency Prevention; and the IVPB. In addition, two private, non-profit agencies, the NC Action for Children and Prevent Child Abuse NC, work closely with these public agencies to address the problem of unintentional and intentional injuries. The NCIOM *Prevention Action Plan* includes a priority recommendation to create a statewide task force or committee on injury and violence. (Recommendation 8.4)

Injury and Violence Prevention Branch

The primary responsibility for monitoring injuries and assuring that appropriate injury prevention programs and policies are being developed and implemented has been assumed by the IVPB. With support from the CDC, this branch has worked since the 1980s to build capacity to coordinate state and local efforts in the prevention of unintentional and intentional injuries. Categorical grants have allowed the Branch to address particular injury problems, such as fire and burn prevention, falls in the elderly, or youth suicide. Core capacity funds from CDC has allowed the Branch to better conduct injury surveillance and to develop and disseminate data reports, including issue briefs that highlight particular problems in North Carolina based on analyses of injury data.

North Carolina is one of 17 states to receive funding from CDC to develop a National Violent Death Reporting System, the nation’s first comprehensive system for collecting data about violent deaths. Funding was awarded to the IVPB. With this system, states gather detailed information about homicides, suicides and other violent deaths from police and State Bureau of Investigation reports, crime laboratories, death certificates and medical examiner records for inclusion in the national database. The data will be used to better understand why such deaths happen and to develop better prevention programs. The eventual goal is for all 50 states to participate. At both the state and national levels, the violent death reporting system will help police, policymakers, violence prevention groups, and public health experts develop and evaluate strategies to reduce deaths, including those caused by child abuse, domestic violence, drug trafficking, youth violence, and suicide.

Other Agencies

The Department of Insurance administers an injury prevention program that focuses particularly on injuries to children. The *Risk Watch* program uses teachers and community members to present injury prevention curricula in grades K-8, and their Safe Kids program sponsors the statewide child passenger safety program, “Safe Kids Buckle Up.” In addition, responding to the NC Child Fatality Task Force concerns about prescription drug overuse, Safe Kids has begun a state-wide prescription drug “take back” program, complete with a toolkit to help local entities with “take back” events. This seems to be one of the most extensive state-wide campaigns in the nation and may serve as a model with Safe Kids USA. NC DMH/DD/SAS is currently developing a community-based early intervention plan to address issues such as youth suicide and substance abuse related injuries. It also provides administrative support to the Traumatic

Brain Injury (TBI) Advisory Council that is charged with the development and implementation of a state plan for TBI. The Office of Emergency Medical Care Services is responsible for the development of a statewide trauma system that includes injury and violence prevention as part of its mission. The Department of Juvenile Justice and Delinquency Prevention work closely with DPI to develop and evaluate a wide array of school-based violence prevention programs.

The NC Child Fatality Prevention System

The C&Y Branch has played a key role in the development and implementation of the NC Child Fatality Prevention System that serves as a central resource for action related to reducing preventable child deaths. The enabling legislation passed in 1991 created the four components of this system: the NC Child Fatality Task Force; the State Child Fatality Prevention Team; local Child Fatality Prevention Teams (CFPTs); and Community Child Protection Teams (CCPTs) in each county. Locally, the CCPTs focus on fatalities that are likely due to child abuse, neglect, or dependency, while the CFPTs focus on all other child fatalities. These teams review deaths and initiate system changes at the local level that will help prevent child deaths. The local teams can also make recommendations to the State Team and the Task Force for state level changes.

The CFTF is a critical resource for routine analysis of child fatalities in the state. It is unique in its ability to assure introduction of legislation related to reducing child fatalities. Task Force membership includes legislators, leaders of state agencies (health, social services, juvenile justice, and education), child advocacy organizations, and child abuse prevention organizations. The State Team is responsible for in-depth reviews of all deaths of children younger than eighteen years old reported to the NC Medical Examiner system, including deaths due to abuse and neglect.

Specific accomplishments of the Child Fatality Prevention System in the last five years are outlined in the Table 62. The Executive Director of the Task Force and the state coordinator for the CFPTs are housed in C&Y Branch, providing a mechanism for leadership and participation in Task Force activities. The Executive Director position was temporarily eliminated in 2003 and 2004 due to state budget cuts, but was restored in 2005.

Table 62
Recent Achievements of the Child Fatality Prevention System

2005	All-Terrain Vehicle Safety Law (Senate Bill 189) Ratified. The law established that a child less than eight years of age is not allowed to operate an All-Terrain Vehicle (ATV) In addition the law creates restrictions based on age and machine size for children between the ages of eight and 16. The law also requires adult supervision for children under 16, restricts passengers to those ATVs designed for more than one person, bans operation on public streets, roads and highways, and outlines equipment standers for sellers and buyers. In addition safety training is now required for operators as is the use of safety equipment.
2006	Unlawful Use of a Mobile Phone Law (Senate Bill 1289) ratified. The law established that children under the age of 18 cannot operate a motor vehicle while using a mobile phone or any technology associated with mobile phones. Exceptions were created for teens talking with their parents, spouses or emergency personnel.
	Rear Passenger Safety Law (Senate Bill 774) ratified. The law requires use of rear-seat safety belts by all passengers of non-commercial vehicles.
2007	Child Passenger Safety Exemption (Senate Bill 23) ratified. Amended § 20-317.1. (Child restraint systems required), by removing exemption (b)ii “when the child’s personal needs are being attended to” in order to qualify NC for the continuation of \$1 million in child passenger safety funding from the National Highway Traffic Safety Administration.
	Funds to address Infant Deaths secured. Appropriations recommended by the Child Fatality Task Force were secured, and included: \$97,000 in non-recurring funds to prevent preterm births by providing the medication known as 17P to uninsured women, and \$150,000 in non-recurring funds for a statewide Safe Sleep awareness campaign.
2008	Amend Child Abuse/Child Fatality Task Force (Senate Bill 1860) Ratified. An act to increase the criminal penalty for misdemeanor child abuse and to amend the criminal offense of felony child abuse.
	Hospital Report Child Injuries (House Bill 2338) Ratified. An act to require hospitals and physicians to report serious, non-accidental trauma injuries in children to law enforcement officials.
	Transporting Children in Open Bed of Vehicle (House Bill 2340) ratified. An act to increase the protection of children who ride in the back of pickup trucks or open beds of vehicles by raising the minimum age to 16 and removing the exemption that made allowances for small counties.
2009	Funding to Reduce Infant Deaths provided. \$150,000 in non-recurring funds appropriated to continue funding for a statewide public awareness campaign to promote safe sleep and reduce infant deaths due to SIDS and accidental suffocation/strangulation.
	Interagency agreements established to better protect children from violent sex offenders. The federal Adam Walsh Child Protection and Safety Act requires a more comprehensive, nationalized system for registration of sex offenders. To meet this goal, interagency collaboration has been established between the State Bureau of Investigation, the Sherriff’s Association, the Division of Social Services and the Local DSS Associations.

Suicide

The IVPB has taken the lead on DPH suicide prevention activities with the creation of the NC Youth Suicide Prevention Task Force (YSPTF). C&Y Branch staff members have participated on the Task Force that has worked for the past five years to examine data on youth suicide in North Carolina, raise awareness about the problem, and develop a state plan for the prevention of youth suicide. That plan, *Saving Tomorrows Today*, was released in April 2004.

Since release of the state plan, the IVPB has coordinated development of an implementation plan and is seeking funding to support implementation efforts. Task Force members selected six goals from the National Strategy for Suicide Prevention as priorities for North Carolina. The goals and objectives of this plan provide a focused and strategic approach for North Carolinians to take the steps necessary to reduce the number of North Carolina youth who complete or attempt suicide.

Those goals are to:

- Promote awareness that suicide is a public health problem that is preventable.
- Develop and implement community-based suicide prevention programs.
- Promote efforts to reduce access to lethal means and methods of self harm.
- Implement training for recognition of at-risk behavior and delivery of effective treatment.
- Improve access to and community linkages with mental health and substance abuse services.
- Improve and expand surveillance systems.

In September 2008, North Carolina was awarded the Garrett Lee Smith grant for \$1.3 million dollars over 3 years. The grant is managed by the IVPB, who work with a State Grant Team comprised of some YSPTF members. For the first grant year, IVPB contracted with the Mental Health Association in North Carolina (a founding member of the YSPTF) to develop the communication campaign and coordinate training to increase the number of certified suicide prevention trainers. UNC-CH's Injury Prevention Research Center was contracted to do local evaluation. A request for application to award suicide prevention funds in 2009-10 to state school health centers which serve middle or high school students was also released

E. Capacity Assessment for Children with Special Health Care Needs

1. Direct Health Care Services

Dental Care for CYSHCN - Barriers to oral health care for CYSHCN remain a challenge in North Carolina. As institutional care in the state decreases and retired dentists from institutional centers are not being replaced, the ongoing need for oral health services within local communities has increased. Without support from medical providers, families of CYSHCN may overlook routine and special dental care needs, be overwhelmed or see little importance in proper oral health care. Without appropriately trained providers and a payment mechanism to support them, access to dentists who serve special needs patients diminishes.

In April 2005, the North Carolina Oral Health Summit reviewed progress on dental health outcomes that were highlighted in the 1999 NCIOM Task Force on Dental Care Access report. The original report contained recommendations relevant to CYSHCN which continue to be important today. As a result of the focus on oral health needs, a number of agencies have established programs to provide dental services to institutional and other difficult-to-serve

populations. Mobile dental care programs have been helpful in reaching special needs patients who face obstacles that keep them from getting to the dentist's office.

Increasing the number of pediatric dentists and expanding the provision of preventive services to young children has met with growing success. The number of pediatric dentists rose from 47 in 1999 to 92 in 2004. The issue remains important, however, as the state grapples with increasing the opportunity for specialized training coupled with an aging pediatric dentist workforce.

North Carolina is opening a new dental school, the School of Dentistry at East Carolina University. This program has a unique training design. During the fourth year, the educational experience will take place primarily in dedicated community clinical service learning centers located in rural and underserved areas around the state. In addition to the program to prepare dentists, East Carolina University plans to offer an Advanced Education in General Dentistry residency program, as well as a specialty program in Pediatric Dentistry.

In 2005 the state Title V agency developed an oral health work group as part of its efforts to focus attention on the health care needs of CYSHCN. Composed of family members, community based dental providers and C&Y Branch staff, including staff from the Office on Disability and Health, the group developed a strategic plan to address oral health disparities for CYSHCN. The primary focus of the work group's plan is on education and awareness. Other areas of importance include data collection, policy, elimination of physical and cultural barriers, and supporting increased and stable Medicaid reimbursement.

In partnership with the state Title V family advisory group, the FC for CYSHCN, the Commission for CSHCN adopted the work group under its administrative structure in 2008. The work group is working to promote an accessibility checklist to assist dental providers in providing dental care to persons with mobility, vision, hearing, and intellectual disabilities.

In 2009, the NC General Assembly enacted Senate Bill 188, which directs NCDHHS and DPH, in collaboration with numerous state agencies, universities and special care dental providers to further examine dental care options for special care populations and make recommendations to the General Assembly.

The first meeting of the Special Care Advisory Group was held in November 2009. Some of the key preliminary recommendations included: providing incentives for dental care providers to better serve special populations; increasing access to dental care providers; and enhancing education and outreach for providers and families. The Special Care Advisory Group will meet again to further discuss strategies and make recommendations to the General Assembly. The Oral Health Workgroup of the Commission on CSHCN will develop strategies to support the Special Care Advisory Group's recommendations.

2. *Enabling Services*

Community Alternatives Program for Children – This DMA administered program provides cost-effective home care for medically fragile children (through age 18) who are at risk for institutional care. Home care is a more cost-effective alternative to institutional care.

Community Alternatives Program for Children and Adults with Mental Retardation or Developmental Disabilities is for children and adults who need an Intermediate Care Facility for people with Mental Retardation or Developmental Disabilities. Both CAP programs have a limit on the total number of participants and at times, there have been significant waiting lists for these programs.

North Carolina Health Choice - The Special Needs Plan under NC Health Choice covers services at the same level as Medicaid, except that long-term care is not provided and respite care is provided under emergency circumstances only. If a child needs additional services not provided by the core package of NC Health Choice, the Special Needs Plan will provide coverage for similar services. The NC Health Choice core plan tends to cover more rehabilitative services, while the Special Needs Package tends to provide coverage for more habilitative services, which means more special therapies are available. Additional physical health services for children with special health care needs may include: medical nutrition therapy and special formulas, aids for daily living and personal care (such as bathing and eating equipment), seating and positioning equipment, standing and walking aids, wheeled mobility (wheelchair) accessories, miscellaneous medical supplies, and a few over the counter medications.

Most of the benefits in the Special Needs Plan are for behavioral health as this was the biggest gap between the State Health Plan and Medicaid coverage. All mental health and/or alcohol and drug treatment, developmental disability, or emergency respite services require pre-certification by a Mental Health Case Manager for the plan. Enhanced behavioral health service covered under the Special Needs Plan include: diagnostic assessment, community support, targeted case management (for children with a sole developmental delay diagnosis), day treatment, intensive in-home treatment, multisystemic therapy, mobile crisis, therapeutic foster care, and residential therapeutic services Levels I – IV. Emergency respite services may also be provided for unplanned situations in which family members temporarily do not have the capacity to safely care for their child or when changes in their child's health, behavior, or development require in-home or out-of-home temporary support.

If a physician prescribes care that will not be covered by the core plan of NC Health Choice, they can submit a special needs physician certification form which ensures that the request is reviewed a second time under special needs plan criteria. Parents are encouraged to ask their child's pediatrician to submit the completed form even before services are requested. The information on the form is valid for one year. The form is available by mail and fax or can be downloaded from the DMA or NC Pediatric Society websites (<http://www.ncdhhs.gov/dma/providerhc/physicianform.pdf>).

Should family economic conditions change so that the child is no longer eligible for NC Health Choice but desires continued coverage, the family may purchase the plan at full premium for one year. The child must have been in the plan for at least one full year and fall between 200-225% of FPL.

3. Population-Based Services

Title V CSHCN Help Line Data and Information - The CSHCN Help Line is housed in C&Y Branch and serves as a toll-free resource where families, health care, and other professionals can obtain information about all public programs that serve CSHCN. The Help Line data tracking system captures demographic and content/need-related information about each call received. During the January 2005 to November 2009 time period, there were 8,925 calls received for the CSCHN Help Line, averaging 151 calls per month. Among the 5,689 children discussed, 3,904 (69%) were reported as having special health care needs. The age breakout of children discussed was <5 yrs. (1,990/35%); 6 -10 yrs. (1,344/24%); 11-14 yrs. (963/17%); 15-18 yrs. (693/12%); and >19 yrs. (407/7%). Age was unknown for 292 children. Among callers, 5741 (64%) identified themselves as family/friends of the child being discussed, while 3,184 (36%) were health care providers/other professionals.

Data from the Help Line specific to NPM#5 (% of CSHCN age 0 to 18 whose families report the community-based service system are organized so they can use them easily) related to service access and the coordination and organization of services included the following:

- Programs that were discussed during the call,
- Type and level of assistance provided,
- Resources discussed/recommended during the call, and
- Unmet needs identified by the caller.

Repeat callers made up the highest percentage of callers (33%). The second highest percentage of callers (29%) reporting being referred by a public/private agency, a health care provider or other professional. Finding the Help Line number on educational materials or online was reported by 17% of callers. Nearly 7% of calls were from or about out of state families, who were considering or planning a move to North Carolina. While most North Carolina callers needed information and/or guidance on multiple programs and services, out-of-state callers needed the same type of help, plus more related to the coordination of services as they relocated. They needed to make sure that their child would have access to services comparable to those in their current state. Callers need help identifying and choosing program-affiliated providers/vendors and understanding prior approval requirements for services and claims processing. They also need to know how applying for one program impacts eligibility for and benefits under other programs. They also need help identifying other agencies they may need to involve (such as school systems) along the way. All such calls require that the person receiving the calls has a thorough knowledge of all public programs that serve CSHCN related to eligibility and covered services. Such information must be provided thoroughly, consistently, and in a way that is understandable to families with all levels of education, types of experiences, and language preferences. The WCHS is fortunate to have a knowledgeable, competent, empathetic staff member receiving these calls.

4. Infrastructure-Building Services

The WCHS Family Council for Children and Youth with Special Health Care Needs (FC) - The FC is comprised of families of CYSHCN and self advocates with special health care needs. The Council was implemented to guide maternal and child health activities by providing policy, planning, and programmatic advice about CYSHCN and EI services. FC members are the link between families and other parent organizations, support groups, service programs, and advocacy

groups. The FC helps self-advocates and family members develop individual leadership skills to better advocate for improving health outcomes and accessing a broad array of resources on behalf of their communities.

The FC changed its name and reorganized in 2005 to further increase family and self-advocate diversity and grassroots representation and to shift the focus toward more active roles developing partnerships, supporting communities, and becoming more active within the state Title V agency. Family members continue to be reimbursed \$20 per hour to participate in meetings and other activities. They are also reimbursed at the standard North Carolina rate for per diem expenses.

The Council assists with Block Grant functions, including the annual report and five year needs assessment requirements. The FC members participated in a topical focus group this year, offering comments about NPMs 5 and 6, community based service systems and transition to adulthood issues. Additionally, members responded to a more thorough on-line survey that asked about the five NPMs specific to CYSHCN as part of the five- year needs assessment requirement. Using the rich number of statewide contacts, the Council members distributed the links for the family and professional on-line surveys to other families and providers across the state.

Family Liaison Specialist - In 2003, a Family Liaison position in the Special Services Unit of the C&Y Branch was created. The FLS is the parent of a child with special health care needs. The position was designed for a family member to serve as a direct staff link between family members of CYSHCN and maternal and child health activities. The responsibilities of the FLS are to staff the FC, assist in the inclusion of families in the state MCHB policy efforts, and provide leadership to staff on the development and promotion of children's health services and family related issues across the work of the C&Y Branch.

One data source that measures the efforts of the FC, the FLS, and the WCHS to include families as partners across all levels is "Form 13, Six Characteristics Documenting Family Participation in CSHCN Programs," a required component of the annual MCH Block Grant Application. Form 13 is completed annually by members of the FC with input from the FLS during a spring meeting. The collaboration among the three groups has made a demonstrable difference in the involvement of families in Title V activities.

Table 63
Results for Form 13 – Six Characteristics
Documenting Family Participation in CSHCN Programs
FY03 to FY10

Characteristics	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10
Family members participate on advisory committees or task forces and are offered training, mentoring and reimbursement, when appropriate.	3	2	3	3	3	3	3	3
Financial support (financial grants, technical assistance, travel and child care) is offered for parent activities or parent groups.	2	3	3	3	3	3	3	3
Family members are involved in the CSHCN elements of the MCH Block Grant Application process.	2	3	3	3	3	3	3	3
Family members are involved in service training of CSHCN staff and providers.	1	1	2	2	2	1	1	3
Family members are hired as paid staff or consultants to the State CSHCN program (a family member is hired for his or her expertise as a family member).	2	3	3	3	3	3	3	3
Family members of diverse cultures are involved in all of the above activities.	2	1	2	2	2	2	2	2
Total Score	12	13	16	16	16	15	15	17

Commission on Children with Special Health Care Needs - The Commission has been actively involved in monitoring the utilization of behavioral health services for Health Choice CYSHCN and making recommendations to NCDHHS regarding provider qualifications, required training for service providers, and the development of community college training program for sub-licensed mental health professionals. Members of the Commission’s Behavioral Health Workgroup have joined the DMA/DMH Workgroup charged with reviewing and proposing recommendations on the current behavioral health services definitions to the leadership of NCDHHS. Participation in this workgroup allows the Commission’s input to be carefully considered before changes to services are implemented.

The Commission has also assumed a more active role in the oral health needs of CYSHCN. The Oral Health for CYSHCN Workgroup of the Commission has been working in collaboration with the NCODH and FC for CYSHCN to promote an accessibility checklist to assist dental providers in providing dental care to persons with mobility, vision, hearing, and intellectual disabilities. In addition, members of the Oral Health Workgroup are active participants in the Special Care Dentistry Advisory Group, which was established by the General Assembly in 2009 to examine dental care options for special care populations.

Annually, the Commission provides written reports on its activities. Included in the report are recommendations to NCDHHS and the General Assembly regarding specific health care issues for CYSHCN.

Carolina Health and Transition (CHAT) Project - The C&Y Branch was awarded a three year grant from HRSA in May 2006 to fund CHAT. The grant addressed the needs of North Carolina's CYSHCN to receive coordinated, comprehensive care within a medical home and to ensure successful transition from pediatric to adult systems of health care.

The CHAT project targeted barriers in the availability of, and access to, quality health care services by broadening awareness, teaching specific skills, and changing systems of practice for CYSHCN, their families, and medical providers. Activities of the CHAT project built upon and linked with other state-wide initiatives designed to improve health care opportunities and practices for all children, by including issues specific to transition and medical home in medical care for CYSCHN.

CHAT Program Goals are the following:

1. CYSHCN, their families, and medical providers have increased awareness, knowledge necessary to encourage successful transition from pediatric to adult health care systems.
2. CYSHCN, their families, and medical providers have skills necessary to implement and integrate transition strategies.
3. Change systems of practice to address transition within a medical home for CYSHCN, their families and medical providers

The CHAT project was coordinated by the CHAT Project Coordinator who acts in partnership with the Youth, Family, and Medical Provider Initiatives and an independent Project Evaluator to develop curricula and train youth, families and medical providers in the knowledge and skills needed to ensure successful health care transition. The CHAT Project Coordinator and the Initiatives also partnered to recruit and train mentors/advocates who supported health care transition.

The Youth Transition Initiative worked to increase the number of CYSHCN who have the skills needed to successfully transition from pediatric to adult health care systems within a medical home. These skills may include self-management behaviors, advocacy skills for themselves and peers, and the ability establish a working partnership with medical providers. CHAT contracted with the Alliance of Disability Advocates -Center for Independent Living (ADA-CIL) to lead this initiative. The ADA-CIL provides mentoring support to the NC Youth Leadership Network, a state-wide organization supporting youth with disabilities to achieve their fullest potential.

The Family Transition Initiative worked to increase the number of families parenting CYSHCN who have the skills to support self-management and healthy behaviors, advocate for their youth's transition, and find adult providers with the skills to support transition within a medical home. CHAT contracted with the Exceptional Children's Assistance Center to lead this initiative.

The Medical Provider Transition Initiative worked to increase the number of medical providers who have knowledge and expertise in providing quality medical services to CYSHCN and who

are able to support transition from pediatric to adult health care within a medical home. This was accomplished through the development of an electronic module on best practices in transition for CYSHCN for medical providers. This module provided a platform upon which a web-training program offering CME credit can be developed. Also, a referral roster of medical provider advocate/mentors, experienced in disability, chronic illness and in best practices related to transition and medical home, was developed to support CYSHCN, families and other providers. CHAT contracted with Mountain Area Health Education Centers to lead this initiative.

While the implementation grant funding from HRSA ended in 2009, many of the materials and resources developed during the grant period will continue to be used and promoted by staff members of the C&Y Branch and its partners.

Innovative Approaches (IA) - Putting children on a positive trajectory for their lives by implementing evidence-based family support initiatives is critically important for children, for families and for the future economic security of North Carolina. IA is an improvement initiative that aims to put children on this positive trajectory to success. It does not aim to own programs; it aims to improve existing programs and to help create the best possible state and local system of care to promote child success in North Carolina. IA recognizes that North Carolina needs to 1) invest more resources in promoting child success; 2) invest new and existing resources in evidence-based programs; 3) build the infrastructure to help these programs be successful; and 4) support the creation of a population-based integrated system of activities that promotes child success. One key component of this statewide vision is the creation of community-based, family-focused systems of care for families of CYSHCN. The goal of the IA initiative is to foster improvement for community-wide systems of care that will effectively meet the needs of families of CYSHCN, resulting in increased family satisfaction with services received and improved outcomes for CYSHCN.

The purpose of the IA initiative is threefold: 1) to foster and support community strategies to create effective systems of care for families of CYSHCN; 2) to identify promising practices, and then; 3) to help disseminate these practices to other communities. The IA initiative will look to collaborative partnerships between LHDs and local CCNC networks as lead agencies for this initiative. These two agencies are well positioned to lead local efforts to assess and implement effective strategies for systems of care for CYSHCN, and closer collaboration between LHDs and CCNC networks is critical to the success of a local system of care.

The IA initiative also recognizes the critical role many other programs and families play as part of a system of care in creating the conditions in which children can succeed. This initiative will be alert to opportunities to support families in North Carolina more effectively by working closely with providers such as the CDSAs; local education agencies (including school-based initiatives like school nurses, school health centers and the CFST initiative); family-centered/led programs; local mental health; local Departments of Social Services (child protective services and foster care system); child care providers; local Smart Starts; community-based organizations and the state-level counterparts of these agencies. Program technical assistance, training (strategic planning/system analysis), and evaluation will be conducted by the University of North Carolina at Greensboro.

The C&Y Branch put out a request for applications for local health departments interested in the IA in December 2009. Four awards were made through a review of applications process to the health departments in Surry, Wayne, Buncombe and Cabarrus counties. The project period is February 14, 2010 – May 31, 2012, with the option to extend for two additional years based on performance and funding availability. Successful applicants will receive a base award of \$100,000 each in the first budget period February 14, 2010 – May 31, 2010 and \$250,000 each in the second (June 1, 2010 – May 31, 2011) and third (June 1, 2011 – May 31, 2012) budget periods. February through May 2010 will be used as a planning period and the implementation period will begin June 1, 2010.

The Innovative Approaches initiative has the following five outcome goals:

1. Families of children and youth with special health care needs will partner in decision making.
2. All children and youth with special health care needs will receive coordinated ongoing comprehensive care within a medical home.
3. All children will be screened early and continuously for special health care needs.
4. Services for children and youth with special health care needs and their families will be organized in ways that families can use them easily.
5. All children and youth with special health care needs will receive the services necessary to make appropriate transitions.

One of the priority recommendations of the NCIOM Task Force on Adolescent Health was to fund evidence-based programs that meet the needs of the population being served (Recommendation 3.2). The Innovative Approaches initiative is one example of trying to meet this recommendation.

5. Selection of State Priority Needs

The WCHS conceives of priority-setting as a continuous process, in which useful data, both quantitative and qualitative, relevant to the broad mission of the section are continuously being gathered and analyzed with an eye to adjusting the priorities and the activities of the section as appropriate. In addition to these day-to-day “micro” analyses of relevant inputs, the section utilizes formal needs assessment processes, such as the five year MCHBG needs assessment process, the performance planning established by the Department, outcome measures updated annually, information from participation in planning and work committees/meetings, information from data sources reviewed at least annually, and information from sources such as the NCIOM Task Force reports and county needs assessments to review and titrate section priorities and activities. In order to give a background context for the section’s activities with respect to priority-setting in association with the MCHBG needs assessment process, some information about antecedent section priority-setting activities is provided.

During FY03, the Section Management Team (SMT) defined a consensus set of core WCH Indicators to be used to communicate the value of the work done by the WCHS with policymakers, stakeholders, and the general public. These indicators are the following:

1. Reduce infant mortality
2. Improve the health of women of childbearing age

3. Prevent child deaths
4. Eliminate vaccine-preventable diseases
5. Increase access to care for women, children, and families
6. Increase the number of newborns screened for genetic and hearing disorders and prevent birth defects
7. Improve the health of children with special needs
8. Improve healthy behaviors in women and children and among families
9. Promote healthy schools and students who are ready to learn
10. Provide timely and comprehensive early intervention services for children with special developmental needs and their families.

The purpose of defining the set of indicators was to be able to help the WCHS better define its mission and promote a common vision among staff. In addition, as these indicators are shared with stakeholders and policymakers, they provide information about how the work of the WCHS contributes to the welfare of the state and where key points of intersection with other services and providers occur. The process of defining the indicators also helped the SMT gain clarity about where evidence-based interventions exist and identify areas offering opportunities for improvement. Also, the choice of indicators helps Section staff understand core job responsibilities and evaluate performance as the indicators can be used in individual work plans. Another important outcome of the selection of indicators is that they allow for a more data-driven environment throughout the WCHS.

During the 2010 MCH needs assessment process, SMT members found that the broad priority areas previously identified provided an excellent template for describing to federal, state and local stakeholders the charges given to the WCHS. While other states may use the needs assessment process to identify more narrow or more specific priorities, such as “improve school nurse to student ratio in public schools,” or “increase the number of disorders screened by the newborn metabolic screening program,” our approach, in which we aim to identify the full range of activities we are charged to support, seems to work well for us.

Because we are using such broad, inclusive categories, it has seemed reasonable to leave them unchanged. We feel no needs assessment process would ever lead us to conclude, for example, that “reducing infant mortality” or “improving the health of children with special needs” would not be a priority area for us. What the needs assessment has done, of course, is to provide us with a wide range of data that are allowing us to refine our strategies for reducing infant mortality, improving the health of children with special needs, and focus our work for each year in the other priority areas we have identified.

Examples of the ways in which the needs assessment data has been used to refine our strategies and redirect our activities are as follows:

- A state performance measure on adolescent immunizations has been added.
- Qualitative studies conducted by the Healthy Start Foundation on pregnancy intention resulted in production of family planning method flashcards in English and Spanish.
- The NCIOM recommendations from the various task forces (adolescents, prevention, etc.) have been more thoroughly reviewed by more staff members and those that are particularly relevant to the work of the WCHS have been compiled.

- Concurrent with the needs assessment process, the North Carolina 2020 objectives were being set. Work done through the needs assessment helped inform the work of the subcommittees working on these objectives.
- Both the health status assessment and capacity sections from the needs assessment will be reviewed and used as appropriate in creating the home visiting grant application and other grants for which we apply.
- Improved use and availability of data to inform decision making.
- A tool to inform key partners including families in planning and coordination.

The following table indicates how these priority needs relate to the four service levels of the MCH pyramid and how they cover the three major MCH population groups. As noted, almost every priority need covers all realms of the pyramid and many of them cross over the three population groups.

Table 64
The Relationship of the Priority Needs to the
MCH Population Groups and Pyramid Level of Service

Priority Need	Population Group			Pyramid Level of Service			
	W/I ¹	C ²	CSHCN	DHC ³	ES ⁴	PBS ⁵	IB ⁶
1. Reduce infant mortality	✓			✓	✓	✓	✓
2. Improve the health of women of childbearing age	✓			✓	✓	✓	✓
3. Prevent child deaths		✓	✓			✓	✓
4. Eliminate vaccine-preventable diseases	✓	✓	✓	✓	✓	✓	✓
5. Increase access to care for women, children, and families	✓	✓	✓	✓	✓	✓	✓
6. Increase the number of newborns screened for genetic and hearing disorders and prevent birth defects	✓			✓	✓	✓	✓
7. Improve the health of children with special needs			✓	✓	✓	✓	✓
8. Improve healthy behaviors in women and children and among families	✓	✓	✓			✓	✓
9. Promote healthy schools and students who are ready to learn		✓	✓	✓	✓	✓	✓
10. Provide timely and comprehensive early intervention services for children with special developmental needs and their families.		✓	✓	✓	✓	✓	✓

¹Women, Mothers, and Infants, ²Children, ³Direct Health Care, ⁴Enabling Services, ⁵Population-Based Services, ⁶Infrastructure-Building

As the needs are so broad and far reaching, measuring success is more difficult than just assigning one state performance measure to each need. The national performance measures, health service capacity indicators, and health status indicators all address different parts of these

priorities and are reviewed regularly, especially internally and with partners. Based on a thorough review of the needs assessment, the SMT decided to use the same eight state performance measures that were identified in 2005 and added an additional measure. There was also one revision made to the wording of one previous measure, as the terminology for children who have a body mass index \geq the 95th percentile has changed and these children are now considered obese instead of overweight, which was the term used in 2005. The wording has been changed, but the data will continue to show the percent \geq the 95th percentile. The newly added performance measure is the percent of children age 13 to 17 who have received 1 or more doses of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) since the age of ten years. Ensuring that adolescents receive this vaccine is an important tool in reducing the number of pertussis cases that occur, but also may be beneficial in ensuring that adolescents have access to other types of preventive health care. Much work is being done by the Immunization Branch to promote adolescent immunizations. The tables below show the relationship between the state and national performance measures and the priority needs.

Table 65
The Relationship of the State Performance Measures and the Priority Needs

State Performance Measures	Priority Needs									
	Reduce infant mortality	Improve health of women of childbearing age	Prevent child deaths	Eliminate vaccine-preventable diseases.	Increase access to care for women, children, and families.	Increase the number of newborns screened and prevent birth defects	Improve the health of children with special needs.	Improve healthy behaviors in women, children and families	Promote healthy schools and students who are ready to learn	Provide early intervention services for children with special developmental needs
1. Number of substantiated cases of child abuse and neglect	✓		✓							
2. The number of children in the State less than three years old enrolled in early intervention services to reduce the effects of developmental delay, emotional disturbance, or chronic illness.							✓			✓
3. Percent of children 2-18 who are obese. Obese is defined as a BMI greater than or equal to the 95th percentile for gender and age.							✓	✓	✓	
4. Percent of women responding to the Pregnancy Risk Assessment Monitoring System (PRAMS) survey that they wanted to be pregnant later or not then or at any time in the future.	✓	✓			✓			✓		
5. Percent of women of childbearing age taking folic acid regularly.	✓	✓				✓		✓		
6. Ratio of school health nurses to the public school student population.					✓		✓		✓	

State Performance Measures	Priority Needs									
	Reduce infant mortality	Improve health of women of childbearing age	Prevent child deaths	Eliminate vaccine-preventable diseases.	Increase access to care for women, children, and families.	Increase the number of newborns screened and prevent birth defects	Improve the health of children with special needs.	Improve healthy behaviors in women, children and families	Promote healthy schools and students who are ready to learn	Provide early intervention services for children with special developmental needs
7. Percent of women with live, term births who gain within the Institute of Medicine (IOM) Recommended Weight Gain Ranges.	✓	✓						✓		
8. Percent of non-pregnant women of reproductive age who are overweight/obese (BMI>26).	✓	✓						✓		
9. Percent of children age 13 to 17 who have received 1 or more doses of Tdap since the age of 10.				✓	✓		✓			

Table 66
The Relationship of the National Performance Measures and the Priority Needs

National Performance Measures	Priority Needs									
	Reduce infant mortality	Improve health of women of childbearing age	Prevent child deaths	Eliminate vaccine-preventable diseases.	Increase access to care for women, children, and families.	Increase the number of newborns screened and prevent birth defects	Improve the health of children with special needs.	Improve healthy behaviors in women, children and families	Promote healthy schools and students who are ready to learn	Provide early intervention services for children with special developmental needs
1. The percent of screen positive newborns who received timely follow up to definitive diagnosis and clinical management for condition(s) mandated by their State-sponsored newborn screening program						✓				
2. The percent of children with special health care needs age 0 to 18 whose families partner in decision-making at all levels and are satisfied with the services they receive. (CSHCN Survey)					✓		✓			✓

National Performance Measures	Priority Needs									
	Reduce infant mortality	Improve health of women of childbearing age	Prevent child deaths	Eliminate vaccine-preventable diseases.	Increase access to care for women, children, and families.	Increase the number of newborns screened and prevent birth defects	Improve the health of children with special needs.	Improve healthy behaviors in women, children and families	Promote healthy schools and students who are ready to learn	Provide early intervention services for children with special developmental needs
3. The percent of Children with Special Health Care Needs age 0 to 18 who receive coordinated, ongoing, comprehensive care within a medical home. (CSHCN Survey)					✓		✓			✓
4. The percent of children with special health care needs whose families have adequate private and/or public insurance to pay for the services they need. (CSHCN Survey)					✓		✓			✓
5. The percent of children with special health care needs age 0 to 18 whose families report the community-based service system are organized so they can use them easily. (CSHCN Survey)					✓		✓			✓
6. The percentage of youth with special health care needs who received the services necessary to make transitions to all aspects of adult life. (CSHCN Survey).					✓		✓			
7. Percent of children through age 2 who have completed immunizations for Measles, Mumps, Rubella, Polio, Diphtheria, Tetanus, Pertussis, Haemophilus Influenza, Hepatitis B.				✓						
8. The birth rate (per 1,000) for teenagers aged 15 through 17 years.	✓	✓						✓	✓	
9. Percent of third grade children who have received protective sealants on at least one permanent molar tooth.					✓			✓		
10. The rate of deaths to children aged 14 years and younger caused by motor vehicle crashes per 100,000 children.			✓							
11. Percentage of mothers who breastfeed their infants at 6 months of age.	✓						✓	✓		
12. Percentage of newborns who have been screened for hearing impairment before hospital discharge.						✓				
13. Percent of children without health insurance.					✓					
14. Percentage of children, ages 2 to 5 years, receiving WIC services with a BMI at or above the 85th percentile.							✓	✓	✓	

National Performance Measures	Priority Needs									
	Reduce infant mortality	Improve health of women of childbearing age	Prevent child deaths	Eliminate vaccine-preventable diseases.	Increase access to care for women, children, and families.	Increase the number of newborns screened and prevent birth defects	Improve the health of children with special needs.	Improve healthy behaviors in women, children and families	Promote healthy schools and students who are ready to learn	Provide early intervention services for children with special developmental needs
15. Percentage of women who smoke in the last three months of pregnancy.	✓	✓						✓		
16. The rate (per 100,000) of suicide deaths among youths 15-19.			✓							
17. Percent of very low birth weight infants delivered at facilities for high-risk deliveries and neonates. (Level of care is only for NC resident births occurring in NC.)	✓				✓					
18. Percent of infants born to pregnant women receiving prenatal care beginning in the first trimester.	✓	✓			✓					

6. Outcome Measures

The National and State Outcome measures are impacted by many different factors. Table 67, Table 68, and Table 69 are an attempt to describe how the various activities of the WCHS impact these measures, but of course there are factors far beyond the Section's control that also impact these measures. While the tables are meant to give a good overview of the activities, the lists are by no means exhaustive. The activities in these lists include both ongoing and new activities. For further information regarding how these activities impact these measures, see the NC MCH Block Grant Application for 2011 and Annual Report for 2009.

Table 70 and Table 71 show the national and state performance measures and whether the 2009 goal set for each of these measures was met or not met. Trend information is also given. For the most part, the WCHS uses these goals as a way to indicate where the Section would like to be, even if these goals are a little lofty at times, thus there are quite a few measures where the goals were not met. Fortunately, for most of the measures the trend is going in the right direction. NPMs 2-6 are based on the NS-CSHCN which has only been conducted twice. Only two of these measures (2 and 4) have comparable data from the 2001 and the 2005/06 surveys, so it is difficult to ascertain if North Carolina is moving in the right direction for the other three measures.

Table 67
Impact of the State Program Activities on the National Performance Measures

National Performance Measure																	
	Newborn Screening	CSCHN whose families partner in decision-making and are satisfied with the services they receive.	CSHCN receiving care within a medical home.	CSHCN whose families have adequate insurance.	CSHCN whose families report the community-based services are organized to be used easily.	YSHCN who received the services necessary to make transitions to all aspects of adult life.	% of children through age 2 who have up to date immunizations.	Birth rate for teenagers aged 15 to 17.	% of 3rd graders with protective sealants.	Rate of deaths by MV to children <=14.	% of mothers breastfeeding infants at 6 mos.	% of newborns screened for hearing impairment before hospital discharge.	% of children without health insurance.	% of children (age 2 to 5) receiving WIC with a BMI >= 85th.	% of women who smoke in the last trimester.	Rate of suicide deaths among youths 15-19.	% of VLBW infants delivered at facilities for high-risk deliveries and neonates.
Summary of Activities and Programs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Baby Love Plus Program																	
Baby Love Program																	
Breastfeeding Program																	
Carolina Health and Transition Project																	
Child Care Health and Safety Consultation																	
Childhood Injury Prevention																	
Commission on CSHCN																	
Community Alternatives Program for Children (CAP-C)																	
Dental Care and Dental Care for CYSHCN																	
Early Intervention Services																	
Eat Smart, Move More North Carolina																	
Every Child Succeeds Facilitation Team																	
Family Liaison Specialist																	
Genetic Counseling Program																	
Health Check																	
Health Choice																	
Healthy Beginnings Program																	
Healthy Schools																	
Immunization Branch Programs																	
Innovative Approaches																	
LHD Child Health Services																	
LHD Family Planning Services																	
LHD Immunization Services																	
LHD Maternity Services																	
Mental Health Systems of Care																	
Multivitamin Distribution Program																	
NC Child Fatality Prevention System																	
Newborn Hearing Screening																	
Newborn Metabolic Screening Services																	
Preconceptional Health Initiative																	
School Health Center Program																	
School Health Matrix Team																	
School Nurses																	
School-Based Child and Family Support Teams																	
Sickle Cell Program																	
Teen Pregnancy Prevention Initiative																	
Title V CSHCN Help Line Data and Information																	
Tobacco Cessation Programs																	
WCHS Family Council for CYSHCN																	
WIC Program																	

Table 68
Impact of the State Program Activities on the State Performance Measures

State Performance Measure									
	# of substantiated cases of child abuse and neglect	# of children <3 years enrolled in early intervention services.	% of children 2-18 who are overweight (BMI>=95th).	% of women responding to PRAMS that they wanted to be pregnant later or not then or at any time in the future.	% of women of childbearing age taking folic acid regularly.	Ratio of school health nurses to the public school student population	% of women with live, term births who gain within the IOM Recommended Weight Gain Ranges.	% of non-pregnant women of reproductive age who are overweight/obese (BMI>26).	9. Percent of children age 13 to 17 who have received 1 or more doses of Tdap since the age of 10.
Summary of Activities and Programs	1	2	3	4	5	6	7	8	9
Baby Love Plus Program									
Baby Love Program									
Child Care Health and Safety Consultation									
Childhood Injury Prevention									
Commission on CSHCN									
Early Intervention Services									
Eat Smart, Move More North Carolina									
Every Child Succeeds Facilitation Team									
Family Liaison Specialist									
Healthy Beginnings Program									
Healthy Schools									
Immunization Branch Programs									
LHD Child Health Services									
LHD Immunization Services									
LHD Maternity Services									
Mental Health Systems of Care									
Multivitamin Distribution Program									
NC Child Fatality Prevention System									
Preconceptional Health Initiative									
School Health Center Program									
School Health Matrix Team									
School Nurses									
School-Based Child and Family Support Teams									
Teen Pregnancy Prevention Initiative									
Title V CSHCN Help Line Data and Information									
WCHS Family Council for CYSHCN									
WIC Program									

Table 69

Impact of the State Program Activities on the State and National Outcome Measures

National Outcome Measures	Infant mortality rate	Infant mortality: black/white ratio	Neonatal mortality rate per 1,000 live births	Postneonatal mortality rate per 1,000 live births	Perinatal mortality rate per 1,000 live births	Child death rate per 100,000 children aged 1-14	State Outcome Measure	Maternal mortality rate per 100,000 live births
	1	2	3	4	5	6	1	
Summary of Activities and Programs	1	2	3	4	5	6		1
Baby Love Plus Program								
Baby Love Program								
Breastfeeding Program								
Carolina Health and Transition Project								
Child Care Health and Safety Consultation								
Childhood Injury Prevention								
Commission on CSHCN								
Community Alternatives Program for Children (CAP-C)								
Early Intervention Services								
Eat Smart, Move More North Carolina								
Every Child Succeeds Facilitation Team								
Family Liaison Specialist								
Genetic Counseling Program								
Health Check								
Health Choice								
Healthy Beginnings Program								
Healthy Schools								
Immunization Branch Programs								
Innovative Approaches								
LHD Child Health Services								
LHD Family Planning Services								
LHD Immunization Services								
LHD Maternity Services								
Mental Health Systems of Care								
Multivitamin Distribution Program								
NC Child Fatality Prevention System								
Newborn Hearing Screening								
Newborn Metabolic Screening Services								
Preconceptional Health Initiative								
School Health Center Program								
School Health Matrix Team								
School Nurses								
School-Based Child and Family Support Teams								
Sickle Cell Program								
Teen Pregnancy Prevention Initiative								
Title V CSHCN Help Line Data and Information								
Tobacco Cessation Programs								
WIC Program								

Table 70
Status of the 2009 Goals for the National Performance Measures

National Performance Measures	2009 Goal MET or NOT MET	Trend in Right Direction?
1. The percent of screen positive newborns who received timely follow up to definitive diagnosis and clinical management for condition(s) mandated by their State-sponsored newborn screening program	MET	YES
2. The percent of children with special health care needs age 0 to 18 whose families partner in decision-making at all levels and are satisfied with the services they receive. (CSHCN Survey)	NOT MET	YES
3. The percent of Children with Special Health Care Needs age 0 to 18 who receive coordinated, ongoing, comprehensive care within a medical home. (CSHCN Survey)	NOT MET	Unknown
4. The percent of children with special health care needs whose families have adequate private and/or public insurance to pay for the services they need. (CSHCN Survey)	NOT MET	YES
5. The percent of children with special health care needs age 0 to 18 whose families report the community-based service system are organized so they can use them easily. (CSHCN Survey)	NOT MET	Unknown
6. The percentage of youth with special health care needs who received the services necessary to make transitions to all aspects of adult life. (CSHCN Survey).	NOT MET	Unknown
7. Percent of children through age 2 who have completed immunizations for Measles, Mumps, Rubella, Polio, Diphtheria, Tetanus, Pertussis, Haemophilus Influenza, Hepatitis B.	NOT MET	NO
8. The birth rate (per 1,000) for teenagers aged 15 through 17 years.	NOT MET	YES
9. Percent of third grade children who have received protective sealants on at least one permanent molar tooth.	NOT MET	YES
10. The rate of deaths to children aged 14 years and younger caused by motor vehicle crashes per 100,000 children.	MET	YES
11. Percentage of mothers who breastfeed their infants at 6 months of age.	MET	YES
12. Percentage of newborns who have been screened for hearing impairment before hospital discharge.	NOT MET	YES
13. Percent of children without health insurance.	NOT MET	NO
14. Percentage of children, ages 2 to 5 years, receiving WIC services with a BMI at or above the 85th percentile.	NOT MET	NO
15. Percentage of women who smoke in the last three months of pregnancy.	MET	YES
16. The rate (per 100,000) of suicide deaths among youths 15-19.	NOT MET	NO

National Performance Measures	2009 Goal MET or NOT MET	Trend in Right Direction?
17. Percent of very low birth weight infants delivered at facilities for high-risk deliveries and neonates. (Level of care is only for NC resident births occurring in NC.)	NOT MET	NO
18. Percent of infants born to pregnant women receiving prenatal care beginning in the first trimester.	NOT MET	YES

**Table 71
Status of the 2009 Goals for the State Performance Measures**

State Performance Measures	2009 Goal MET or NOT MET	Trend in Right Direction?
1. Number of substantiated cases of child abuse and neglect	MET	Unknown
2. The number of children in the State less than three years old enrolled in early intervention services to reduce the effects of developmental delay, emotional disturbance, or chronic illness.	MET	YES
3. Percent of children 2-18 who are obese. Obese is defined as a BMI greater than or equal to the 95th percentile for gender and age.	NOT MET	NO
4. Percent of women responding to the Pregnancy Risk Assessment Monitoring System (PRAMS) survey that they wanted to be pregnant later or not then or at any time in the future.	NOT MET	NO
5. Percent of women of childbearing age taking folic acid regularly.	NOT MET	YES
6. Ratio of school health nurses to the public school student population	NOT MET	YES
7. Percent of women with live, term births who gain within the Institute of Medicine (IOM) Recommended Weight Gain Ranges.	NOT MET	NO
8. Percent of non-pregnant women of reproductive age who are overweight/obese (BMI>26).	NOT MET	NO
9. Percent of children age 13 to 17 who have received 1 or more doses of Tdap since the age of 10.	N/A	Unknown

7. Annual Needs Assessment Summary

The WCHS conceives of priority-setting as a continuous process, in which useful data, both quantitative and qualitative, relevant to the broad mission of the Section are continuously being gathered and analyzed with an eye to adjusting the priorities and the activities of the Section as appropriate. In addition to these day-to-day “micro” analyses of relevant inputs, the Section utilizes formal needs assessment processes, such as the five year needs assessment process, to review and titrate Section priorities and activities.

As mentioned previously, the SMT decided to keep the same priority needs as identified in 2005, as these priority needs are very broad and continue to be true needs in the state. These priority needs are as follows:

1. Reduce infant mortality
2. Improve the health of women of childbearing age
3. Prevent child deaths
4. Eliminate vaccine-preventable diseases
5. Increase access to care for women, children, and families
6. Increase the number of newborns screened for genetic and hearing disorders and prevent birth defects
7. Improve the health of children with special needs
8. Improve healthy behaviors in women and children and among families
9. Promote healthy schools and students who are ready to learn
10. Provide timely and comprehensive early intervention services for children with special developmental needs and their families.

There have certainly been changes in the state's strengths, needs, and program and system capacity since the last needs assessment done in 2005. While there did not seem to be huge differences in the health status assessments for any of the population groups between 2005 and 2010, many of the indicators examined seem to be reaching a plateau or worsening somewhat. Infant mortality rates and teen birth rates had been declining, but these appear to be increasing again. There are increases in the number of children and women who are overweight and obese. Immunization rates have dropped.

The need for the services provided by the WCHS does not seem to be waning, but in fact increasing. However, with the economic downturn and the state budget decreases that have occurred over the past few years with no sign of stopping anytime soon, the ability of the WCHS to continue to provide services is hindered. Several programs have been eliminated in the past two years, including the Universal Childhood Vaccine Distribution Program, the Perinatal Outreach Coordination Program, Community Transition Coordinators, Assistive Technology Centers, Hemophilia and Adult Cystic Fibrosis Programs, the Fetal Infant Mortality Review program, the neonatal bed locator, and the Maternal Outreach Worker program. Many programs that may not have been completely eliminated, but reduced, are trying hard to maintain the quality and quantity of services with fewer resources. This is especially true with EI services and the C&Y Branch.

While the full impact of the Affordable Care Act is still to be seen, it does offer the chance of additional resources to provide health services to women, children, and families in North Carolina. The WCHS is busily working on its Early Childhood Home Visitation Programs and Pregnancy Assistance Fund grant applications and will use information gleaned in the MCH Needs Assessment process in both these applications and any future opportunities.

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9. Glossary

#	ACRONYM	DEFINITION
1	ABCD	Assuring Better Child Health and Development
2	ACDH	Advisory Committee on Disability and Health
3	ACIP	Advisory Committee on Immunization Practices
4	ACOG	American College of Obstetrics and Gynecology
5	ACS	American Community Survey
6	ADA-CIL	Alliance of Disability Advocates -Center for Independent Living
7	ADHD	Attention Deficit Hyperactivity Disorder
8	AFIX	Assessment, Feedback, Incentive, eXchange
9	AHEC	Area Health Education Center
10	APP	Adolescent Parenting Programs
11	APPP	Adolescent Pregnancy Prevention Programs
12	ART	Assisted Reproductive Technology
13	ATV	All-Terrain Vehicles
14	BCBS	Blue Cross-Blue Shield Foundation of NC
15	BCCCP	Breast and Cervical Cancer Control Program
16	BDMP	Birth Defects Monitoring Program
17	BMI	Body Mass Index
18	BRFSS	Behavioral Risk Factor Surveillance System
19	C&Y Branch	Children and Youth Branch
20	CAH	Congenital Adrenal Hyperplasia
21	CBO	Community Based Organization
22	CCHC	Child Care Health Consultant
23	CCNC	Child Care Nurse Consultant
24	CCPT	Community Child Protection Teams
25	CDC	Centers for Disease Control and Prevention
26	CDR	Continuing Disability Review
27	CDSA	Children's Developmental Services Agencies
28	CSEFEL	Center on the Social and Emotional Foundations for Early Learning
29	CF	Cystic Fibrosis
30	CFPT	Child Fatality Prevention Teams
31	CFST	Child and Family Support Team
32	CHAT	Carolina Health and Transition project
33	CHNAS- Families CSHCN	Child Health Needs Assessment Survey for Families of Children with Special Health Care Needs
34	CME	Continuing Medical Education
35	COBRA	Consolidated Omnibus Budget Reconciliation Act

#	ACRONYM	DEFINITION
36	COPD	Communication Outreach and Professional Development
37	CPS	Child Protective Services
38	CSHCN	Children with Special Health Care Needs
39	CSHP	Coordinated School Health Program
40	CSHS	Children's Special Health Services
41	CTF	Children's Trust Fund
42	CYSCHN	Children and Youth with Special Health Care Needs
43	DCD	Division of Child Development
44	DEH	NC Division of Environmental Health
45	DENR	NC Department of Environment and Natural Resources
46	DMA	NC Division of Medical Assistance
47	DMH/DD/SAS	NC Division of Mental Health, Developmental Disabilities and Substance Abuse Services
48	DPH	NC Division of Public Health
49	DPI	NC Department of Public Instruction
50	DSS	Division of Social Services
51	ECCS	Early Childhood Comprehensive System
52	EFNEP	Expanded Food and Nutrition Education Program
53	EHDI	Early Hearing Detection and Intervention
54	EI	Early Intervention
55	EISAS	Early Intervention Services Assessment Scale
56	ESMM	Eat Smart, Move More
57	FC	Family Council
58	FLS	Family Liaison Specialist
59	FPAR	Family Planning Annual Report
60	FPL	Federal Poverty Level
61	FPRHU	Family Planning and Reproductive Health Unit
62	HBI	Health Behavior Intervention
63	Health Check	Medicaid for children
64	Health Choice	NC State Child Health Insurance Program
65	HIS	Health Information System
66	HSCI	Health System Capacity Indicator
67	HSIS	Health Services Information System
68	HRSA	US Health Resources and Services Administration
69	HWI	Healthy Weight Initiative
70	HYAC	Healthy Youth Act Collaborative
71	IA	Innovative Approaches
72	IB	Immunization Branch
73	ICARE	Integrated, Collaborative, Accessible, Respectful and Evidence-Based

#	ACRONYM	DEFINITION
	Partnership	Partnership
74	IDEA	Individuals with Disabilities Education Act
75	IOM	Institute of Medicine
76	IPOM	Immunization Program Operations Manual
77	IVPB	Injury and Violence Prevention Branch
78	IY	Incredible Years
79	KBR	Kate B. Reynolds Charitable Trust
80	LAUNCH	Linking Actions for Unmet Needs in Children's Health
81	LEA	Local Education Authorities
82	LEP	Limited English Proficiency
83	LHD	Local Health Department
84	LIMA	Latina Infant Mortality Awareness
85	LIMS	Laboratory Information Management System
86	MCCP	Maternity Care Coordination Program
87	MCH	Maternal and Child Health
88	MCHB	Maternal and Child Health Bureau
89	MEPS	Medical Expenditure Panel Survey
90	MOW	Maternal Outreach Worker
91	MRS	Multiple Response System
92	MS/MS	Tandem Mass Spectrometry
93	NAPSACC	Nutrition and Physical Activity Self-Assessment for Childcare
94	NAT	Needs Assessment Team
95	NC	North Carolina
96	NC CCHCA	NC Child Care Health Consultants Association
97	NC CHAMP	NC Child Health Assessment Monitoring Program
98	NC PNSS	NC Pregnancy Nutrition Surveillance System
99	NCCCHSRC	North Carolina Child Care Health and Safety Resource Center
100	NCDHHS	NC Department of Health and Human Services
101	NCHSF	North Carolina Healthy Start Foundation
102	NC-ICC	North Carolina Interagency Coordinating Council
103	NCIOM	North Carolina Institute of Medicine
104	NCIP	NC Immunization Program
105	NCIR	NC Immunization Registry
106	NCLHDA	NC Local Health Department Accreditation
107	NC-NPASS	NC-Nutrition and Physical Activity Surveillance System
108	NCODH	North Carolina Office of Disability and Health
109	NCPC	NC Partnership for Children
110	NCSCSP	North Carolina Sickle Cell Syndrome Program

#	ACRONYM	DEFINITION
111	NCSEAM	National Center for Special Education Accountability Monitoring
112	NFP	Nurse Family Partnership
113	NHANES	National Health and Examination Survey
114	NICU	Neonatal Intensive Care Unit
115	NIS	National Immunization Survey
116	NIS-Teen	National Immunization Survey-Teen
117	NOM	National Outcome Measure
118	NPM	National Performance Measure
119	NSB	Nutrition Services Branch
120	NSCH	National Survey of Children's Health
121	NS-CSHCN	National Survey of Children with Special Health Care Needs
122	NTD	Neural Tube Defect
123	PCP	Primary Care Providers
124	PCR	Perinatal Care Region
125	PRAMS	Pregnancy Risk Assessment Monitoring System
126	RFA	Request for Application
127	RNDMU	Region IV Network for Data Management and Utilization
128	RSNC	Regional School Nurse Consultants
129	SAMHSA	Substance Abuse and Mental Health Services Administration
130	SCCELL	Sickle Cell Reporting Database
131	SCHIP	State Child Health Insurance Program
132	SCHS	NC State Center for Health Statistics
133	SDC	NC State Data Center
134	SFP	Strengthening Families Program
135	SHC	School Health Centers
136	SIDS	Sudden Infant Death Syndrome
137	Smart Start	NC Partnership for Children
138	SMT	Section Management Team
139	SNFI	School Nurse Funding Initiative
140	SPM	State Performance Measure
141	SSDI	State Systems Development Initiative
142	SSI	Supplemental Security Income
143	SY	School Year
144	TANF	Temporary Assistance for Needy Families
145	The Alliance	The Alliance for Evidence-Based Family Strengthening Programs
146	TDE	The Duke Endowment
147	TPCB	Tobacco Prevention and Control Branch
148	TPPI	Teen Pregnancy Prevention Initiative

#	ACRONYM	DEFINITION
149	UCVDP	Universal Childhood Vaccine Distribution Program
150	USDA	United States Department of Agriculture
151	WATCH	Women and Tobacco Coalition for Health
152	WCHS	Women's and Children's Health Section
153	WCSWeb	Women and Children Services Website for Hearing Link and Sickle Cell Database
154	WHB	Women's Health Branch
155	WIC Program	Special Supplemental Nutrition Program for Women, Infants, and Children
156	WISQARS	Web-based Injury Statistics Query and Reporting System
157	YRBSS	Youth Risk Behavior Surveillance System
158	YSPTF	Youth Suicide Prevention Task Force
159	YTS	Youth Tobacco Survey