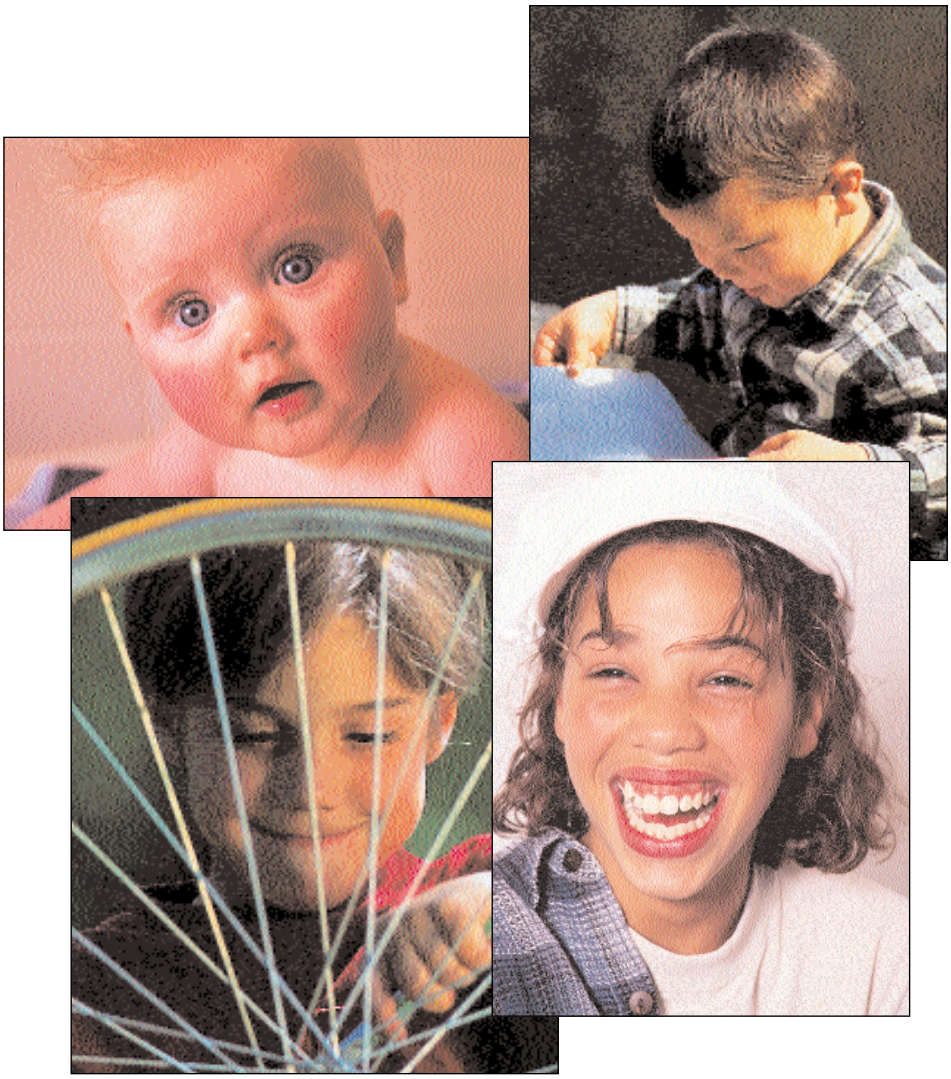
COMPREHENSIVE CHILD HEALTH PLAN

Task Force Report to the
North Carolina Department of Health and Human Services



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COMPREHENSIVE CHILD HEALTH PLAN: 2000-2005

TASK FORCE REPORT TO THE
NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES

NORTH CAROLINA INSTITUTE OF MEDICINE
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Chapter 1

Introduction

BACKGROUND

In the Spring of 1999, the Secretary of the North Carolina Department of Health and Human Services (DHHS), the Honorable H. David Bruton, M.D., asked the North Carolina Institute of Medicine to convene a statewide task force to assist the DHHS in formulating a comprehensive child health plan to ensure that all children reached their maximum health potential. The Institute was asked to:

- Identify and/or set measurable health status goals for North Carolina children;
- Determine how well North Carolina's children already meet these goals, and identify areas that lack data for measuring child health status in our state;
- Identify existing services and programs available to enhance children's health (and determine the extent to which target populations use these services);
- Identify the extent of unmet health and health care needs of children in North Carolina.

The North Carolina Institute of Medicine asked Samuel L. Katz, MD, Wilburt Cornell Davison Professor of Pediatrics and Chair *Emeritus* of Pediatrics at the Duke University Medical Center, and Dean E. Smith, former Men's Head Basketball Coach at the University of North Carolina at Chapel Hill, to serve as Co-Chairs of the Task Force. The Task Force was appointed in the summer of 1999 and included 37 members from around the state, representing health and educational professionals, child advocates, and other concerned citizens. The Task Force began meeting in July 1999, and held monthly meetings thereafter until May 2000.

The Task Force functioned through the work of six work groups appointed by the co-chairs: Healthy Pregnancies & Healthy Newborns (Chaired by Robert Dillard, MD, Professor of Pediatrics, Wake Forest University School of Medicine); Chronic Illness & Developmental Disabilities (Chaired by Olson Huff, MD, Pediatric Medical Director, Ruth and Billy Graham Children's Health Center, Asheville); Acute Illness & Infectious Diseases (Chaired by David T. Tayloe, Jr., MD, private practice pediatrician from Goldsboro); Child Mortality & Injury (Chaired by Marcia Herman-Giddens, PA, DrPH, child maltreatment consultant); Mental Health & Substance Abuse (Chaired by Beth Melcher, PhD, Executive Director, National Alliance for the Mentally Ill – North Carolina); and Health Promotion & Disease Prevention (Chaired by Jan Dodds, EdD, RD, Department of Nutrition, UNC-CH School of Public Health). Staff from the

Institute of Medicine and from the North Carolina Department of Health and Human Services assisted each work group.

THE IMPORTANCE OF CHILD HEALTH

There are few "natural resources" as important as our children to the future of our state and nation. The investments we make in the health of children can have tremendous payoffs in terms of the health and vitality of these young people as they mature into adulthood and become the backbone of our state's economy and the leaders of the future. Thus, we must invest in their early development and childhood experiences and in their exposure to relevant and useful health information through school health curricula. We must give children opportunities for learning lifelong healthful living habits and skills. We must provide them with access to regular health care, and assure our responsiveness to their acute, developmental, chronic, and mental health conditions.

The "good news" is that the majority of our state's children do in fact mature into reasonably healthy adults, obtain a solid education and employment, and become steady wage earners, tax payers, and productive citizens of our state. Yet, there are substantial numbers of infants, young children, and adolescents in our state who appear to have been "left behind." For too many North Carolina children, the promise of a healthy adulthood is still a dream with little chance of reality. Many of these children grow up with identifiable disadvantages or at risk of developmental, health, or achievement problems; they are in need of special attention and resources, support, and/or opportunities that can mean the difference between a healthy and successful adult life and the prospects of ill health or other untoward outcomes. Planning for the future of our state must include careful consideration of the way we allocate scarce resources (both public and private) specifically to the care and protection of our children and youth.

The Anne E. Casey Foundation of Baltimore, Maryland recently identified six conditions that can influence family fragility and children's prospects for good health outcomes: 1) the absence of a parent, 2) parent educational level, 3) family poverty status, 4) parent employment status, 5) welfare assistance, and 6) health insurance coverage.[1] From this important national study we learn that surprisingly large numbers of North Carolina's children have one or more of these risk factors. For example, in 1996, nearly 30% of North Carolina children were not living with two parents. Almost one of every five children (19%) in the state was living in poverty, despite North Carolina's booming economy. Twenty-six percent of North Carolina's children were in households where no parent has a full-time, year-round job. Twenty-seven percent of North Carolina's children were in households supported by public assistance (e.g., welfare or Supplemental Security Income), and 15% of children lacked health insurance coverage. In all, the Casey Foundation found that 13% of North Carolina's children were at "high risk,"—living in families with four or more of these risk factors.

While any one of these risk factors can be serious enough, the combination of two or more of the factors and their multiplicative effects can be devastating to these families, but especially to young children who need the security and stimulation that a supportive home, school, and health care environment can offer. The Task Force has addressed these aspects of childhood in our state over its nine months of diligent work. The recommendations offered in this report are motivated by a concern for the cumulative effects of these home and community risk factors.

THE STATE OF CHILD HEALTH IN NORTH CAROLINA

North Carolina has made great progress in certain areas of child health. For example, North Carolina's infant mortality rate has steadily decreased. In the last ten years, the rate has declined from 12.6 deaths per 1,000 live births in 1988 to 9.2 per 1,000 in 1998. The overall child death rate in North Carolina has also declined during the same time period, from 120.6 deaths per 100,000 children under the age of 18 to 89.5 deaths per 100,000. While progress has been made in these areas, North Carolina is still above the national average in infant and child deaths.

One area where North Carolina excels is in the number of children immunized. Eighty-four percent of two-year-old children are protected by the recommended vaccines, compared to only 80.6% nationally. Similarly, North Carolina youth are less likely to drink alcohol or engage in risky drug behaviors than their national counterparts.

The state also has many programs of which to be proud. North Carolina has strong screening and early identification programs. Over the last ten years, we have instituted programs to screen newborns for a variety of metabolic disorders and young children for hearing and vision loss. North Carolina also screens children for elevated blood-lead levels, provides dental screenings to all children in public schools in kindergarten and fifth grade, and has recently implemented an asthma screening program among seventh and eighth graders. Our emphasis on early childhood initiatives through the North Carolina Partnership for Young Children (NC Smart Start) focuses community efforts on ensuring that every child enters school ready to learn. North Carolina also offers many other excellent health, social services, and educational programs for children. In fact, North Carolina recently received national recognition as having done the best job of expanding health insurance coverage to uninsured children through Medicaid and NC Health Choice.

Despite these wonderful accomplishments, the Task Force identified many outstanding problems. North Carolina has the third highest rate of infant mortality in the country (9.2 deaths per 1,000 live births). More than 5,000 babies are born with very low birth weights. The incidence of low and very low birth weight deliveries and infant deaths are greater

among minorities, and rates of infant mortality among minorites have been increasing in recent years. North Carolina's teen birth rate exceeds the national average, as does the number of women who smoke during pregnancy. Additionally, while North Carolina has a higher than average childhood immunization rate, the rate is still below the Healthy People 2010 goals of ensuring that 90% of children under the age of two receive recommended immunizations.

More than 100,000 children are born each year in North Carolina. Even though the numbers of children affected by serious health conditions are small, about 20% of North Carolina children and youth are classified as having a "special health care need"—a chronic physical, developmental, behavioral, or emotional condition that requires health and related services beyond a type or amount normally needed. For example, 3.4% of children are estimated to have a serious chronic condition and 11.9% have functional limitations.

With regard to mental health and substance abuse problems, the state estimates that between 10 and 12% of children (170,000-208,000) have serious emotional disturbances. One of ten high school students in North Carolina self-reports drinking alcohol at what would be considered a "heavy" level, and almost one of four high school students reports engaging in "risky" drug use. These children are more likely to have a number of risk factors, such as living in poverty, a parental history of legal or other social problems, parents with lower educational levels, or a home environment with a history of violence.

A major concern of the Task Force was the extent to which children in this state have available a familiar, reliable, regular source of health care. Children should have access to health care providers who are family-centered, and offer comprehensive, coordinated, compassionate, and culturally competent care. Although solid data are not clearly available on this point for North Carolina specifically, national estimates are that as many as 6% of children have no regular source of health care that meets these requirements. Minority children are far less likely to have a regular source of health care. Problems with access to a regular source of health care are even more extreme for the state's adolescent population, and are particularly problematic for children who need mental health or substance abuse services. For these reasons, it is important to explore the availability of school-based or -linked health centers as an alternative to more traditional health care services for adolescents and youth. There are only about 50 of these health centers in the state. In addition, North Carolina has too few school nurses, with an average of one nurse to 2,480 students statewide. The national recommended ratio is one school nurse for every 750 students. North Carolina schools also lack the personnel to identify and treat children with mental health or substance abuse problems.

Previous analyses published by the North Carolina Institute of Medicine have shown that access to primary dental care for children, especially those from low-income families, is a major problem in this state. Approximately 25% of all children enter kindergarten each year

with untreated dental decay. Early childhood dental decay is more prevalent in low-income and rural populations.

The Task Force also identified access barriers to health care for racial and ethnic minorities, especially persons of Hispanic/Latino origin. Hispanic/Latino populations have experienced health access barriers because of the lack of Spanish language capability among health care providers and a general cultural insensitivity to their health care practices and needs.

Lack of insurance coverage makes it more difficult to obtain needed health services. While North Carolina has done a wonderful job in expanding coverage to uninsured children through the implementation of NC Health Choice and the outreach efforts to enroll eligible children into Medicaid—many children remain uninsured. In 1999, there were 225,969 uninsured children (11.5% of all children from birth through age 18). Of these, 119,081 are currently eligible for either Medicaid or NC Health Choice (with family incomes less than 200% of the federal poverty guidelines). Another 63,763 uninsured children have incomes between 200-300% of the federal poverty guidelines, and 43,125 uninsured children have higher family incomes.

Illnesses and disabling conditions were not the only health problems that the Task Force examined. Injuries and accidents among children and adolescents accounted for 672 deaths of children younger than age 18 in 1998, which reflects a rate of childhood mortality greater than the national average and the national health goals for the year 2010. National estimates suggest that for every childhood death caused by injuries, there are 37 hospitalizations, 1,000 emergency department visits, and many more visits to private physicians or school nurses. In North Carolina, there are on average 25,000 children under the age of 18 who are injured in motor vehicle crashes annually. Almost 11,000 children are injured in high-school sports annually, and more than 29,000 teens graduating from high school will have been injured on the job sometime during their lives. Approximately 5,000 children were admitted to a hospital because of injuries in 1998. In addition, in State FY1999, there were 37,326 children who were substantiated victims of child abuse or neglect. Task Force members were particularly alarmed to learn that despite all the state's past work in addressing this problem, the number of children who are subject to abuse and neglect continues to grow. National studies also suggest that the actual incidence of abuse and neglect might be much higher than what is reported to county departments of social services.

Additionally, a child's socioeconomic status has an impact on health. Approximately 391,000 children under the age of 18 in North Carolina are estimated to live in poverty; add to that the realization that as many as 8% of households are unable to meet their nutritional needs, and 2.6% are classified as "hungry." These conditions can have deleterious effects on

children growing up in these households, affecting their overall physical and emotional health, and diminishing their ability to perform in school and other settings.

Lifestyle behaviors learned in childhood can have a profound influence on a child's health, both during childhood and in later life. It is perhaps in this area, that the state is lagging the farthest behind. Population surveys across the nation reveal that North Carolina's population is one of the most sedentary, with only 55% of North Carolina's public school students reporting participation in vigorous physical activity for 20 or more minutes on three days per week. Consequently, North Carolina students scored 12-15% below the national average in heart-lung fitness tests. North Carolina's children are two or three times more likely to be obese than children nationally. North Carolina has one of the highest smoking prevalence rates in the nation (26%), with one of every five deaths in the state resulting from exposure to tobacco. Ninety percent of these smokers began smoking before the age of 18. A 1997 statewide survey found that 18.4% of middle school students and 38.3% of high school students are current users of tobacco products. Despite these well-known facts, the state does too little to teach healthy living behaviors among our youth.

Addressing the Problems of Child Health in North Carolina: The Prospects for Measurable Impact

All of these findings provide motivation for renewed efforts to address the health and fitness issues associated with the child and adolescent population of our state. The Task Force worked tirelessly to document the extent of these problems and their distribution among population subgroups, and to understand the available evidence on what interventions seemed to work more effectively in addressing each set of problems. The problems of child health are generally found to be inseparable from those of poverty, race, learned health behaviors, and access to health services; and they are exacerbated by the lack of insurance and the inadequate provision of school-based health education and clinical services to children and youth. Most of the problems are within our capacity to address them effectively. Many will require the creative and determined coordination of both public and private resources and programs.

The report that follows is a distillation of the Task Force findings and recommendations; we hope the recommendations can provide the structure for subsequent efforts to address these problems in the first few years of the new century. In this report many existing programs to address these problems of child and adolescent health are described, along with assessments of what is known about the apparent effectiveness of these efforts. One cannot help being impressed by the range of programs, services, professional sources of assistance and support, and general concern for the health and welfare of the children of our state. Yet, there is inescapable evidence that many of these efforts have simply not succeeded

by any standard widely accepted in the field of child health. North Carolina, despite its efforts, ranks behind most other states in many of the critical indicators of child health.

Rather than despair, we offer hope—the hope that this report will inspire us to make greater efforts to improve child health in our state. Moreover, we hope this report will help to identify those opportunities where substantial impact can be expected through the strategic investment of resources and the targeting of program, professional, and lay efforts.

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[1] Annie E. Casey Foundation, *Kids Count Data Book, 1999: State Profiles of Child Well-Being*. Baltimore, 1999.

Chapter 2

Orientation and Organization of the Task Force

ORIENTATION OF THE TASK FORCE

The Child Health Task Force approached its charge from a number of vantage points. First, the Task Force took a *population-based* perspective. The overall goal was to ensure that the recommended actions or policies emerging from its work would seek to meet the needs of all children, not just those who are presently under professional care or who may request services on an emergency basis. Using a population-based approach, the Task Force examined the health status of children as a whole and within specific subpopulations. Once problems were identified, Task Force members identified systemic changes needed to address these problems. Sometimes the solutions involved educational or informational initiatives to encourage parents, guardians, children, and adolescents to understand the importance of healthful living and care-seeking behaviors; other times the attention was directed to the establishment of new programs or policies.

Second, the Task Force insisted that recommended actions or policies be *evidence-based*, whenever possible. The Task Force did not attempt to conduct an elaborate meta-analysis of data supporting all existing programs or proposed interventions, but the members did attempt to identify and review relevant extant program evaluations and research. However, there are many programs in the state that have not been the subject of extensive evaluation. Similarly, some of the program options considered by the Task Force have not been evaluated. That is a limitation of this study.

Finally, the work of the Task Force and the recommendations that constitute the comprehensive plan are intentionally *client- (or person-) centered*. That is, the plan is focused on the needs of children, not the agencies and programs offering services targeted to children and their families. The goal of the Task Force was to make programs and services accessible and easy to use for children and their families.

There is “good news” coming out of the work of the Task Force: there are now many forces for change helping to move the health status of North Carolina's children and their prospects for health improvement toward and beyond national average standards. A bright and optimistic future for our state in the area of child health is indicated by the recent accomplishments of various state initiatives, the active role of private child health services professionals and provider organizations, and the very existence of this important Task Force at

the request of the General Assembly and the North Carolina Department of Health and Human Services.

THE PROCESS THROUGH WHICH WORK GROUPS FUNCTIONED

Members of the Task Force were assigned to one of six topical work groups based on their areas of experience, interest, and expertise: healthy pregnancies and healthy births; acute illness and infectious disease; chronic illness and developmental disabilities; mental health and substance abuse; injuries and fatalities; and health promotion. These work groups correspond to the substantive foci of Chapters 4 through 9 of this report. In addition, representatives of key state agencies were asked to serve as technical consultants to each work group. These individuals performed an invaluable service and assured the input of those state agencies and programs whose legislative mandates and program areas of responsibility corresponded to the issues being addressed by each work group.

As a general operational approach, each work group was asked to complete four levels of analysis. First, each group was asked to identify and define (or document) the extent of the problems in their area of concern. This included both an analysis of North Carolina's accomplishments and outstanding concerns. Work groups synthesized existing state-level task force or policy reports; data from the State Center for Health Statistics, state agencies, and other state sources; and other relevant literature. In some instances, data were available that were specific to North Carolina. In other instances, the lack of state-level data became an issue as work groups struggled to estimate North Carolina statistics from national estimates of the incidence or prevalence of childhood illnesses or health conditions.

Second, each work group was asked to describe current programs or policies that were available to address each problem. Work groups identified relevant programs, who the programs were intended to serve, eligibility requirements (if any), and whether the programs served all in need.

The third task for each work group was based on the previous analysis; the groups were asked to identify the gaps in service and programs that needed attention as part of any comprehensive plan for child health in the state. Finally, each group was asked to specify the recommendations for new programs and initiatives to meet the problems or fill the gaps identified through other phases of their analysis.

In the several day-long meetings of the Task Force, work groups met for 3-4 hours and then reported on their progress in a summary plenary session near the end of the day. Detailed

minutes of each of these meetings were prepared and circulated to all members of the Task Force in an effort to keep all Task Force members fully informed about the activities, methods, and findings of each of the work groups.

Some work groups invited people with special expertise to join them for one or more meetings to gain the benefit of special knowledge pertinent to the issues being examined. Some work groups held special, extra working meetings and telephone conferences to hasten the progress toward work group goals.

Work group staff began preparing drafts of the summary chapters for this report after approximately four of the regular monthly meetings, and these were shared with all members of the Task Force as soon as they were available. Once a near-complete draft of each work group chapter was available, work group members were asked to select the ten highest priority issues for communication to the Task Force as a whole. These lists of "highest priority" recommendations emerging from each work group were compiled into a master list for the entire Task Force. In addition, certain "cross-cutting" recommendations were identified. These were the recommendations that were identified as priorities in two or more of the separate work groups.

Task Force members were then asked to prioritize these recommendations by casting a total of ten votes from among the 60 or more recommendations of "highest priority" from the six work groups. In establishing their priorities, Task force members considered:

- The number of children affected by the problem;
- The severity of the impact of the problem on affected children;
- The effectiveness, if known, of the proposed policy or program in addressing the problem;
- The costs of the proposed recommendation.

Although all recommendations from each work group were maintained within the body of the report (as can be seen from the concluding sections of Chapters 4-9), it was this prioritization of the ten most salient recommendations from each of the six work groups that has now led to the key recommendations around which the plan for future child health program development has been formulated.

Finally, the Task Force attempted to array these recommendations in a temporal format such that those having short-term urgency could be distinguished from those of longer-term importance. By identifying those issues of immediate concern in the near term, and

distinguishing them from those issues of longer-term importance, as well as by distinguishing those issues requiring legislative action from those that require mainly private or voluntary sector response, we hope that a general plan can be derived by which child health improvement for our state can be approached in a comprehensive manner.

Chapter 3

Cross-Cutting Issues

In the ensuing chapters, important issues regarding the health of children are presented by major subject area. Each chapter was prepared by a committee whose members have expertise in their respective areas, and this is reflected in the specific narratives and recommendations of the chapters.

A review of the chapters brings to light several cross-cutting issues that underlie the work of each committee. This chapter presents these underlying issues both to emphasize their importance and to enrich the substance of the specific chapters.

The underlying issues that must be addressed to enhance the health of children in North Carolina fall into three categories:

- Health Education for Children and Families
- Access to a Comprehensive System of Care
- Comprehensive Data Systems to Inform Decision-making

HEALTH EDUCATION FOR CHILDREN AND FAMILIES

As is increasingly apparent, the lifestyle decisions of children and families—particularly in the areas of nutrition, fitness, and risk-taking behaviors—are more important to the well-being of children in general than the provision of medical care. Virtually every chapter of this report includes a discussion and recommendations to enhance the knowledge and behavior of children and families with regard to "healthy living" or "healthy lifestyles."

Education regarding health and safety should be ongoing throughout the continuum of life. Below are key opportunities for such education that should be made available for all North Carolinians.

1. Parenting education should be available for everyone, and should not be limited to the prenatal and postpartum periods. Parenting skills must be tuned to each stage of a child's or adolescent's life. Opportunities need to be created in communities for parents of children of all ages to hone parenting skills appropriate to each phase of child and adolescent development.

2. Home visiting programs matched to the needs of families should be available to offer education, support, and prevention of a broad spectrum of health problems. The most recent model to be implemented in North Carolina—intensive home visiting—is specifically designed to promote healthy pregnancies and healthy newborns, to enhance early childhood development and reduce injuries, and to reduce the occurrence of abuse and neglect. Successful statewide implementation of this model should be a goal. Likewise, Intensive Family Preservation, a home visiting program aimed at providing support services to families whose children are at imminent risk of being removed from the home, has also proven to be quite effective in preventing out-of-home placements. This program should also be extended statewide.

3. Since 70% of preschoolers spend some time in child care, it is critical not only that child care providers be trained in health and safety, but also that the child care setting be used as a venue to provide health/safety education to children and families. The introduction of child care health consultants (primarily specially-trained nurses) largely through the Smart Start Program has begun to meet both objectives. Statewide implementation of this initiative should be a goal.

4. Since virtually all children are in school for most of their childhood, the school setting offers an important opportunity to enhance children's health. The "coordinated school health program" offers an efficient and effective model to accomplish this goal. Such programs would include physical education, health services, nutrition services, health promotion for school staff, counseling and psychological services, a healthy school environment and parent/community involvement. Many of these components are specifically addressed in the chapters and recommendations in this report.

   A primary component of a coordinated school health program is health education. North Carolina Schools are required to teach the Healthful Living Curriculum in kindergarten through eighth grade, plus provide 150 hours of instruction during high school. The curriculum includes physical education and other areas such as injury prevention, pregnancy prevention, stress management and conflict resolution, and other positive health behaviors. However, there are gaps in both the curriculum and its implementation. The amount of time spent in physical educational activities is inadequate to ensure that children are physically fit. Some issues are addressed in a single grade, but should be reinforced over a child's lifetime. Implementation of the curriculum is not monitored, since it is not part of the "ABC Plan," and schools are not accountable in this regard. Further, little health education is required in high school, when behavioral risk management should be reinforced. Most schools offer very little beyond the first year of high school. It is critical that the curriculum be strengthened, and that its importance be stressed by making schools accountable for its implementation. Without these steps, a critical opportunity to positively affect the health and lifestyle decisions of our children and youth is lost.

"Education for health" should become as basic as literacy and computation skills in our overall educational efforts.

5. For two reasons, it is critical that health education in the broadest sense continues to be available to adults and to touch adults as often and in every way possible. First, adults are role models for children and youth. It is more than a cliché that children and youth with adult role models that smoke, drink, or act violently are prone to develop these behaviors themselves. Thus, the lifestyles of adults—whether healthy or unhealthy—are likely to have the most profound effects on our children. Second, a child's self-esteem is largely based on the esteem in which the child is held by caretakers and communities. When adults and communities understand this and act accordingly, the lifestyles of our children and youth are clearly enhanced. Several communities in the state are implementing a framework developed by the Search Institute in Minnesota that helps to identify and enhance "developmental assets" in children and youth that promote healthy behaviors. This initiative should be monitored and supported, because its growth offers great promise.

6. General public education or social marketing campaigns are also needed to counter the harmful effects of prevalent media messages that encourage youth to eat fatty foods, lead sedentary lifestyles, or otherwise engage in unhealthy behaviors. Social marketing efforts have been successful in other states in encouraging children to eat more healthy foods, reduce their use of tobacco, and otherwise engage in healthy lifestyle behaviors.

In summary, all six ensuing chapters of this report emphasize the need for continuous, sound, and comprehensive health education for all our children and their families. Education for health is a powerful resource. With it, remarkable results can be achieved.

ACCESS TO A COMPREHENSIVE SYSTEM OF CARE

Both the Maternal and Child Health Bureau (MCHB), the federal agency with supervisory responsibility for the health of children, and the American Academy of Pediatrics (AAP), the leading national private sector voice for children's health, agree that all children should have access to a family-centered, coordinated, comprehensive, culturally-competent system of care. The ensuing chapters indicate that this is much easier said than done.

Across the ensuing chapters, several important components of a system of care are emphasized: a regular source of health care for all children; the need for and importance of community-based health services that are coordinated with the regular source of health care; and the special resources—both clinical and coordinative—required to respond appropriately to children with special health care needs and to their families. Finally, access can be achieved only through the mitigation of financial barriers that preclude such access.

Regular sources of health care and other supplemental systems

A regular source of health care is perhaps best described as a setting where children and their families can find a first point of entry (a "home base") through which they can access preventive, primary, and specialized care. In North Carolina, regular sources of health care are most frequently found in the offices of pediatricians and family physicians. In communities with few physicians, community health centers and more recently a growing number of local health departments are playing this role.

Under the concept, as much care as possible is provided directly by the regular health care provider and ancillary or specialized care is coordinated through that source. Sadly, many of the ensuing chapters indicate that many children do not have access to such regular sources of health care, and several recommendations are focused on rectifying this situation.

A basic problem is that there are not enough providers in some areas; but equally important, many do not offer this family-centered, comprehensive and coordinated system of care. Apparently, more providers need to be exposed to and feel more comfortable with this role. Training through the Area Health Education Centers (AHECs), and replication of the American Academy of Pediatrics' Medical Home Curriculum would be extremely helpful in this regard. Training is also needed to ensure that providers are comfortable and competent in addressing the needs of the growing Hispanic/Latino population. In addition, a fiscal incentive needs to be created to encourage providers to coordinate and provide comprehensive health care, especially for children with special health needs. The Carolina Access model under Medicaid provides fiscal incentives in the form of small monthly management fees and shows signs of success, both in terms of continuity of care and in reducing the use of inappropriate, costly care. More exploration needs to occur in both the areas of provider education and fiscal incentives to make the concept of a regular source of health care available to all children statewide.

Even with regular sources of health care in place, there are important ways that supplemental care can and should be available to maximize the health status of our children. Perhaps the most important of these ways, and an identified need in North Carolina, is the availability of nurses and other support personnel such as social workers, child mental health and substance abuse counselors, or guidance counselors in the schools. These professionals can assist with health promotion activities, serve as a primary point of contact when acute illness or trauma occurs, serve as a trusted counselor for students (particularly those with psychological concerns), and supervise the care plans of the growing number of students with increasingly complex health problems. Indeed, a statewide report by school nurses indicated that 8% of public school students (95,035) had chronic health conditions, most of which required special health care assistance during the school day.

Regrettably, on average, there is only one school nurse for every 2,480 students in North Carolina's public schools (compared with the national recommended standard of 1:750). There is also a lack of other key support personnel in the school. Several of the ensuing chapters recognize this as an important resource that is woefully lacking.

Another important adjunct to the regular source of health care is the school-based or linked health center. While these centers are not intended to replace the regular source of health care, they can offer easy access to basic health services, behavioral health counseling, and continuous preventive care. With only 50 school-based and six school-linked centers in North Carolina, this important resource needs to become available for all communities that want them.

Screening and population-based intervention services

Providing some services on a wider community or population basis than within the regular source of health care is both clinically and fiscally appropriate. Prime examples of these services include newborn metabolic, hematologic, and hearing screening; and vision and hearing screening in the child care and school settings. Other screening systems are not as well developed, but equally critical—including systems to identify young children in need of early intervention services or older children with substance abuse or mental health problems. In addition, "back-up" systems to assure that children are immunized and have been screened for blood lead are needed when regular sources of health care are not available to assure that children receive such important services. However, it is critical that when such services are provided, that they are linked with the regular source of health care. This will preclude the costly duplication and fragmentation that is too often characteristic of North Carolina's "non-system" of care.

Care coordination

While a regular source of health care with careful coordination with other services is important for all children, it is particularly so for children with special needs. These children and their families usually need services beyond those provided by their primary care provider. For these children the concerns of the "non-system" of care are most pronounced, for these concerns can reduce the opportunity to maximize health status and minimize costs. The primary system of care coordination for children with special health needs ends when the child reaches age five. Opportunities to expand care coordination systems should be explored.

Health insurance or financing mechanisms

Financial barriers are a critical concern that impede access to all forms of care. Opportunities for continuous, preventive care are lost, and important specialized care is often

forgone when financial barriers exist. North Carolina should be proud of its two public heath insurance programs that serve children, Medicaid and NC Health Choice. In September, 1999, Medicaid covered almost 500,000 of the most indigent children in the state, while NC Health Choice covered more than 50,000 children in families with incomes below 200% of the federal poverty guidelines. However, research estimates indicate that approximately 226,000 children remain uninsured. Of these, 119,000 are below 200% of the federal poverty guidelines and thus should have access to Medicaid or NC Health Choice. Outreach efforts that have increased enrollments in the past year should be enhanced to enroll as many of these children as possible. Barriers that prevent some children from enrolling should be removed, such as the two-month waiting period that is troublesome for children with special health needs.

There are an additional 64,000 uninsured children in families with incomes between 200%-300% of the federal poverty guidelines and 43,000 uninsured children in families with higher incomes. Clearly, access to health insurance enhances access to care, which in turn enhances the potential for positive health outcomes for children. The best way for North Carolina to reduce financial barriers to health care is to make NC Health Choice available for all children. Proposals to expand the subsidized portion of NC Health Choice to families with incomes up to 300% of the federal poverty guidelines, while allowing full buy-in for families above that level, should be implemented as soon as possible. The state must also develop a financing mechanism to provide needed health care services to immigrant children who might not currently qualify for public programs.

Even children who have health insurance coverage might experience financial barriers that prevent them from obtaining needed health services. This is often a problem for children with special health needs. Similarly, health insurers rarely cover mental health or substance abuse problems as comprehensively as they do coverage of other medical conditions. The lack of comprehensive health insurance coverage moves the locus of care from the private sector to an already overburdened public sector.

Adequacy of provider payments

Another concern that is common throughout this report is the adequacy of provider payments. The availability of private providers willing to participate in publicly-funded programs such as Medicaid is directly tied to the adequacy of provider reimbursement. When the payments are too low, providers are less willing to treat Medicaid patients. This has created access barriers for low-income children who need dental care, mental health, or other services for children with special health needs.

In summary, the ensuing chapters emphasize that all children should have access to a true system that offers comprehensive, coordinated, family-centered, culturally-competent care. While North Carolina has made some progress in this area, additional work is needed to

achieve the goal of enhancing the health status of our children in the most efficient and effective way possible.

COMPREHENSIVE DATA SYSTEMS TO INFORM DECISION-MAKING

It is both understood and accepted that the best decisions can be made only on the basis of the most complete information available: the better the information, the better informed the decision. Regrettably, the ensuing chapters indicate that decision-makers in North Carolina frequently do not have access to the information they need. As a result, these decision-makers too often are forced to make decisions based on intuition, and not enough on scientifically collected data.

North Carolina has made great strides, and is perhaps a national leader, with regard to some elements of the health data continuum. The vital records system in this state is exemplary. Birth and death certificate data are excellent, and allow for basic analyses of current status and progress with regard to birth-related health indicators, as well as child fatalities.

However, data pertaining to these "sentinel events" are not enough to provide an accurate picture of the health status of our children. There are ongoing attempts to gather other information—hospital discharge and highway motor vehicle data, kindergarten health assessments, pediatric nutrition surveys, and the school-based Youth Risk Behavior Survey are examples—but all are limited in scope, and very few of the data collection systems are integrated. The pressures of funding immediately needed services usually overwhelm the suggestions that some funds be used to develop and enhance data systems, or conduct evaluations needed to ensure that resources are being spent wisely. In addition, there continue to be concerns regarding confidentiality and a general cultural unwillingness to share data.

Enhancing North Carolina's data systems

What appears to be needed is a full-scale commitment (fiscally and culturally) to a comprehensive data and evaluation system that will lead to the best possible decision-making regarding the health of our children. Such a system would have several components:

- Data collected during clinical visits, such as the current kindergarten health assessment, or the growing use of health inventories for women of child-bearing age, can be compiled centrally (without personal identifiers) to develop a picture of the status of particular populations at particular points in time.
- Periodic health surveillance surveys can be conducted, such as the nutrition and risk behavior surveys noted above, but these need to be done as routinely and universally as possible.

- Specific program/service reports, such as immunization status and lead screening results, can be compiled to allow for the monitoring of important indicators, but these separate data reports would be of greater value if they were integrated, so that a more complete picture of the health status of particular population groups could be drawn.
- Data measuring health care outcomes for children, and particularly for children with special health care needs, can and must be developed to enhance the care of individual children, and to guide future care for all children.
- Data systems should be expanded to collect demographic information, including racial, ethnic and socioeconomic data. We know from some selected studies and data systems that minorities are more likely to die before their first birthday, be injured or die in motor vehicle crashes, be victims of child abuse or neglect, or have other adverse health outcomes. Selected studies suggest that poor children are more likely to die or be injured. Data systems should be established to enable the state to examine the causes of and develop policies to address racial and socioeconomic disparities in health outcomes.
- Adequate funding should be provided to evaluate public programs. Evaluations can ensure that the programs are being implemented as intended, whether the program can be implemented more efficiently, whether the program is achieving its expected outcome, and whether changes are needed to enhance the operation and effectiveness of the program.

Areas of additional study

Obviously, data are critical if North Carolina policy makers are to make informed policy choices. Merely collecting data is not sufficient unless there is an agency or specific policy makers charged with analyzing the data. North Carolina has many state agencies and task forces charged with monitoring and improving child health. Yet, gaps remain. The report highlights several areas that need additional or ongoing study, including a focus on non-fatal injuries, developing a comprehensive child nutrition plan for the state, and monitoring the health status of children with special health needs.

The full-scale commitment required to develop and implement a comprehensive, integrated data system will be difficult, and initial progress might be painstakingly slow. However, if we are committed to enhancing the health status of our children, we must be committed as well to data and ongoing monitoring systems that will allow us to analyze health status, and to make decisions to enhance that status in the most efficient and effective ways possible.

Chapter 4

Healthy Pregnancies and Healthy Newborns

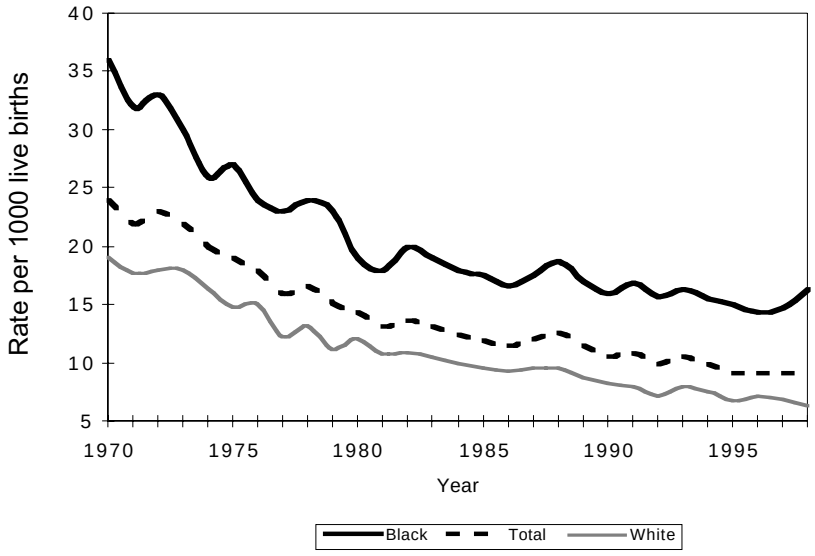
STATEMENT OF THE PROBLEM

Overview

As we begin the new millennium and review progress made in the area of child health, it is appropriate to remember the great strides we have made in the area of improving the health of mothers and infants. Many programs and services in North Carolina have made important contributions to the overall life expectancy of a child.

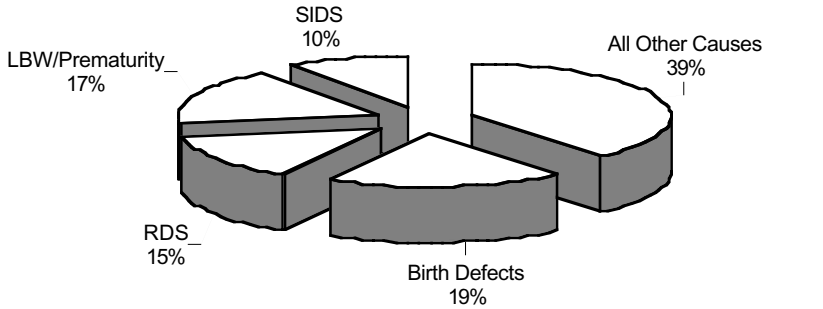
The state has experienced a dramatic twentieth century decline in infant mortality, with greater than 90% reduction between 1915 and 1998. (The trends in infant deaths through 1998 are depicted in Figure 4.1). Maternal deaths have declined even more dramatically; decreasing 99% between 1917 and 1998 to the current rate of 7.5 deaths for every 100,000 live births in North Carolina.[1] Environmental interventions, improvements in nutrition, advances in clinical medicine, improvements in access to health care, improvements in surveillance and monitoring of disease, increases in education levels, and improvements in standards of living have all contributed to this remarkable decline.[3,2]

Figure 4:1: North Carolina Infant Mortality



Still, the current state infant mortality rate of 9.3 per 1,000 live births (1998) exceeds that of all states except Alabama and Mississippi, and the recent rate of decline in North Carolina is slower than most other states.[3] The rate has actually increased in recent years among non-white infants, particularly for African American babies. The reasons for the persistent and worsening racial disparities in infant outcome remain unclear, although possible explanations include a variety of medical and social conditions that disproportionately affect some racial/ethnic minority groups. These conditions include higher stress levels, higher rates of sexually transmitted diseases (STDs) and bacterial vaginosis (BV), and shorter birth intervals. Infant mortality rates are also elevated for Native Americans, particularly in the postneonatal period (between one and twelve months) when deaths due to Sudden Infant Death Syndrome (SIDS) are at their peak. The causes of infant deaths in NC are depicted in Figure 4.2.

Figure 4.2: Causes of Infant Death in North Carolina



Source: SCHS Infant Deaths by Cause, 1994-1998

The higher risk for infant mortality among African Americans compared with whites is attributed to a higher incidence of low birth weight (LBW) and preterm births and to a higher risk for death among normal birth weight infants.[18] In contrast, Hispanic/Latino infants tend to have positive birth outcomes, despite a disproportionate incidence of poverty, low levels of education, and poor access to healthcare. Sometimes called the "perinatal paradox," good birth outcomes among this population are often attributed to the fact that Hispanic/Latina women who have recently immigrated to the United States have better nutrition, are less likely to drink alcohol or smoke, and have strong social support, though the actual basis for better outcomes is not fully known.

Specific illnesses and conditions that influence the health of North Carolina mothers and newborns

While infant mortality is the worst possible outcome of a host of illnesses and conditions that jeopardize healthy birth outcomes, the focus of this chapter is on optimizing the likelihood of producing healthy children. Targeted investments in promoting healthy pregnancies is the most prudent way to assure that North Carolina's children have the greatest likelihood of optimal health and development—and the most cost-effective way to avoid the high social, educational, and medical costs of disabilities, developmental delays, or behavioral problems often associated with poor pregnancy planning or health during child bearing years.

The same maternal/familial factors that contribute to poor pregnancy outcomes (e.g. physical and financial stress, lack of social support, unstable family environment, domestic violence, substance abuse and poor nutrition, poor hygiene and lack of regular preventive care) also contribute to poor child health. Therefore, the focus of improving child health should not be just on improving the health and stability of pregnant women, but on the health and well being of *all* women of reproductive age. Ideally, each pregnancy would be intentional and occur under conditions of positive social, economic, physical, and mental health.

In order to assure optimal health of our state's reproductive age women and their newborns, we must:

1. Sustain the general well being of women of childbearing age by establishing or strengthening social support networks.
2. Assure optimal nutritional status of females with special attention to the childbearing years.
3. Assist women and their families to increase the likelihood that pregnancies are intentional and short birth intervals are avoided.
4. Provide information and services that will prevent birth defects.
5. Provide prevention and treatment services for illnesses and conditions associated with low birth weight and prematurity.
6. Assure that all women have access to early, continuous, and risk-appropriate care so that obstetric illnesses and complications are promptly identified and treated.
7. Effectively prevent and treat reproductive tract infections and HIV/AIDS during pregnancy and throughout the reproductive years.
8. Reduce or eliminate exposure to illegal drugs, alcohol, and tobacco
9. Reduce SIDS.
10. Promote breastfeeding.

National health objectives have been established for most of these illnesses and conditions. The national goal and current North Carolina status are shown in Table 4.1, followed by discussion of each of these key areas.

Table 4.1: State and national health indicators and goals

Goal	Indicator	NC	US	Healthy People 2010 Goal
1. Support for general well being of women of childbearing age	% of unmarried mothers in 1997	32%[4]	32.4%[4]	
	% of families in poverty	9.9%[3]	11.2%[4]	
2. Maximizing nutritional status of women of child bearing age	% of women with recommended weight gain in 1997	87.2%	64.0%	85.0%
3. Family planning	Short birth interval rate	11.7	11.0	6.0
	% of unintentional births	43.0	49.0 (1995)	30.0
	Teen pregnancy rate ages 15-19 1998 rate per 1000	85.5[23]	51.1[5]	46 based on 1995 baseline of 72[46]
	Teen pregnancy rate ages 10-14 1998 rate per 1000	1.3[6]	1.0[6]	0
4. Preventing birth defects	Rate of serious birth defects Per 1000 live births in 1998	2.6[7]	3.8[7]	1.1 for all birth defects[46]
5. Preventing & addressing problems associated with prematurity	Low birth weight (LBW) rate in 1998	9.0	7.6[46]	5.0[46]
	Very low birth weight (VLBW) rate in 1998	1.9	1.4[46]	0.9[46]
	Preterm delivery rate in 1997	11.1	11.4[46]	7.6[46]
6. Prompt identification & treatment for obstetric illnesses & complications	Percent of women initiating prenatal care in the first trimester in 1998	84.5	83.0[46]	90.0[46]
7. Prevention & treatment of reproductive tract infections & HIV/AIDS	Chlamydia rate per 100,000 population in 1997	233.6 [10]	207[10]	
	Syphilis rate per 100,000 population in 1997	9.8[8]	3.3[9]	0.2 [46]
	Congenital syphilis per 100,000 live births	21 (1998)	26.9 (1997)[46]	1.0[46]
	Gonorrhea per 100,000 population in 1997	230[10]	120.9[10]	1.9 per 10,000
8. Reducing or eliminating exposure illegal drugs, alcohol & tobacco	% of women who smoked during pregnancy	14.9% 1998[11]	12.9% 1997[46]	2.0%[46]
	% of women that smoke	21.9[1]	22.9[1]	12
9. Reducing SIDS	SID incidence per 1000 live births in 1997	0.90[12]	0.77[46]	0.30[46]
10. Promoting breastfeeding	In early postpartum (WIC 1998)	41.2%[13]	64%[46]	75%[46]
	At 5-6 months (WIC 1998)	9.98%[14]	29%[46]	50%[46]

General well-being of women: In addition to high quality health care during the perinatal period, some research shows that birth outcomes and infant well-being can also be improved by addressing the social needs of pregnant women and their families. For example, an estimated 1.8 million (3% of all women) nationally are severely assaulted by their male partners each year.[15] Battering may begin or increase during pregnancy; most national estimates suggest that between 4% and 9% of pregnant women are battered.[15] In North Carolina, four studies suggest that the percentage of women who were physically abused during pregnancy is between 3% and 14%, although generalizing from these studies is difficult because of variations in populations sampled and methods.[16] Increased maternal education is also associated with improved birth outcomes and better child spacing.

Nutrition: Nutrition status before and during pregnancy can have an important impact on the health and well-being of mothers and infants. North Carolina's Pregnancy Nutrition Surveillance System of women participating in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) showed that 15% of pregnant women were underweight prior to pregnancy, 42% were overweight, and 12% had iron deficiency anemia.[17] WIC has repeatedly been shown to improve birth outcomes for low-income populations.[18]

Family planning: Intentional pregnancies that occur in a mature and nurturing social context assure children their greatest chance for reaching their full potential. Helping families to avoid ill-timed or unintentional pregnancies is a most important public policy and public health priority. Approximately half of all pregnancies in North Carolina are unintended, including approximately three-quarters among women aged less than 20 years. Unintended pregnancy is associated with increased morbidity and mortality for the mother and infant. Lifestyle factors (e.g., smoking, drinking alcohol, unsafe sex practices, and poor nutrition) and inadequate intake of foods including more folic acid pose serious health hazards to the mother and fetus, and are more common among women with unintended pregnancies. In addition, one fifth of all pregnant women, and approximately half of women with unintended pregnancies do not start prenatal care during the first trimester. Effective strategies to reduce unintended pregnancy, to eliminate exposure to unhealthy lifestyle factors, and to ensure that all women begin prenatal care early are important challenges.

Teen pregnancies present a special challenge in this regard since the potential social and health consequences include reduced educational attainment for both parents, fewer employment opportunities, and increased likelihood of welfare dependency. Teenage mothers are less likely to get married (or stay married) and to complete high school or college. They are *more* likely to require public assistance and live in poverty.[19,20]

Infants born to young teenage mothers, especially mothers under 15, are more likely to suffer from low birth weight, neonatal mortality, and sudden infant death syndrome.[21,46] Though teen age is not a predictor of poor birth outcomes, one in ten teen mothers delivers a

low birth weight baby. These infants may also be at greater risk of child abuse, neglect, and behavioral and educational problems at later stages. The sons of teen mothers are 13 percent more likely to end up in prison while teen daughters are 22 percent more likely to become teen mothers themselves.[22]

While the number of pregnancies to African American and white adolescents is declining in North Carolina, the fact remains that 59 teenage girls become pregnant every day in our state.[23] More than 21,000 pregnancies will result in live births, while more than 5,500 will have abortions.[24,23] Pregnancies among Hispanic/Latino teens are rising. In 1994, North Carolina had the highest birth rate among Hispanic teenagers ages 18-19 in the nation. Since 1994, North Carolina's Hispanic/Latino student population has increased from 17,699 to 38,442 (120% increase over four years).[25] In 1998 there were 1,342 births to Hispanic adolescents.[26] Providing necessary services to North Carolina's increasing Spanish-speaking population raises additional challenges. Besides the potential language barrier, many Hispanic/Latino teens are not in school and are therefore more difficult to reach.[27]

Table 4.2: Adolescent births by age in NC[28] (1998)

Age	Number of Births	Birth Rate per 1000 population
10-14 years	591	2.4
15-19 years	21,050	62.3

According to the 1997 Youth Risk Behavior Survey (YRBS), North Carolina's teens are sexually active. Sixty-one percent of all 9th-12th graders reported having had intercourse at least once, with 74% of seniors reported having sexual intercourse at least once by grade 12. Thirteen percent of all high school students had initiated sexual intercourse before the age of 13. More than one in five high school students reported that they have had sexual intercourse with four or more sexual partners in their lifetimes. Almost one out of every ten high school students (8%) reported having been pregnant or impregnating someone. Only sixty-one percent of students who had sexual intercourse in the previous three months used condoms or other forms of effective birth control.[29]

Birth defects: Birth defects are a leading cause of infant mortality and childhood disability in North Carolina. Each year in the state between 3,000 and 4,000 infants are born with birth defects, of which about 200 of these babies die before their first birthday.[30] In 1997, inpatient hospital costs for children with birth defects were $117 million, not including physician fees, drugs, and ancillary services.[31] Unfortunately, there is no known prevention strategy for about 60% of the 4000 known birth defects.[32] However, folic acid, if taken during the first few weeks of pregnancy, can reduce the risk of delivering an infant with neural tube

defects by about half. Since folic acid must be taken in the earliest part of pregnancy (before most women are even sure they are pregnant), this intervention will be effective in preventing birth defects only if women of childbearing age take folic acid on a daily basis.

Problems associated with low birth weight and prematurity: Disorders related to low birth weight (LBW) and prematurity account for the second largest cause of infant mortality for the entire population (17%), and the leading cause of death for African American infants. North Carolina's LBW rates have increased in the past decade.

Infants born with LBW are 40 times more likely to die in the first year of life than are infants born at normal weight.[33] Long term health consequences range from vision and hearing impairments to mental retardation and cerebral palsy.[34] During the 1990s, the increased use of assisted reproductive technology has led to an increase in multiple gestations and a concomitant increase in preterm delivery and LBW rates.[21] The issue of LBW infants affects all North Carolina counties; however, the rate of infants born with LBW varies from 4% to 5% (in Dare, Duplin, Jackson, Macon, and Rutherford Counties) to almost 12% (in Bertie, Lenoir, Tyrell, and Warren Counties).

Unlike those associated with birth defects, infant deaths due to disorders related to LBW and prematurity can be reduced by addressing several known and preventable risk factors, including maternal smoking, substance use, inadequate weight gain, and by close monitoring of women who have previously delivered a LBW baby. Smoking during pregnancy has consistently been linked to adverse birth outcomes, and is the number one cause of low birth weight. Even a reduction in number of cigarettes smoked per day during pregnancy can improve a woman's chances of delivering a normal weight infant. Women who do not gain enough weight during pregnancy are also more likely to delivery a LBW baby.[46,35]

Although prematurity (delivery prior to 37 weeks gestation) is also associated with infant death, and its causes are less well understood. Certain risk factors for LBW (substance use, smoking, inadequate weight gain) have also been demonstrated as risk factors for prematurity. Other clinical risk factors, such as the presence of vaginal infections, have also been shown to increase the risk of preterm delivery.

During the late 1960s, after the creation of Medicaid and other assistance programs were implemented, infant mortality (both neonatal and postneonatal) has declined substantially. From 1970 to 1979, neonatal mortality in North Carolina plummeted 41% because of technologic advances in neonatal medicine and in the regionalization of perinatal services; postneonatal mortality declined 14%. During the early to mid-1980s, the downward trend in North Carolina infant mortality slowed. However, starting in the late 1980's, infant mortality once again started to decline slightly faster as a result of: the use of artificial pulmonary surfactant to prevent and treat respiratory distress syndrome in premature infants;

the North Carolina General Assembly Infant Mortality Reduction initiatives (including the Baby Love program expansion); and the actions growing out of the Governor's Infant Mortality Commission.

Obstetric illness and complications: Complications of pregnancy include a broad range of illnesses and conditions that may result in poor pregnancy outcomes. Gestational diabetes, hypertension, and preeclampsia are a few common examples. It is beyond the scope of this report to detail all the many possible medical problems that may occur during pregnancy. Many of these conditions are detectable and treatable through preconception and prenatal care. For example, studies on diabetes and pregnancy consistently conclude that proper glycemia control before and throughout pregnancy along with perinatal obstetrical monitoring help improve birth outcomes.[46,36,37,38]

Reproductive tract infections (RTIs) and HIV/ AIDS: STDs can be transferred from mother to infant, possibly resulting in fetal death, premature births and severe long-term problems.[39] STD impact among children varies with the age group and disease. Strategies to prevent these infections are obviously targeted to pregnant women. Since the implementation of prenatal antiretroviral (AZT) therapy in July 1995, for example, the vertical transmission of HIV has dramatically reduced from six children born in 1994 to one child born in 1997.[40]

The United States has the highest rates of STDs in the developed world.[41] For North Carolina teens and adults, STD rates are disproportionately higher for minorities, especially for gonorrhea cases. HIV/AIDS reports for 1998 among teens indicated that 76% of the cases were reported for African Americans. Congenital syphilis has declined over the last five years; there were only 22 cases in 1998, with nearly three-quarters of these cases among African Americans.[42]

Reproductive tract infections (e.g., bacterial vaginosis) are increasingly being associated with early preterm birth. In one recent cohort study, bacterial vaginosis was detected in 16% of 10,397 pregnant women. The presence of bacterial vaginosis among those women was associated with a 40% increase in the risk of delivery of a premature infant.[43] Studies are under way to determine optimal management of bacterial vaginosis in pregnancy to reduce the risk of preterm birth.

Substance abuse: The use of alcohol, tobacco and illegal substances during pregnancy is a major risk factor for LBW and other poor infant outcomes. Alcohol use is linked to fetal death, LBW, growth abnormalities, mental retardation, and fetal alcohol syndrome. Women who consume alcohol during pregnancy have a 77% higher fetal mortality rate.[44,46] Smoking during pregnancy is linked to LBW, preterm delivery, SIDS, and respiratory problems in newborns. Fetal mortality rates for women who smoke during pregnancy are 35% higher than average.[44,46] In addition to the human cost of these conditions, the economic cost of

services to substance-exposed infants is great. More than $500 million a year is spent on medical expenses for infants exposed to cocaine in utero.[45,46] Smoking-attributable costs of complicated births in 1995 were estimated at between $1.4 billion and $2.0 billion, nationally.[46,47] Expenditures related to fetal alcohol syndrome are far more than for smoking and cocaine exposure. Overall rates of alcohol consumption during pregnancy increased in the United States in the 1990s, as has the proportion of pregnant women using alcohol at higher and more hazardous levels. It is believed that rates for substance abuse are under-reported.

SIDS: Although improvements in medical care were the main reason for declines in infant mortality, public health actions played a role. During the 1990s, a greater than 50% decline in North Carolina SIDS rates (attributed to the recommendation that infants be placed to sleep on their backs) has helped to reduce the overall infant mortality rate.[8,46]

Breastfeeding: Breastfeeding contributes significantly to infant health. Some of the health benefits of breastfeeding for the infant include decreased diarrhea, respiratory infections, and ear infections.[46] Breastfeeding can also improve maternal health, by reducing postpartum bleeding, the risk of premenopausal breast cancer, and the risk of osteoporosis.[46] Breastfeeding will also help mothers return to prepregnancy weight.[46]

College-educated women aged 35 years and older have the highest breastfeeding rate. The lowest breastfeeding rates are found among mothers under age 21, the mothers with infants at highest risk for poor health and development, and mothers with little education. Breastfeeding rates are still too low. Higher rates are needed for high-risk children. Unfortunately, breastfeeding rates among all races are not sustained through six months postpartum. Nationally in 1997, only 29% of white women, 14.5% of African American women, and 24.5% of Hispanic/Latino women were still breastfeeding five to six months after delivery.[48,46] In North Carolina only 59% of women initiate breastfeeding at birth and less than 31% were still breastfeeding at five to six months postpartum.[49]

Current Programs and Policies

Pregnant women and infants in North Carolina benefit from the wide availability and efforts of numerous health professionals, as well as a wide array of publicly-funded programs and services designed to assure access to preventive, primary, and tertiary services needed to foster healthy births and newborns. Many state-supported programs designed to address health needs of pregnant women and newborns are administered by the Women's and Children's Health Section (WCHS) in the state Division of Public Health. The mission of the WCHS is to assure, promote, and protect the health and development of families with emphasis on women, infants, children, and youth. In addition, many agencies, institutions, and professional groups across the state provide primary, preventive, and curative services to mothers and

newborns across the state. WCHS works in collaboration with many of these agencies and professionals.

The services highlighted here are illustrative of those addressing the priority areas identified above. They are grouped into three categories: family planning and pregnancy prevention programs; programs for pregnant women; and programs and services for newborns.

Family planning and pregnancy prevention

Family Planning: DHHS helps assure statewide access to contraceptive and inter-conceptional care, pre-conception risk assessment, counseling and referral, nutrition services, health screening, and basic infertility evaluation and related services without regard to ability to pay. Services are available at local health departments, community-based health centers, and through private physicians. In many places, these services are offered as part of a wide range of other preventive care critical to women's reproductive and sexual health in order to promote self-determination in matters of reproductive health, and to help improve women's health by providing access to primary and preventive care. The availability of family planning funds has been expanded recently through the transfer of block grant funds from the Temporary Assistance to Needy Families (TANF) program to support family planning services provided by the Division of Public Health. DHHS has recently submitted a request for approval to amend current Medicaid guidelines to raise the income eligibility threshold for Medicaid reimbursement of family planning services. If approved, the proposed changes will make family planning services financially accessible to a larger number of women in the state.

The Competitive Adolescent Pregnancy Prevention Program (CAPPP): CAPPP focuses on preventing first-time teen pregnancies. In state fiscal year 2000, the state funded 22 projects serving 21 counties. CAPPP programs use a variety of pregnancy prevention strategies, including education, counseling, mentoring, and health clinics. CAPPP allows each community to tailor its teen pregnancy-prevention project to meet the community's characteristics and needs. Each initiative is supported in part by a combination of state funds that decline over a five-year period and local matching dollars. The General Assembly appropriates $1.2 million state and federal dollars for distribution to projects through a competitive grant process (the maximum award is $75,000 available to the grantee for five years). After the grant period, the projects are expected to operate without state funds. CAPPP projects often seek additional support from private foundations, corporations, or individual citizens. This helps create public-private involvement in the community, which supports new initiatives and encourages community responsibility. Since its creation, the CAPPP has funded over 60 programs.

Targeted Adolescent Pregnancy Prevention Program (TAPPP): TAPPP also focuses on preventing first-time teen pregnancies, but funds local projects by targeting projects in

communities with the fewest resources and highest teen pregnancy rates. TAPPP began in 1999 and primarily focuses on preventing first-time adolescent pregnancies. However, TAPPP may also include local projects that serve teen mothers and work to prevent second adolescent pregnancies. Like CAAPP, TAPPP also uses a variety of pregnancy prevention strategies, such as youth development programs, family life education, and mentoring. North Carolina counties with the highest rates of teen pregnancy and the fewest resources are targeted for local TAPPP projects. Prior to starting local projects, TAPPP collaborates with the Adolescent Pregnancy Prevention Coalition of North Carolina (APPCNC) to develop local teen pregnancy prevention councils which will nurture and support future projects. The funding process is non-competitive, but potential projects must submit a proposal in order to receive funding. Currently, there are ten TAPPP projects funded, and the number of total projects will rise to 20 by July 2001. Financial support for the program comes from TANF and contracts are renewed on an annual basis.

Adolescent Parenting Program (APP): APP works with teen mothers to help them prevent second adolescent pregnancies, graduate from high school, and improve parenting skills. As with the CAPPP, each APP initiative is sponsored by either a public or private nonprofit agency. Program components can also be adapted to meet the needs of a specific community. Unlike the CAPPP, the parenting program does not operate on a system of declining public funding. While initiatives receive both federal and state funding, every program is required to raise a portion of its annual budget. Currently there are 30 programs serving 30 counties. The total cost of this program is about $1.6 million annually, with the state share being $500,000.

Adolescent Pregnancy Prevention Coalition of North Carolina (APPCNC): Since 1983, the APPCNC has been an invaluable part of NC's efforts to reduce adolescent pregnancy. The Coalition is a public-private partnership that develops and implements teenage pregnancy-prevention initiatives in communities throughout the state. It is designed to support programs within the CAPPP, TAPPP, and APP, but also supports other adolescent pregnancy-prevention initiatives. The Coalition focuses on four areas: 1) advocacy and awareness; 2) community organization; 3) program development and training; and 4) technical assistance. The APPCNC is supported by funds from local United Ways across the state. Funds also come from the General Assembly, foundations, program fees, and contributions from private citizens. Local councils function in 41 counties and the educational resources of APPCNC are made available through all health departments.

Mandated coverage of contraceptives in private insurance plans: HMOs and other insurers that provide coverage of prescription drugs or devices have recently been required to cover contraceptive drugs and devices. Coverage must include the insertion and removal of contraceptive devices as well as contraceptive examinations. The HMO or insurance company

must apply the same cost sharing on the contraceptive drugs and devices as it imposes for prescription drugs.[50]

Programs for pregnant women

The state offers many services and programs intended to improve the overall health status of women, reduce infant morbidity and mortality, and strengthen families and communities through provision of a full complement of prenatal services, including outreach, case management, nutrition counseling, and psychosocial assessment and intervention counseling. Most of these services are available statewide and are offered to all pregnant women in need. However, some of the services are targeted to address the needs of selected geographic areas and/or population subgroups determined to be at increased risk for poor pregnancy outcome. Additionally, the state offers some programs targeted to specific health conditions.

Statewide programs

Prenatal care: Most local health departments provide multi-disciplinary perinatal services. Counties whose local health departments do not provide prenatal care directly have made arrangements for care through agreements with neighboring counties. While prenatal care is commonly offered through local health departments, labor and delivery services are not usually provided directly, unless the county offers nurse-midwifery services. Routine prenatal services include medical supervision, health promotion guidance, nutrition services, psychosocial counseling and support, and referral as necessary. The Women's and Children's Health Section provides support so that these services are available through local health departments as needed to assure access to all pregnant women regardless of insurance coverage or ability to pay.

High Risk Maternity Clinics: Women in the state are served by an network of 21 high risk maternity clinics which help to assure that low income women with medically complicated pregnancies have access to risk-appropriate perinatal services. Each clinic in the network is linked to a hospital staffed by obstetricians, pediatricians, and other specialty physicians where inpatient services appropriate to the care of mothers and infants with medical complications are available.

Medicaid coverage for pregnant women (Baby-Love): Medicaid pays for pregnancy related services (prenatal care and delivery) provided to pregnant women and teens. Medicaid covers pregnant women with incomes up to 185% of the federal poverty guidelines, and most of the pregnant teens in the state. In addition to prenatal care, deliveries and other health services, Medicaid also pays for care coordination services of a nurse or social worker responsible to assure access to needed health and social services (maternity care coordination

and maternal outreach workers); childbirth and parenting classes; home visits for women with certain high-risk conditions; and nutrition and psycho-social counseling.

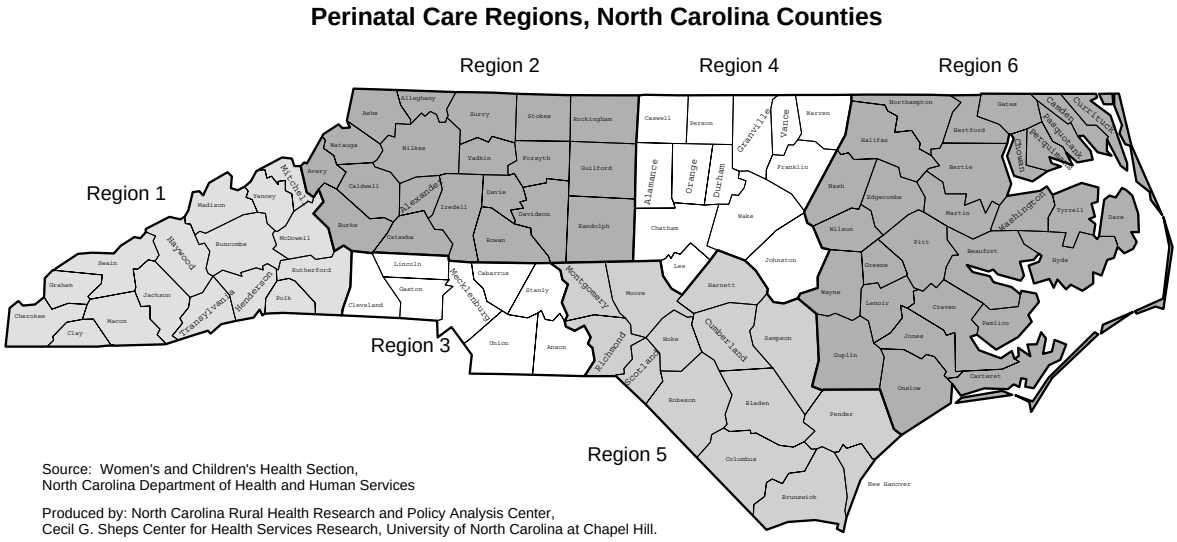
North Carolina Healthy Start Foundation: The mission of the North Carolina Healthy Start Foundation is to increase public awareness and public involvement in the issues relating to the prevention and reduction of infant death and the promotion of the health and development of children. In an effort to do this, the Foundation focuses efforts on four programs: the Community Grants Program, the FIRST STEP Campaign, the Health Check/NC Health Choice Outreach Campaign, and the NC Family Health Resource Line.

NC Healthy Start Community Grants Program: The community grants program provides funding to community-based organizations for programs that positively impact the health of women of reproductive years and their babies. The Community Grants Program was revised in FY 99-00 and grants are now funded for up to two years and a total of $150,000. In the spring of 2000, the Foundation funded projects that addressed at least one of the following issues: smoking cessation, reproductive tract infections and sexually transmitted infections, and interconceptional health issues that increase the interval between pregnancies. Funding priority is given to counties with high infant mortality rates and numbers.

FIRST STEP Campaign: Started in 1990, the FIRST STEP Campaign is a nationally recognized, statewide, public education campaign. This campaign uses a multi-media approach to focus public attention on the importance of pre-conception health, prenatal care and appropriate parenting skills. Although the Campaign aims to reach broadly across the state, its messages over the last few years have been crafted specifically to targeted audiences most at risk. These include a minority infant mortality campaign to reach African Americans and a new Hispanic/Latino campaign to reach the state's growing Hispanic/Latino population. More than one million educational materials are distributed annually to more than 2,000 public and private organizations in the state at no cost.

Regionalized Perinatal Referral System: Perinatal regionalization has been successful in assuring that risk-appropriate perinatal services are available statewide without unnecessary duplication of services. A distinguishing feature of the state's regional perinatal program (depicted in Figure 4.3) is that it has remained intact for more than 25 years since its inception in 1974. Few states can make such a claim. The regional system ensures that all women with high-risk pregnancies have convenient access to high quality sophisticated care. It also ensures that they have access to fine tertiary-level care in which their infants will be cared for in one of a network of Neonatal Intensive Care Units (NICUs) distributed throughout the state. There are no financial barriers to the receipt of such care.

Figure 4.3: Perinatal care regions



Perinatal Outreach Education Training (POET): Since 1973, the regional system has been served by a statewide Perinatal Outreach Education and Training program that provides educational and instructional services targeted to perinatal and neonatal health professionals across the state. Through this program, in-service and continuing education is offered to health care providers through contracts with medical schools, Area Health Education Centers (AHECs) and hospitals. Perinatal and neonatal coordinators supported by these contracts survey perinatal and neonatal providers in specific catchment areas and determine their needs for continuing education. Any perinatal or neonatal professional who practices in North Carolina is eligible to participate. This system helps to assure that women receive risk-appropriate care by providers who adhere to current practice standards.

Special Supplemental Nutrition Program for Women, Infants and Children (WIC): Pregnant and lactating women, postpartum women up to six months, and infants and children under five years of age who are at nutritional risk and have incomes less than 185% of the federal poverty guidelines are eligible for WIC. Eligible individuals receive nutrition education, breastfeeding support, vouchers to purchase nutritious foods, and referral for other health and social services. Additional nutritional services are available for pregnant and post-partum women with nutrition-related conditions that impact the length of gestation or birth weight or metabolic disorders (such as diabetes, inborn errors of metabolism), chronic medical conditions (such as cancer, heart disease, hypertension), chronic or prolonged infections (such as HIV, AIDS or hepatitis), autoimmune diseases (such as systemic lupus erythematosus), and eating disorders.

STDs & HIV/AIDS prevention and treatment programs

Current perinatal standards of care (and North Carolina statute) require that all prenatal care providers offer HIV testing and counsel women about the rationale for such testing. Testing for syphilis at the first prenatal visit, and at 30-34 weeks, is also statutorily mandated. However, it is difficult to assess compliance with these mandates, particularly in the private sector. Clinics that receive WCHS funding are routinely monitored for compliance with these, and other, practice guidelines.

Programs targeted to specific geographic areas or population groups

Minority Infant Mortality Reduction Project: The General Assembly appropriates $750,000 annually to fund projects that demonstrate ways to lower infant mortality and low birth weight rates among minority populations. The Minority Infant Mortality Reduction Project currently supports I5 projects for an average of $50,000 per year for up to three years. These projects address the two-fold disparity in infant mortality rates between whites and non-whites through many initiatives, including education, community development and awareness, lay health advisors, and other outreach efforts. They are encouraged to foster cooperation among community-based groups, health care providers, businesses, churches, schools and consumers. The Minority Infant Mortality Reduction Project is a joint initiative of the Division of Women's and Children's Health, the Office of Minority Health, and the Healthy Start Foundation.

Nurse-Midwifery Projects: The General Assembly appropriates $400,000 annually to provide seed money to support nurse-midwifery projects in underserved obstetrical areas of North Carolina. Nurse-midwives typically provide individual, family-centered care to pregnant women under protocols developed in cooperation with a supervising physician. As projects become self-supporting, other underserved areas are encouraged to apply for nurse-midwifery project funding.

Rural Obstetrical Care Incentive Program: This program reimburses physicians and nurse-midwives for a portion of their malpractice insurance premiums in exchange for providing prenatal care and delivery services in medically-underserved areas. To receive this malpractice subsidy, the provider must serve Medicaid and other low-income women in these communities.

Targeted Infant Mortality Reduction Project: These funds are used to provide on-going support for additional maternal and infant health services in counties with high rates and numbers of infant deaths in order to more effectively reduce the state's total infant mortality rate. Program funds may be used to identify and fill gaps in services that can contribute to the reduction of infant mortality and morbidity in each county.

Baby Love Plus (Healthy Start Initiative): The Baby Love Plus is North Carolina's federally funded *Healthy Start* initiative operating in three regions: Eastern North Carolina, the Triad, and the Pembroke area. It is designed to address the causes of infant mortality and low birth weight among populations at high risk for these conditions. Baby Love Plus goes beyond the current Baby Love program by offering women, infants, and families community-based, culturally appropriate, family-centered, and comprehensive perinatal services, and the integration of these services into existing systems of care. Formal networks of community leaders, consumers and families, and public and private sector organizations provide guidance to the program and mobilize local and regional resources. Each of the participating communities is served by Community Health Advocates who canvas the region identifying pregnant and parenting women and assisting them in accessing needed services. Resources are available to break down barriers and increase women's access to care by providing childcare, transportation, translation services, and in-home support. A public information campaign, which customizes messages from the statewide First Step Campaign, has been developed for these regions.

Minor's consent for health services: The North Carolina General Assembly enacted a law in 1972 to facilitate a youth's access to health care.[51] Under this statute, a minor may give effective consent to obtain health services for the prevention, diagnosis and treatment of venereal disease and other diseases, pregnancy, substance abuse, or emotional disturbance. This law does not give children permission to obtain an abortion, performance of a sterilization operation, or admission to a licensed 24-hour facility without the consent of an adult. However, minors may give their own consent to be admitted to a treatment facility in an emergency situation.

Programs targeted at specific illnesses or health conditions

Sudden Infant Death Syndrome Grief Counseling: This program was designed to provide grief counseling and information to families following the loss of an infant due to Sudden Infant Death Syndrome (SIDS). Local or regional health department staff designated as SIDS Counselors provide this service. The program also provides training and information about SIDS to community groups, professionals, and first responders such as police and emergency medical technicians. The program is actively involved in SIDS prevention through its support of the "Back to Sleep" infant sleep positioning public awareness campaign.

Back To Sleep Campaign: This statewide campaign was launched in 1994 in conjunction with the N.C. Division of Public Health, DHHS, in response to the American Academy of Pediatrics' recommendations that infants placed to sleep on their backs or sides have a reduced risk of Sudden Infant Death Syndrome (SIDS). Although SIDS rates in North Carolina are declining, they still exceed the national average (see Table 4.1) and are higher for

minority babies than white babies. Preliminary 1998 NC Pregnancy Risk Assessment Monitoring System (PRAMS) data indicate that 75% of infants sleep in the recommended positions of side (35%) or back (40%).

Genetic Counseling Services: The Genetic Health Care Program contracts with four major medical centers and one community hospital to provide comprehensive genetic services for any infant, adult or pregnant woman suspected of having a genetic problem in order to identify individuals and families at risk in order to provide early intervention and treatment.

The Genetic Program also sponsors genetic satellite clinics that are held in community-based Developmental Evaluation Centers (DECs). In addition, genetic services are available statewide from regional genetic counselors through the public health network. Counselors provide educational genetic workshops, assistance in identifying and referring patients in need of genetic evaluations, patient counseling, and coordination of the genetic satellite clinics and greater integration of genetic services with other public health programs. In addition, WCHS provides a comprehensive range of services for individuals diagnosed or at risk for sickle cell disease. Counseling and other services are available at community-based centers and referral hospitals.

Maternal Serum Alpha-Fetoprotein Screening: North Carolina formerly had one of the highest rates of neural tube defects in the United States. Maternal serum alpha fetoprotein (MSAFP) determinations early in pregnancy have allowed pregnant women to make decisions about their pregnancy that can reduce the risk of having a child with a neural tube defect. Programs within the North Carolina Department of Health and Human Services allow universal access to MSAFP screening for all pregnant women in North Carolina regardless of ability to pay. Neural tube screening should be an integral part of the prenatal care package, especially since these defects are the second most common congenital abnormality. The screening test also can identify other defects involving the ventral wall, the urinary system, and chromosome anomalies (e.g., Down's syndrome). MSAFP screening should be performed between 14 and 16 weeks of pregnancy. The Genetic Health Care Program contracts with both UNC Hospitals and Wake Forest University Baptist Medical Center (WFUBMC) for the provision of comprehensive screening services.

Perinatal substance abuse programs: The Perinatal and Maternal Substance Abuse Initiative is composed of 23 specialized programs for substance abusing pregnant and parenting women and their children. This initiative was funded to address birth outcomes and family functioning of these families. These programs provide comprehensive substance abuse services that include, but are not limited to screening, assessment, case management, outpatient services, parenting skills, residential care, referrals for primary and preventive health care, and referrals for appropriate interventions for the children.

North Carolina Birth Defects Monitoring Program: The North Carolina Birth Defects Monitoring Program was established in 1995 by the North Carolina General Assembly. The purpose of the monitoring program is to provide data needed to help reduce the incidence of birth defects and their impact on affected children and families. Data on birth defects are collected from a number of sources, including vital records, hospital discharge reports, and medical records. Information maintained by the NCBDMP is confidential. The NCBDMP maintains a registry database of North Carolina children with birth defects diagnosed up to age one. As a partner in this collaboration, the State Center for Health Statistics helps to: track the occurrence of birth defects in the state; identify environmental and other risk factors for birth defects; develop, target, and evaluate programs aimed at preventing birth defects; and improve delivery of services for children and families affected by birth defects.

GAPS IN EXISTING PROGRAMS OR POLICIES

Despite the numerous programs designed to improve birth outcomes made possible by local, state and federal funds, efforts to address identified needs remains a challenge in the state. Support for the maintenance of the programs described above must be joined with selected additional efforts if we are to meet our goals for fostering healthy mothers and newborns.

With the exception of family planning programs, most of our state's current initiatives focus on helping women access health care services after they are pregnant. Thus, one of the largest gaps is the absence of sufficient initiatives that focus on improving a woman's health before she becomes pregnant. Prenatal care has enhanced pregnancy outcomes in many ways. However, it has not been shown to have a beneficial effect on the incidence of premature birth, a major cause of infant mortality. The most likely reason for such a failure is that the causes of prematurity are predominately related to a woman's general health and social, environmental, and emotional circumstances. In order to reduce the incidence of prematurity, it will be necessary to address those circumstances *before* as well as during pregnancy.

Several initiatives lack adequate state funding. The North Carolina Birth Defects Monitoring Program (BDMP) and the POET program are among them. The BDMP is funded primarily by the March of Dimes and the CDC. State funding for the program exists in the form of 25% of one DHHS staff member. Currently the BDMP is only operational in tertiary care centers. Likewise, the Folic Acid Campaign in North Carolina receives no state funding.[52] Funding for the POET program has also remained stagnant for several years, forcing individual programs to reduce activities or to increase fees for educational offerings.

Other programs face funding limitations. Expanded Medicaid coverage extends only to 60 days postpartum. Many women, therefore, loose access to family planning and other health services at a time when repeat pregnancies are particularly dangerous both to the mother's

and her present and future child's health. Short interbirth intervals and lack of access to health services in the year or two postpartum are major contributors to repeated poor pregnancy outcomes. Interconceptual health is also important for the current child; a healthy mother is critical for the health of an infant and a child. Family health is particularly important to ensuring child health.

The Task Force also recognized that while the state offers a variety of programs and services, many of them are not available statewide. Some of these programs are limited to certain geographic areas; others are targeted to specific population groups. Adolescent pregnancy prevention initiatives exist in only 36 North Carolina counties. While North Carolina should be commended for being a national leader in its adoption and implementation of effective pregnancy prevention programs, 54 counties still have no adolescent pregnancy prevention program. Many counties lack the necessary funding and leadership. Local citizen apathy to the teen pregnancy issue has also been noted. The shadow of controversy that follows adolescent sexuality is another hindrance. The APPCNC only has three full-time employees, which also limits expansion capability.

Programs affecting the reproductive health of minors have been mired in controversy for years. For example, some North Carolina counties plan to ask the General Assembly to repeal the minor's consent law that allows health care workers to provide family planning services to youth without adult consent. These services include contraception. The repeal of this law and the resulting denial of services would have far-reaching consequences. Currently, both North Carolina state law and the rules of the federal Title X program (the funding source for public family planning services throughout the state) require that teens be served. Thus, requiring parental consent for family planning services to minors would violate both state and federal requirements. In fact, the results could be so dire as to jeopardize publicly funded reproductive health services for *all women (adults and teens) in North Carolina*: violation of Title X program rules could cause the federal government to withdraw $5 million in family planning funding that the state receives each year.

Comprehensive sex education is another health promotion effort for our children that has been all but erased by controversy. Organizations, such as the American Medical Association and the Alan Guttmacher Institute, are urging schools to adopt a comprehensive approach to sex education. Although, the North Carolina School Board has an approved comprehensive, medically accurate Healthful Living curriculum, which includes abstinence, the sex education curriculum is limited in most schools. Only 12 of the 117 North Carolina school systems offer a comprehensive sex-education curriculum.[53] Few school systems are offering this curriculum in part because of the priority placed on other subjects and also because of the ambiguity of the law.[54] The unclear scope and meaning of the law has led to a variety of local interpretations as well as increased tension between public education and parental rights.

Additionally, the Task Force found that state rules and regulations governing examinations of pregnant women for sexually transmitted diseases should be updated. Current state regulations require testing for certain STDs at the onset of prenatal care, and in the third trimester of pregnancy; and HIV pre-test counseling at the onset of prenatal care, with encouragement to offer a blood test for HIV to all pregnant women. These regulations could be strengthened if changed to require STD testing earlier in the third trimester (at or near 28 weeks gestation), and to provide explicit guidelines for "enhanced" counseling for women with documented risk factors for HIV exposure and infection.

RECOMMENDATIONS

Compared with the 1970s, the 1980s and 1990s have seen a lack of decline in maternal mortality and a slower rate of decline in infant mortality. While some experts think that we may be approaching an irreducible minimum in these areas, existing evidence does not support such a position. First, researchers have believed that infant and maternal mortality was as low as possible at other times during the century, when the rates were much higher than they are now. Second, nationally we have higher maternal and infant mortality rates than other developed countries; the US ranks 25th in infant mortality and 21st in maternal mortality. Third, most other states' infant and maternal mortality rates are substantially lower than North Carolina's rate, including many states with similar racial and ethnic demographics. Finally, there is no definable biologic reason indicating that a minimum has been reached. Implementing the recommendations contained herein should help to continue to reduce North Carolina's infant mortality and low birth weight rates. The Task Force recommends:

1. ***Development of a universal health inventory to screen for risk factors among women of childbearing years by DHHS in collaboration with the state's four medical schools, the NC Chapter of the American College of Obstetricians and Gynecologists, and other appropriate health professional associations and organizations.***

This screening tool will provide a standard means of comprehensive assessment of potential medical problems, as well as a variety of social, environmental and emotional problems or needs that are likely to influence the well-being of mother and/or infant in the perinatal period and beyond. This approach would require further development by a variety of health care providers. Ideally, assessments would be used throughout the childbearing years as part of annual health visits beginning in adolescence and continuing through menopause. If properly used, such a tool could be used to identify needed health services as well as link women to available resources in their communities. Information gathered and discussed by women and their health care providers will help to assure that pregnancies occur in the healthiest physical and emotional environment possible.

2. Expanding and enhancing the school health curriculum to ensure healthy adolescents.

The basis of improved pregnancy outcome is good pre-pregnancy health in the broadest sense. Women must understand how to live healthy lifestyles and have access to the tools to do so. It is essential that communities in North Carolina develop health alliances that are partnerships among the public, mental, and traditional health systems and their school systems. Such alliances will be formidable assets in ensuring that students have the education they need (including parenting and sexuality) to become healthy adults who can have and raise children who are healthy themselves.

In addition adolescents should be given an opportunity to learn from a medically accurate and comprehensive health education curriculum, which includes sex education. It should be sequential, age-appropriate, culturally sensitive, include discussions on abstinence, reproduction and fertility, decision-making, personal responsibility, communication skills, methods of effective and ineffective contraception, parenting, and sexually transmitted diseases, with special emphasis on human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS).

The purpose of sex education is often evaluated based on its ability to reduce teen pregnancy and STD rates, but the role of sex education is much broader. Sex education provides young people with an opportunity to receive information, examine their values, and learn relationship skills that may enable them to resist sexual activity as a teen. Sex education may also help prevent unprotected intercourse.[55] The provision of sex education should be viewed as an important aspect of health promotion, rather than just a teen pregnancy and STD prevention issue.

3. Expansion of Medicaid program eligibility to cover working parents with incomes below 200% of the federal poverty guidelines.

Short interbirth intervals and lack of access to health services in the year or two postpartum are major contributors to repeated poor pregnancy outcomes. Unfortunately, expanded Medicaid coverage extends only to 60 days postpartum. Many women, therefore, lose access to family planning and other health services at a time when repeat pregnancies are particularly dangerous both to the mother's and her future child's health. Expanding Medicaid coverage to working parents with incomes below 200% of the federal poverty guidelines would close a serious gap in perinatal health services. If this could be done for at least two years, it would also help the intraconceptional health of mothers as well as enable them to more effectively care for their newborns.

4. ***The North Carolina Department of Health and Human Services should amend existing rules and regulations governing testing for sexually transmitted diseases during pregnancy. In addition, women should be strongly encouraged to seek HIV testing during pregnancy to prevent the transmission of the HIV virus to the infant.***

Current laws should be revised to include chlamydia testing for pregnant women, and to require that pregnant women be tested for sexually transmitted diseases earlier in pregnancy. To accomplish this, the Department should amend the North Carolina Administrative Code, 15A NCAC 19A.0204(e) to read:

> "All pregnant women shall be tested for syphilis*, chlamydia* and gonorrhea early in pregnancy and ~~in the third trimester~~ *at 28 weeks of gestation. Pregnant women shall also be tested for syphilis at delivery.* Pregnant women at high risk for exposure to ~~syphilis~~ *chlamydia* and gonorrhea shall also be tested for ~~syphilis~~ *chlamydia* and gonorrhea at the time of delivery."

The inclusion of chlamydia testing will prevent adverse effects early in pregnancy and perinatal transmission of the disease to the infant. The current CDC recommendation is to screen for chlamydia in the third trimester, but the results of chlamydia testing in prenatal clinics suggest that screening in the first trimester would also prove beneficial. CDC STD Treatment Guidelines also include a recommendation for early third trimester syphilis screening (at or near 28 weeks gestation) and at delivery for communities and populations in which the prevalence of syphilis is high. Current NC rules and regulations require syphilis testing in the third trimester (this is completed between 30 and 34 weeks gestation in public health department clinics).

In addition, the need for appropriate HIV counseling (and the rules requiring that HIV testing be encouraged for all pregnant women) should be reinforced with private physicians to assure that *all* women receive this important service. An initial refusal of testing should be followed by provision of continued ("enhanced") counseling by experienced clinicians. This counseling should include enhanced information, rationale for testing recommendation, and support of further consideration of the service.

5. ***State-funded and state-appropriated programs that provide outreach services to pregnant women and their families should more efficiently target resources for care coordination and outreach to those at highest risk.***

Over the past ten years, North Carolina has established an excellent model for maternity care coordination (MCC) and outreach for Medicaid maternity clients. There are resources available for MCC in virtually every county and the infrastructure to provide these services is well established. There is a need, however, to better target these resources and assure that the content of care provided by the MCCs is optimal and reaching those most in

need in each county. Outreach workers and MCCs should concentrate their efforts on those families who have known risk factors for poor birth outcomes: previous infant death, poor spacing from previous live birth, previous premature or low birth weight baby, substance abuse problems, extreme poverty, or domestic violence/poor social support. These are all factors included in the risk assessment conducted at an initial maternity visit in most county health departments. The data exist to match outreach efforts to families with these risk factors. Outreach workers should be instructed in the management and appropriate referral of these risk factors and focus their primary efforts on reaching these families, using data-driven rosters for their caseloads. This is similar to the changes made over the past five years in the Early and Periodic Screening, Diagnosis and Treatment (EPSDT)/Health Check program that focuses outreach in each county on the highest risk children. EPSDT County Coordinators use monthly printouts of age- and risk-adjusted names from the Medicaid eligibility and claims files to determine and prioritize their caseloads. This should be done for maternity care coordination as well using information collected on clients at their initial visit.

6. Expand existing efforts to attract and support health care providers in areas of underserved locations in the state.

The Rural Obstetrical Care Incentive Program (ROCI) in close coordination with the Office of Rural Health, Research, and Demonstrations should expand availability of incentive funds into additional areas of the state, including urban areas where access and underservice are serious issues.

7. The North Carolina General Assembly should increase funding for the Perinatal Outreach Education and Training Program (POET).

The Perinatal Outreach Education and Training Program, funded and administered by the North Carolina Department of Health and Human Services, provides statewide education opportunities for all perinatal health care providers. Eight perinatal centers participate in POET from Greenville to Asheville. POET is a primary reason for the continuing strength and integrity of the regional perinatal program. Funds for POET have remained stagnant for several years, forcing individual programs to reduce activities or to increase fees for educational offerings. Funds for POET must be increased both to continue and to develop innovative ways to reach perinatal health care professionals.

8. Maintain support for public awareness/statewide educational campaigns and hotlines.

Funding should be continued and improved to maintain the high levels of success achieved by FIRST STEP, Back to Sleep, Folic Acid, and other public awareness campaigns. The North Carolina Center for Health Statistics estimates a Birth Defects Monitoring program and a targeted educational program on folic acid (to reduce just one type of birth defect, spina

bifida) could save the state over six million dollars in a five-year period. South Carolina has successfully used this strategy to reduce its rate of spina bifida by 50% over the past seven years.[31]

9. The NC Department of Health and Human Services should encourage Fetal Infant Mortality Reviews (FIMR) locally and statewide to investigate the social, economic, psychological, and environmental factors that contribute to maternal and infant deaths.

Case reviews or audits are being used increasingly to investigate fetal, infant, and maternal deaths; they focus on identifying preventable deaths such as those resulting from health-care system failures and gaps in quality of care and in access to care. The North Carolina Department of Health and Human Services should also investigate the social, economic, psychological, and environmental factors that contribute to maternal and infant deaths.

10. Preserve legislation (e.g., G.S. 90-21.5) which protects adolescents' access to reproductive health services.

Services should be made available, without legal or financial barriers to all male and female adolescents desiring such care. North Carolina cannot afford to refuse medical care to adolescents who may not have adequate family support. While it would be ideal if every child grew up in a nurturing environment, we know many do not. Parental involvement should always be encouraged, but repealing legislation that protects the reproductive health of adolescents in less favorable environments would be irresponsible and counter-productive in our efforts to prevent adolescent pregnancy and sexually-transmitted disease.

11. Work with the Office of Healthy Carolinians to expand their local coalitions and Task Forces to include explicit focus on groups at high risk of poor pregnancy outcomes.

Most NC counties have activated a Healthy Carolinians Taskforce and are in the process of establishing action plans to address local health problems. Nevertheless, North Carolina has more than 50 counties with no prevention initiative and, despite the availability of support from the central Healthy Carolinians office and the State's Community Health Assessments Initiative, many counties have not galvanized local communities to action. There is a need to expand efforts beyond increasing awareness, and include locally based programs using county-level data to assist groups in identifying the risk factors most prevalent in their communities, and where families are most in need. Public-private partnerships such as those begun by the Governor's Commission to Prevent Infant Mortality and the NC Healthy Start Foundation should be reinstated to continue the work of supporting local coalitions to conduct training sessions for community groups on promoting healthy pregnancies, especially for vulnerable populations such as teens and families below federal

poverty levels. Each county should develop initiatives to reduce excessive teen pregnancy and infant mortality/morbidity rates.

12. Continue appropriations and policies to continue support for the APPCNC, CAPPP, TAPPP, and APP.

Appropriations should be continued for staff expansion, development of new projects, and other initiatives that would complement local teen pregnancy prevention projects, such as a statewide media campaign and training for local staff in pregnancy prevention strategies shown to be effective. The gravity of teen pregnancy necessitates continued funding to these teen pregnancy prevention programs which have already been shown to be effective.

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Chapter 5

Chronic Illness and Developmental Disabilities

STATEMENT OF THE PROBLEM

More than 100,000 children are born each year in North Carolina. A growing number are destined to have at least one chronic illness or suffer a life-long disability. Providing them with health care necessary to ensure health while guaranteeing as productive a life as possible is of critical importance to each and every citizen of the state.

To fulfill this need for health care and to position more equitably the economic resources necessary to provide care, we must pay attention to the nature of chronic illness and disabling conditions, the impact on the child and family, the costs to the community, and the value of early, continuous, and effective methods of detection and treatment.

Chronic illnesses and disabilities share common manifestations: Both persist over time and both dramatically affect the response of a child's potential in life. A chronic illness might be treatable, but not currently curable. Examples of chronic illness include diabetes mellitus, asthma, and rheumatoid arthritis. They might erupt at any time in a child's life, lie dormant for long periods, or persist with unabated force to the point of near exhaustion of those affected. It is virtually impossible to measure the costs of these diseases to individuals and the community in terms of the lost productivity of their families, the impact on the school systems and on the individual's course of life, and the emotional and financial drain on all involved.

Disabilities need to be described in somewhat disparate terms. They are either primary, affecting the daily functions of living from birth, or secondary, producing similar effects but occurring later in the life of the child, as the result of an incident or disorder. The most profound consequences are the alteration of ordinary living functions, such as walking, talking, feeding, dressing, or toileting. Here, too, it is virtually impossible to measure the costs of having these developmental disabilities.

Whether a child has a disability or a chronic disease, the implications for health care are clear, and the gain or loss of quality and independence of any given child's life are expressly related to the availability of resourceful and knowledgeable treatment.

This part of the report deals with these dimensions of chronic illness and disabilities and recommends strategies that will provide solutions to assure that children so affected might

still envision a future of hope rather than of failure. That vision embraces the notion that these children will have access to health care tailored to their needs. This care must include prevention, detection, and treatment, and be family-centered, community-based, and culturally competent.

Definition

The array of challenges in this area is underscored by the lack of a consensus definition of these children. Clinically and etiologically, diverse chronic health conditions affect children and youth, including diabetes mellitus, asthma,[1] vision and hearing deficits, Attention Deficit Hyperactivity Disorder (ADHD), congenital heart disease, cerebral palsy, and developmental retardation.

A recent approach to the crafting of a definition is based on the need for greater use of specialized services. The federal Maternal and Child Health Bureau (MCHB) recently proposed the following definition:

> Children with special health care needs are those who have or are at 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.[2]

Some estimates indicate that over one-third of children and youth have some chronic health condition. Fortunately, a majority of these conditions (acne, hay fever, mild vision deficits) are relatively minor and have little impact on daily care or the need for special services. At the other end of the spectrum, however, about 2% of the population meets the same standard of disability used by the Social Security Administration for SSI, without the income eligibility requirements.[3]

Different results are produced if one employs a definition based on limitation of daily activities because of a health condition. Using this methodology, the National Health Interview Survey currently identifies about 6% of children and youth as affected in daily activities.[4]

Another confounding problem is that only a few conditions occur at rates greater than one in 1,000 children (e.g., asthma, vision deficits, hearing deficits, ADHD, developmental retardation, etc.). While the remaining conditions are relatively rare, the cumulative number of such conditions means that a large number of children and youth have some chronic condition.

Applications of the type of definition proposed by MCHB to national survey data identify about 15-18% of children and youth as having a special health care need.[5] A recent

report in which the broad MCHB definition was used estimated that about 20.5% of the children in North Carolina have one or more special needs. These estimates varied widely depending on the type of condition used. About 3.4% of children were estimated to have a special need based on a definition of chronic conditions, and 11.9% were identified based on a definition of functional limitations.[6] However, this methodology must be refined if it is to be used to identify individual children with a special health care need. This inability to identify individuals is a major problem when attempting to establish a systematic response to meeting the needs of these children.[7]

CURRENT PROGRAMS AND POLICIES

North Carolina has a number of available programs to serve children with special health care needs. These can serve as a foundation for a more effective system for children with chronic illnesses and developmental disabilities, and for their families. We have divided these institutions and programs into two categories: global, encompassing those that might provide services across the spectrum of illnesses and disabilities, and specific, encompassing those illnesses and disabilities whose services address a targeted need.

Global—affecting a broad range of illnesses or disabilities

At the core of our health system for children with special health needs are four systems: 1) a system to identify children with chronic illnesses or developmental disabilities; 2) a system which provides care coordination and needed support services; 3) a system of medical services provided through individual clinicians, schools, or regional centers; and 4) a financing system.

System to identify children with special health needs

Developmental Evaluation Centers: The state has 18 centers across the state with interdisciplinary staffs to provide clinical evaluations, treatment, and case management services for children who have known or suspected developmental disabilities. The staffs are made up of teams of professionals with specialties in pediatrics, social work, psychology, speech and language, hearing, physical and occupational therapy, special education, nursing, and nutrition.

Care coordination and support services

Child Service Coordinators: Child service coordinators are available in county health departments and area mental health programs throughout North Carolina. Home visiting and support services are provided by these coordinators to families of children less than five years of age with suspected or actual developmental delays.

Early Intervention Program (EIP): North Carolina's EIP is designed to provide the earliest possible diagnosis and treatment for children from birth to age five (infants-toddler program: birth to two years; preschool program: three to five years) who are suspected to have or do have developmental delays. More than 8,000 children receive multi-disciplinary evaluations, special therapies, and child service coordination each year in the state through the infant-toddler program. In the preschool program, approximately 11,300 children receive multi-disciplinary evaluations, individualized education services, and education-related services, such as speech therapy or psychological services.

Smart Start. North Carolina's early childhood initiative is operating in all 100 counties. The program is organized around local committees that are supported by the statewide North Carolina Partnership for Children. Smart Start strengthens local child care services and provides a well-organized statewide platform for delivering health services—particularly preventive and early identification services such as vision screening—to children from birth through four years.

Family Support Network: These networks are dedicated to helping families of children with special needs and the professionals who serve these families. Families are provided with up-to-date information about disabilities, services, and agencies that serve families of children with special needs, and professionals who work with these families. The Family Support Network recruits, trains, and matches volunteer parents offering support and assistance to other parents, as well as professionals and agencies; and encourages parent-professional collaboration between physicians and other health-care professionals and parents of children with special needs.

Community support and advocacy groups: Numerous community support and advocacy groups are organized to offer assistance to children with special health care needs and their families. Examples of these groups include the North Carolina Autism Society, Easter Seals, and March of Dimes. Many other groups also provide valuable complimentary services to this population in an attempt to improve outcomes.

Medical services provided through clinicians, schools or regional centers

Existing sources of health care: Many pediatric and family practice physicians throughout North Carolina provide a regular source of health care[8] for children. In most instances, financial assistance is still required to help them fulfill this role adequately. Carolina Access within the Medicaid program is an example of a successful medical model in which the physicians receive a small monthly fee to provide a regular source of health care for eligible children. Primary care providers receive $3.00 per member per month to manage all

of the health care needs of Medicaid recipients, but continue to be paid on a fee-for-service basis for the services provided.

School-based and school-linked health services: At this time, 50 school-based and school-linked health centers provide an array of primary care and specialized health services for students in North Carolina. However, of the more than 2,000 schools in the state, most do not have these programs available to them. Although most school systems have school nurses, the number of these nurses is plainly inadequate to cover all the individual schools in these systems. An indication of this severe shortage is reflected in the present average nurse:student ratio of 1:2,480 in North Carolina. The nationally recognized and recommended ratio is 1:750.

Regional medical centers: North Carolina is fortunate to have four medical schools and several other large hospital medical centers that function as regional resources in the provision of services to children with special health care needs. The catchment areas of these institutions cover the entire state.

Area Health Education Centers (AHECs): The North Carolina AHEC Program provides education and training for the health professions. The program is a unique partnership between the university health science centers and local communities. The program's goal is to meet the primary health care needs of the state by improving the supply, distribution, and quality of health care professionals. Today, nine regional AHECs comprise the AHEC system and are supported primarily by state and local funds.

Financing systems

Medicaid and NC Health Choice: The Medicaid Program and NC Health Choice (the state's child health insurance plan), pay for a comprehensive package of covered health services for children in families with incomes less than 200% of the federal poverty guidelines.

Specific programs targeted at specific health conditions

Prevent Blindness North Carolina (PBNC): PBNC and local Smart Start committees are working together to provide photorefractive vision screening in 23 counties with just under half the state's pre-school population. This year they will screen some 50,000 children in these counties. Together with the North Carolina Department of Health and Human Services, PBNC also operates the Kenneth Royall Children's Vision Screening Improvement Program. This program, offered in all 100 counties, trains the local teachers, school nurses, parents, and volunteers who each year screen children in grades K-6 for potential vision problems. The annual school screenings are the state's primary method of detecting potential pediatric vision problems and referring children to eye-care professionals.

Newborn screening: All newborns in North Carolina are screened for a number of metabolic conditions, sickle cell disease, and hearing deficits.

Asthma initiative: North Carolina has embarked on an initiative to reduce the prevalence of pediatric asthma and its complications. This initiative has resulted in a state-wide surveillance survey and training for physicians and other caregivers in the management of pediatric asthma. This program provides a good model to address other common chronic illnesses.

GAPS IN EXISTING PROGRAMS OR POLICIES

While a consensus on the definition of chronic health and disabling conditions is elusive, there is no doubt that the sheer size and complexity of needs overwhelm current systems of care. The deficits in the current system can be characterized by four general issues: 1) inadequate resources to address the needs of children with special health needs; 2) inadequate care coordination; 3) barriers for families in obtaining needed care; and 4) limitations in data available to identify children with special health needs and monitor their health outcomes.

Inadequate resources

Insufficient numbers of providers serving as regular sources of health care for children with special health needs: Many primary care providers are reluctant to take on the responsibility of coordinating all the services needed by children with special health needs. Because of the array and complexity of health conditions, primary care providers feel neither comfortable nor competent in providing a community-based ongoing system of coordinated care for these children. Those who attempt to do so soon realize that most reimbursement systems do not reward these attempts. Typically, insurers or other payers fail to recognize sufficiently the time it takes to care for these children. Thus, primary care providers face financial disincentives to the provision of care for these children.

Lack of community-based specialized health care resources: The specialized health care required for these children is often provided in medical centers distant from the child's community. These centers are inadequately linked to the child's community and to the array of local providers (including the schools) that might be involved with the child and family. As above, the medical centers also face a reimbursement system that creates serious financial disincentives to care for these children.

Inadequate resources in the schools: Because of the complexity and number of chronically ill and disabled students, schools are often unable to provide the broad array of

services required. Schools also lack sufficient school health nurses to provide proper medical attention to these students while they are in school.

Lack of coordination

Lack of coordination for care provided to individual children: While children with complex needs receive services from many different health and human service providers, there is a lack of coordination among these providers. The Child Service Coordination Program attempts to meet this need, but is only available for children under the age of five.

Lack of coordination at the community level: Communities find it very difficult to coordinate their efforts and blend their resources in ways that promote integrated strategies for care; instead, they often find themselves simply responding to singular conditions or problems.

Barriers for families in receiving care

Financial barriers: There are more than 119,000 children with incomes below 200% of the federal poverty guidelines, 64,000 children with incomes between 200-300% of poverty, and 30,000 children with higher family incomes who are uninsured.[9] Medicaid and NC Health Choice have succeeded in increasing the number of children with coverage, but the system remains fragmented. The lack of a comprehensive health insurance program for all children of the state is one of the most important deficiencies in the entire effort to ensure care to North Carolina's children.

Barriers to parental participation in care: Parental involvement can be confounded by the fact that the family often lacks the necessary information to participate as a partner in their child's intervention plan. Recommendations for parental involvement should include communicating the necessary information in a family-friendly language, and the need for family-professional partnerships in decision-making about the child's health care.

Inadequate data systems

No system to measure health status or health outcomes: Once again, because each child’s challenges and intervention goals are individualized, there is no consensus on a system for measuring health status and progress for these children. Recently developed measurement systems, such as HEDIS, that are focused on acute illness, do not capture those with special needs, and are only applicable in a managed care setting.

Lack of data is a major problem in understanding the prevalence and severity of special health conditions among NC's children, how they affect the lives of children, and

families, and to what extent limited access to appropriate services is a problem. This lack of data also impedes the planning for new services and assessment or evaluation of the effectiveness of existing ones.

In summary, we are confronted with a fragmented "non-system" for children with special health care needs. Though there are several sub-systems targeted to individual diseases and age groups, no overall system ensures that these children are identified early, have access to the services they need, and remain within a comprehensive, continuous care plan.

RECOMMENDATIONS

The overall objective with respect to children with special health care needs is to guarantee that every child in the state who has a chronic condition or disability has that condition/need adequately diagnosed and receives the coordinated care necessary to achieve the goals of the treatment plan designed for them, no matter what their income level or where they may live.

The Task Force makes the following recommendations designed to reach these goals by improving health care services for children with chronic illnesses and developmental disabilities and their families.

1. ***The Department of Health and Human Services (DHHS) should help develop a North Carolina consensus on an operational definition of "children with special health care needs" that can be used both for planning and epidemiologic purposes, and to identify individual children in need of special services.***

The definition offered recently by the MCHB is gaining acceptance nationally, and we recommend that it be adopted for use in North Carolina. However, the definition is yet to be operationalized. The MCHB will soon test a short survey tool that could be used by parents, health care providers, and other human service providers to identify children with special health care needs. The DHHS should monitor the test, study the results, and (if successful) adopt the methodology for use in North Carolina. A consensus on an operational definition will provide the needed data for planning, while enhancing the coordination of services for individually-identified children.

2. ***The DHHS should convene a group of experts to develop a North Carolina consensus on a system to measure accessibility, quality of care, and outcomes for children with special health care needs. The system should focus on health status and on the progress children make within their care plans.***

The sheer complexity of the area of special health care needs, and the fact that individual children have individual needs and goals, has precluded the development of a quality of care measurement system to date. However, the lack of such a system makes it impossible to measure the effect of changes on these children and their families.

Despite these difficulties, many experts in the field are working on the development of such systems. The DHHS should take the lead in convening a group of experts along with stakeholders (providers, insurance companies, families, and advocates) to develop a quality of care measurement system for all agencies statewide.

3. ***The DHHS should work with AHEC, medical schools, and appropriate medical societies to expand the number of health care providers capable of providing direct care and coordinating the continuity of care for all children with chronic illness and developmental disabilities.***

Primary care providers must be adequately reimbursed and offered training and other needed support to serve as regular sources of health care for children with special health needs. Caring for children with special health needs is more time intensive because of the complexity of caring for their special health needs, developing treatment plans, providing education and information to the child and family, and coordinating the care among health care providers, schools, and other relevant community resources involved. This additional time commitment should be recognized with increased reimbursement. In addition, to assist primary care providers in attaining both comfort and competence in caring for these children, a support system including education, consultation, and a shared database must be made available. Whenever possible, these regular sources of health care should be at or near the practices of primary care physicians in the communities in which the children reside.

Implementing this recommendation will require the reform of public and private reimbursement systems. DHHS should take the lead in convening a group of experts along with stakeholders to develop alternatives in this regard.

4. ***The DHHS should work with AHEC, medical schools, and the North Carolina Medical Society to develop a network of regional medical resource centers to provide support for community health care providers in their care for children with chronic illnesses and developmental disabilities. These medical resource centers should be modeled on the current network of regional perinatal centers.***

These centers should serve as a source for education and consultation to the regular health care providers, as well as a referral resource to provide specialized care for children with the most complex problems. These centers should coordinate existing educational resources provided through AHECs, as well as the more specific disease management protocols being offered to providers involved in Carolina Access II and III (Medicaid) by the North Carolina Medical Society Foundation and the Office of Rural Health, Resource Development and Demonstrations. The current Asthma Initiative is an excellent example of such coordination and collaboration. (See the section above on existing programs.)

These centers should also provide pro-active planning to enhance systems development to ensure continuity of care for these children. This should include the establishment of a linked database that, with confidentiality safeguards, could enhance the care of individual children, as well as the broad system of care. This database should be linked with relevant databases, such as those available in the Early Intervention Program and the schools.

5. ***The NC General Assembly should provide funding to expand Child Service Coordination or other care coordination services to cover all children with special needs under the age of 18 to provide support to the family and to assist in linking the child and family to regular sources of health care and to other community resources that are or should be participating in the child's care.***

Currently, service coordination functions are carried out by some health care providers, some community agencies (such as local health departments), and in some medical care settings. The Child Service Coordination Program is the closest to providing a "system" of such services, but this program focuses only on children less than five years of age. Other service coordination activities focus on single disease entities or a limited range of services. The lack of a true system leads to duplication of services for some children, while many (particularly older children) receive no service coordination at all.

The NC General Assembly should increase appropriations to establish an adequately financed integrated coordination system to respond appropriately to all children with chronic illnesses and developmental disabilities and their families who would benefit from this service.

6. ***The NC General Assembly should expand eligibility for NC Health Choice for Children, the state's child health insurance program.***

In the first year, NC Health Choice has enrolled almost 57,000 uninsured children. However, almost half of the uninsured children in the state live in families with incomes above the NC Health Choice limit of 200% of the federal poverty guidelines. Indeed, one of the most common reasons for the denial of a NC Health Choice application is the fact that the family's income is somewhat above the 200% requirement. This is a painful indication that many families have a financial barrier to accessing insurance for their children. Therefore, to enhance access, eligibility for NC Health Choice should be extended to children in families with incomes below 300% of the federal poverty guidelines with sliding scale premiums. In addition, more emphasis should be placed on reaching the 119,000 uninsured children who currently qualify for Medicaid or NC Health Choice with incomes less than 200% of the federal poverty guidelines.

The DHHS and the General Assembly should give consideration to offering NC Health Choice to families above 300% of the federal poverty guidelines at full premium cost. This would give families a viable alternative if private health insurance coverage was more expensive.

7. ***The NC General Assembly should eliminate the NC Health Choice waiting period for children with special health care needs.***

Under existing law, children must be uninsured for at least two months before becoming eligible for NC Health Choice. Families and advocates report that the requirement that a child be uninsured for two months before enrollment in NC Health Choice can occur is impeding the access of children with special health needs to the program. Many families of these children have some kind of insurance (usually catastrophic insurance that is expensive, with limited benefits) and are naturally reluctant to drop coverage for any period of time given their child’s special health needs. While the concept of a waiting period to prevent "crowd out" is acceptable in theory, it is clearly harming families who have children with special needs. Since these are the most vulnerable children, the NC General Assembly should enact changes required to provide such access.

8. ***DHHS should, when appropriate both clinically and fiscally, develop systems that both identify and provide intervention services for children with chronic illnesses and developmental disabilities and ensure that such services are linked to the children's regular source of health care.***

Examples of identification and intervention systems for children with chronic illnesses and developmental disabilities include:

- *Newborn Metabolic and Hematologic Screening*: This service has been available universally for many years. The Newborn Screening Advisory Committee sponsored by the DHHS should continue to identify needs to strengthen the current program, and should also continue to explore testing for additional conditions when clinical and fiscal criteria are met.
- *Vision screening*. The recommendations of the DHHS Vision Screening Task Force should continue to be followed. Vision screening in the schools is already available statewide through the Kenneth Royall Vision Screening Program, and this should continue. Photorefractive screening of pre-school children is available in many areas of the state. This service should be expanded statewide. Further, the results of all vision screening activities should be made available to the regular health care provider to avoid service duplication and to help ensure that appropriate interventions occur.
- *Hearing screening*. The work of the DHHS Hearing Screening Task Force should continue. Its initial recommendation—universal newborn hearing screening—has been implemented recently. All follow-up and referral activities must be coordinated with the children's regular provider. The Task Force also must explore ways to expand the provision of systematic hearing screening both for preschool and for school-age children.
- *Lead poisoning prevention*. Under the guidance of the State Health Director, the Lead Poisoning Prevention Advisory Committee has developed a strong set of guidelines for blood lead screening and both medical and environmental interventions that should continue to be funded. Children's regular providers should provide lead screenings. If such screening occurs elsewhere, it is critical that the regular provider be informed of results to avoid duplication of screening and to help ensure that necessary educational and environmental interventions occur.
- *Early Intervention Program (EIP)*. North Carolina has a nationally recognized EIP, including diagnostic, intervention, and service coordination for children up to age three with or at risk for developmental disabilities. North Carolina's Interagency Coordinating Council has noted that children's regular providers are frequently not connected to the services being provided under the EIP. It is critical that the ICC recommendations regarding the involvement of children's regular providers be

followed. If the issues indicated above are addressed—i.e., provider education and enhanced provider reimbursement—the problem of lack of involvement of health care providers should be greatly reduced.

- *School-based services*. As above, health care providers are frequently not involved with school-based services, including the provision of special therapies. It is critical that ways be explored to involve children's regular health care providers. Once again, provider education and enhanced reimbursement will help address this problem. In addition, the school nurse-student ratio should be reduced from the current average of 1:2,480 to 1:750 (as recommended by the American School Nurse Association). These nurses must be available to guide and assist in the care of children with the most complex needs. Furthermore, nurses can provide enhanced links to the children's regular providers. The sharing of information both ways will allow for the provision of comprehensive care in a non-duplicative, efficient manner.

[1] There has been a significant increase in the numbers of children with asthma. Newacheck, P.W. & Halfon, N. Prevalence, impact, and trends in childhood disability due to asthma. *Arch Pediatr Adolesc Med.* 2000; 154:287-293. Estimates based on data from National Health Interview Survey suggest that the prevalence of disabling asthma has increased by 232%, compared with 113% in 1969, for other childhood chronic conditions. This increase in prevalence of disabling asthma is strongly associated with socioeconomic disadvantage. A recent report from the North Carolina Center for Health Statistics indicates that about 13% of children (over 70,000) in the state from birth to age 14, covered by Medicaid, have asthma. The financial burden resulting from asthma is thought to be enormous. Estimates from the report suggest that Medicaid paid over $23,000,000 for asthma-related services in FY 1997-1998 for children from birth to age 14. More than 6,500 asthma-related hospitalizations per year were recorded for children from birth to age 14 during 1995-1997. Minority children had over 2.5 times more hospitalization than white children. The multitude of chronic conditions and complexity of these conditions make it difficult to estimate accurately the costs incurred by the state in caring for this population. However, national estimates indicate that on average children with chronic illness, although few in number, have higher rates of hospitalization, higher expenditures, longer hospital stays, and more school absence than children without such conditions. Source: Buesher, P & Jones-Vessey, K. (March 1999). *Childhood Asthma in North Carolina.* SCHC Studies No.113, North Carolina State Center for Health Statistics.

[2] Westbrook LE, Silver EJ, Stein REK. Implications of estimates of disability in children: A comparison of definitional components. *Pediatrics* 1998;101:1025-1030.

[3] For a child to receive Supplemental Security Income (SSI) disability payments, he or she must have a physical or mental impairment that can be medically proven, that results in marked and severe functional limitations, that can be expected to result in death, or that has lasted or can be expected to last for a period of not less than 12 months. See Silberman P. North Carolina Programs Serving Young Children and Their Families. NC Institute of Medicine. August 1999:27-41. This section provides a thorough discussion of the SSI program including the definitions that are used in eligibility determinations. This information is also available on the internet at *http://www.nciom.org*

[4] Perrin, J. and Gidwani, P. "Public Health Insurance for Children with Chronic Health Conditions". Paper prepared for the Reformed States Group of the Milbank Memorial Fund. November, 1999.

[5] Newacheck PW, Strickland B, Shankoff JP, Perrin JM, *et. al.* An epidemiological profile of children with special health care needs. *Pediatrics* 1998;102(1): 117-123.

[6] Benedict RE, Farel AM, Howell E. Estimates of some children with special needs in North Carolina Statistical Brief #18, North Carolina Center for Health Statistics, February 1999

[7] Although actual data on many populations are not available, data do exist. A recent North Carolina Annual School Health Survey (1998-1999) Summary Report of Nursing Services identified 95,035 children (8%) of school-aged children with chronic health conditions. The report notes that asthma is a major chronic disease affecting 32,466 public school students and is the leading cause of school absenteeism. Other prevalent chronic conditions included attention deficit and hyperactivity disorder (30,316 children), severe allergies (9,146 children), epilepsy (3,602 children), diabetes (2,828 children), congenital/other cardiac problems (2,638 children), migraine headaches (2,412 children), psychiatric disorders (2,019 children), cerebral palsy (1,365 children), and orthopedic (permanent disorders) (1,206 children). Of the 113 LEAs reporting in this survey, 50 report having asthma education programs: 1,773 students were taught the “open airways” curriculum and 683 student use peak flow monitoring while at school. Certain health procedures were commonly provided for children with chronic health conditions, including use of Epi-pens, nebulizer treatments, and blood glucose monitoring. Source: North Carolina Annual School Health Survey: Summary Report of Nursing Services, School Year 1998-1999. The survey population does not include data from private schools, state residential schools, or charter schools. The report claims to represent 1,206,183 public school students, or 99% of the 1,218,135 public school students in North Carolina.

[8] The concept of a regular source of health care is central to the entire approach proposed herein. Under this concept, patients and their families should have access to continuous, comprehensive, family-centered, coordinated, and compassionate care: "Reliable access to primary care that can emphasize prevention and address, on a continuing basis, all aspects of children's health and development"... (Sia and Peter, 1988; Sia and Steward). The American Academy of Pediatrics (AAP, 1992) describes this regular source of health care as care for infants, children, and adolescents that is:

- accessible, continuous, comprehensive, family-centered, coordinated, and compassionate...
- delivered or directed by well-trained physicians who are able to manage or facilitate essentially all aspects of pediatric care and who should be known to the child and the family and be able to develop a relationship of mutual responsibility and trust with them.

[9] Estimates of the uninsured prepared by the Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill for HCFA Evaluation of North Carolina Health Choice, March 2000. Data derived from 1999 Office of State Planning Population Estimates, actual Medicaid and NC Health Choice enrollment numbers (August 1999), and CPS estimates of percentage of children with non-Medicaid health insurance coverage (based on average percentage from 1997-1999 CPS).

Chapter 6

Acute Illness and Infectious Disease

STATEMENT OF THE PROBLEM

The goals for child health and health care in the area of acute illness and infectious disease are to prevent as many illnesses and diseases as possible; to educate children, their parents, and the general public about the signs, symptoms, management, and prevention of acute illness and infectious disease; and to make sure that every child has access to a source of comprehensive health care consistent with the standards promulgated by the American Academy of Pediatrics (viz., accessible, family-centered, continuous, comprehensive, coordinated, compassionate, and culturally-competent).[1] Despite the existence of many programs and initiatives addressing the critical aspects of child health in North Carolina, there are gaps and shortcomings identified by the workgroup on acute illness and infectious disease that deserve further attention and action.

Access to a regular source of health care

The assurance of access to a familiar, reliable, and regular source of primary medical care for every child in North Carolina is a goal the Task Force has unanimously embraced throughout its deliberations. According to Simpson, et al.[2]

> Having health insurance and a regular source of care constitute "enabling factors" that facilitate the use of health services—the former by providing financial access and the latter through familiarity.... (T)hese variables are among the strongest predictors of health services use.[3]

Substantial evidence exists to support the claim that children who are under the regular and continuous care of a defined health care provider are more likely to receive preventive and acute health care services when needed and appropriate; additionally, deviation from important developmental milestones will more likely be detected at an earlier stage when interventions are more likely to be effective.[4] The Task Force came to the conclusion early in its work that many North Carolina children are not effectively connected to a single source or provider of primary health care, as defined by the American Academy of Pediatrics through the concept of "a regular source of health care;" therefore, many North Carolina children are not likely to benefit from this fundamental aspect of overall quality of care considered essential to optimal child health and development.

National studies have shown that a high proportion of all families and children in the United States report having a regular source of health care (94% of children in 1993), but as many as 6% had no regular source of primary care.[5] Among those having a regular source of care, 92% of white children used a private doctor's office, compared with 67% of African American and 70% of Hispanic/Latino children. Having a regular source or provider of primary medical care can assure that children with routine primary health care problems can be seen and treated before problems become so severe that more extensive and expensive care will be required, even inpatient care in a hospital.

National data indicate that children in some racial and ethnic minority groups are more likely to be without a usual source of primary medical care.[6] Hispanic/Latino children are less likely than children in any other racial or ethnic group to have a usual source of health care. African American children are twice as likely as white children to have no usual source of health care. And both Hispanic/Latino and African American children were less likely than white children to have an office-based usual source of care.

Table 6.1: Usual source of care, children under age 18, Medical Expenditure Panel Survey, 1996

	Office-Based	Hospital-based	None
Hispanic/Latino	69.1 %	13.7 %	17.2 %
African American	71.0 %	16.4 %	12.6 %
White/other	86.8 %	7.2 %	6.0 %

One index of the extent to which primary care is available to North Carolina's children is the proportion of children admitted to the state's hospitals with diagnoses considered to be treatable if detected soon enough through regular primary care. The so-called "ambulatory care sensitive conditions"[7] for North Carolina counties give a summary indication of the extent to which the availability of adequate primary care is a problem for children in this state. Five ambulatory-sensitive conditions were the most frequent indications for admission of children ages 0-19 to North Carolina's hospitals between October 1, 1997 and September 30, 1998: pneumonia (4,178 cases), asthma (3,934 cases), dehydration (2,185 cases), gastroenteritis (1,418 cases), and kidney/urinary tract infection (1,254 cases). For most of these cases, it is likely that adequate primary care availability, and regular patterns of seeking such care, would have prevented these hospitalizations.

The concept of a regular source of health care in childhood seems to be valid from the time of birth to the age of five or six when the child enters school. At that time, the continuum

of care envisioned in the regular source of health care concept begins to break down. Private health care providers need to find ways of working in tandem with community and school-based health care programs where school-age children are more likely to be seen for routine acute health care needs. As children age into the adolescent years, their need for very different primary health care services and education about the consequences of risk-taking behaviors necessitate a very different form of health care service, often school- and/or community-based.

Special access problems for adolescents

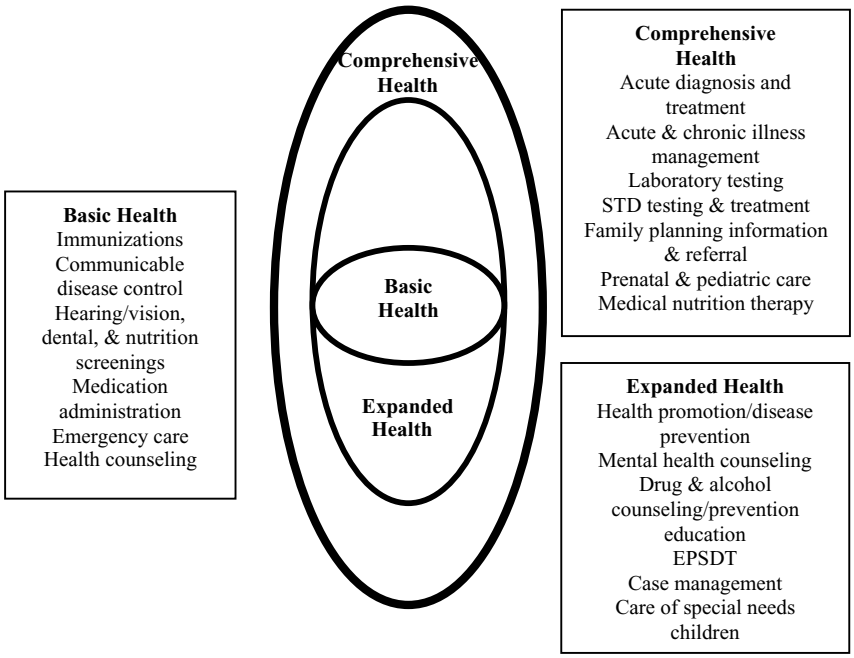
The inadequacy of regular access to health care is most notably a problem for the state's adolescent population. Traditional pediatric and family practice offices are overwhelmed by commitments to very young children and older adults. Adolescents have few of the typical medical problems of younger children and elderly adults. Many (if not most) adolescent problems are psychosocial, and the morbidity and mortality among adolescents are related to substance abuse; depression; suicide; relationships with parents and friends; family violence; unplanned pregnancies; sexually transmitted diseases (STDs) such as HIV/AIDS, syphilis, gonorrhea, and chlamydia; obesity; eating disorders and other nutritional problems; and school failure or absenteeism. Moreover, health matters considered important by adolescent consumers of medical care are sometimes quite different than those identified by parents and health care providers.[8] Pediatricians and family physicians must forge joint ventures with schools, health departments, mental health centers, and other community agencies if adolescents are to receive appropriate health education, preventive health services, and treatment for acute illness and infectious disease. Making any source of primary care for adolescents "user friendly" is a goal of great importance to the success of these programs. Specialists who are not as likely to attend to the regular primary care needs of these patients often see adolescents with chronic health conditions (e.g., cystic fibrosis, sickle cell disease, diabetes, and severe asthma).[9] Special efforts need to be made to assure that adolescents with chronic conditions are also connected with regular sources of primary health care.

A statewide deficiency in school health education and school-based primary health services

Currently, in North Carolina, we have a dramatic shortage of school nurses, so the basic health education and health services optimally provided by nursing professionals are unavailable to students at their schools. There is an uneven exposure of students to the basics of a comprehensive curriculum on personal health, health promotion, and disease prevention. Though a comprehensive curriculum has been developed and made available by the North Carolina Department of Public Instruction (the Healthful Living curriculum), there is considerable variation in its implementation and delivery across school districts. Only 12 of the 117 school districts in North Carolina offer a comprehensive sex education curriculum. School-based health centers have been established in some communities where there is limited access to primary and mental health providers or problems with transportation to these

services. Because these centers provide important services for adolescents that are often not reimbursed through health insurance, the centers rely heavily on grant support for their continued existence.

Figure 6.1: Conceptual Map of Levels of In-School Health Services*



*Source: North Carolina Department of Health and Human Services (DHHS).

The conceptual map above depicts a "nested" structure that builds from a core of *basic health services* toward the goal of *comprehensive health services* only provided through the on-site presence of professional health care personnel.

Despite the fact that "health care services" are often viewed as a "support service" and not basic to their mission, most schools are actively engaged in providing various forms of on-site health and safety services, whether by a nurse or by other school system personnel. During the 1998-99 school year, approximately 9% of all public school children and adolescents received some kind of medication during school hours. School secretaries, classroom teachers or aides, or other school personnel administer many of these medications. Of course, many adolescents take medications regularly during school hours without the assistance of anyone. Schools are confronted by the necessity of offering increasingly complex health services for a greater range of (often high-risk) students with special health care needs. For example, the migrant and homeless populations often present to school-based centers or school nurses with a variety of skin disorders; many are not up-to-date with recommended

immunizations. Many schools are attempting to serve increasing numbers of students who have been exposed in their prenatal periods to the dangers of parent drug use (e.g., alcohol, crack, cocaine). Children and adolescents with chronic health conditions are now attending school, whereas they might not have been able in decades past. Many children who are technically dependent on special medical procedures (e.g., tube feedings, tracheal suction, etc.) are now expecting to be "mainstreamed" along with other students, with their services provided by school system personnel. Students infected with blood-borne pathogens (e.g., hepatitis B and C, HIV) are expecting to attend classes as usual. Children with developmental delays or other special education needs are expecting to be educated in the least-restrictive environments possible, with the schools responsible for coordinating their care with local health care providers when necessary.

North Carolina's counties carry the largest share of the burden for financing in-school health services. Many local school systems have augmented their own resources through the assistance of private foundations. Many schools still do not have on-site nursing personnel, but rely on the on-call itinerant nurse who serves a number of different buildings and often thousands of students.

Protection from vaccine-preventable diseases

Among strategies for disease prevention, the administration of vaccines for specific communicable diseases of childhood has no equal with regard to effectiveness. At the same time, in this one area, North Carolina has been widely recognized as having demonstrated remarkable success in assuring the protection of young children (pre-school age and at the time of school entry). However, immunization coverage rates have the disadvantage of being easily dismissed as unimportant during years when population immunity keeps the incidence of disease low or non-existent. The general public and decision-makers are easily lulled into thinking that these are no longer health expenditures of high priority. Yet, when our efforts in the early immunization of infants and very young children fall off, when we let our reminder and recall systems cease, and when rates of coverage for pre-school age children subside, our risk of population outbreaks of these vaccine-preventable diseases can increase greatly. When such outbreaks occur, the questions raised have to do with our lack of vigilance and sustained commitment to the basics in health promotion and disease prevention; the questions are not over the failure of medical science and immunology to discover ways of protecting our children from these diseases. For the most part, childhood vaccine-preventable diseases should no longer occur anywhere in our state. However, as recently as 1999, we experienced a surprising outbreak of rubella in an unimmunized population in North Carolina that was quickly detected and brought under control through our excellent disease surveillance and the rapid immunization capacities of our state and local public health agencies. Since 1994, the number of measles, mumps and pertussis cases has declined, and we have had no reported cases of diphtheria or polio.

The Task Force contends that it is essential to keep childhood immunization among the most important "problem areas" with regard to acute illness and infectious disease, and to redouble our efforts to assure the complete protection of every child from these vaccine-preventable diseases. The fact that only 84% of two-year old children in our state are protected by recommended vaccines (for the 4:3:1 series) is cause for concern and indicates that the job of assuring the availability of this most effective preventive strategy is not finished. Yet, North Carolina ranks 11th in the nation in childhood immunization coverage, and compares favorably with the national average of 80%. In North Carolina, the disparity in immunization coverage among race and ethnic minorities is a matter of concern. In a 1995 study on minority health conducted by the North Carolina Center for Public Policy Research, both Hispanic/Latino and African American children were found to have significantly lower on-time immunization rates than white children. The study involved audits of nine local health departments to determine what percentage of children had received age-appropriate immunizations on time. In 1998, 13 of 16 confirmed cases of rubella in the state were among the Hispanic/Latino population ranging in age from 15-31. These are matters to be addressed by both public health agencies and private sector child health care providers.

With a very mobile society and frequent changes in health care coverage, parents might take their children to different providers over the course of the child's primary vaccination series. As many as 25% of children visit at least two providers for immunizations before their third birthdays.[10] Fragmented health care currently translates into fragmented immunization records. Without a complete immunization record, it is difficult for a provider to determine immunization status of a two-year-old child who presents for an acute illness or well-child visit. Hence, opportunities for immunizing this child might be lost, or the child could be over-immunized, unless the parent maintains and carries a complete and up-to-date immunization record for the child, which few do. Recent national data from the 1997 National Immunization Survey conducted by the CDC reveal that extraimmunization in children can be costly.[11] Overall, 21% of children were extraimmunized for at least one vaccine, while 31% were underimmunized for at least one vaccine. The strongest predictors of extraimmunization were 1) having more than one immunization provider, and 2) having multiple types of providers (e.g., private and public health department). Children seen only in public health clinics were significantly less likely to be extraimmunized. The national costs for extraimmunization for the cohort of children between the ages of 19 and 35 months of age were conservatively estimated to be $26.5 million.

Pediatric, family practice, and public health clinics experience the expense of locating from other providers a record for a particular child, in addition to the expense encumbered by these other practice sites in locating the child's immunization record for previous visits. The Centers for Disease Control and Prevention (CDC) estimates that this is one of the largest potential savings to be derived from a comprehensive immunization registry. Moreover, a

comprehensive, statewide childhood immunization registry is protected from hurricanes, floods, and other natural disasters. In the recent experience following Hurricane Floyd in Eastern North Carolina, one local health department whose local mainframe system was lost was able to recover from state immunization records all childhood immunization records submitted before the floods.

The recommended childhood vaccination schedule continues to become more and more complex as new vaccines emerge, and slight changes are made to existing vaccine recommendations based on improvements in medical science. These changes make it increasingly difficult for clinicians to determine the immunization status of a child. In addition, it is an on-going challenge to maintain paper documentation, such as flow sheets for medical records and parent-carried lifetime immunization cards, that are inclusive of all current vaccines. Since registries can accommodate vaccine changes and are designed to monitor the immunization status of individuals as well as populations, they make it much easier to ascertain and assure immunization coverage.

At present, a demonstration registry project has been developed and is being implemented through the collaboration of the Immunization Branch of the North Carolina DHHS and the North Carolina Health Care Information and Communications Alliance (NCHICA). The NCHICA is a nonprofit alliance initiated by Governor James B. Hunt in 1994, whose mission is to improve health care through the use of information technology. This demonstration project, called PAIRS (Provider Access to Immunization Registry Securely), is a secure Internet-based solution for locating immunization records and printing immunization histories. It includes a copy of the immunization information contained in the public health immunization registry as well as immunization information from a few private sources. Though PAIRS does not meet the full specifications of the registry system envisioned for North Carolina, it has given state public health officials an opportunity to examine some of the key issues facing the state as it moves toward the acquisition and implementation of a comprehensive statewide immunization registry system for children.

Access to primary dental care

The North Carolina Institute of Medicine completed a comprehensive study of the problems of assuring access to adequate primary dental care for low-income persons in May, 1999. The conclusions and recommendations of that earlier study regarding the dental health needs of North Carolina's children were adopted by the workgroup on acute illness and infectious disease. It should be reemphasized here that there are momentous problems in North Carolina with access to primary dental care for children, especially for children from low-income families. Under the federal Medicaid statute, all states are required to provide dental services to Medicaid-eligible children. However, dental services for adults are at the state's option. North Carolina, like 26 other states, provides dental coverage for all eligible Medicaid

recipients. While dental services are covered under the Medicaid program, use of these services is very low. On average, only 20% of Medicaid recipients visited the dentist in state fiscal year 1998. Young children are the least likely to use dental care services. Dental services use among Medicaid-eligible persons varies a great deal by county, from a low of 10% to a high of 26%.

Not only is there a shocking lack of availability of dentists who are willing to offer treatment and/or preventive services to children whose families are enrolled in the state's Medicaid program, but there is a shortage of dentists in the state who are trained and willing to include young children in their practices. North Carolina has one of the lowest ratios of practicing dentists-to-population in the nation and ranks 47th among all states in the supply of dentists to serve its population (North Carolina has only 38 dentists per 100,000 population, whereas the national average is 60 dentists per 100,000 population). There are four counties in North Carolina with no dentist, but there are another 36 counties with no dentist currently offering services to Medicaid recipients. There are only 47 actively practicing pediatric dentists in North Carolina. While general dentists are trained to treat children in an outpatient setting, general dentists are often unwilling to treat very young children. Few general dentists have hospital clinical privileges that would enable them to provide dental treatment under general anesthesia. The only training program in pediatric dentistry in the state, at the UNC School of Dentistry in Chapel Hill, graduates only two pediatric dentists per year. Clearly, in North Carolina there is a shortage of dentists, and of dentists trained to treat very young children.

Children face particularly difficult access barriers. Thirty-six percent of all children entering kindergarten in this state (more than 31,000 children) have a history of dental disease, and 25% have untreated dental disease when entering kindergarten. Most of the decay among young children is concentrated in low-income and rural populations, some of whom lack a source of fluoridated water. North Carolina has made great progress in reducing the incidence of dental disease in children, but most of this improvement has been in the older children. Young children have not benefited by the same reduction in dental disease.

Disparities in child health access among racial and ethnic minorities

One of the most notable gaps in the area of acute illness and infectious disease involves the lack of access and services provided to the state's population of children from families of minority status, particularly African American and Hispanic/Latino. Though there are areas of North Carolina where minority populations are well-served by special health care programs and clinics set up specifically to meet their needs, there are shortages of all types of health care providers in the state's rural areas and in some inner-city urban areas as well. There is a marked shortage of health care providers in North Carolina who are capable of communicating with their Hispanic/Latino populations in Spanish. The financing of primary health care for children of undocumented alien parents is particularly difficult and begs for a

statewide solution. As an indication of the size and rapid rise in the number of persons of Hispanic/Latino origin in our state (a more than 100% increase between 1990 and 1998), Mexico announced plans in January of 2000 to open a consulate office in Raleigh to handle the affairs of the more than 250,000 Mexican citizens now living and working in the state. Among the many issues facing the state as this population segment grows is how to provide basic health care services in a culturally relevant and effective way.

One of the major problems for Hispanic/Latino children in our state has to do with the ineligibility of these children for either Medicaid or NC Health Choice (S-CHIP) because of the lack of citizenship of the children or their parents. Children born in the United States are automatically citizens; yet, parents of these children who are themselves undocumented aliens might refuse to bring their children to public agencies for care out of fear of their own deportment. This can cause crucial problems when the health of parents is a determinant of the health of the child, as in the case of congenital diseases such as the perinatal transmission of HIV/AIDS and syphilis. Because the mother might not be insured and therefore might delay prenatal care and treatment of HIV/AIDS, by the time the child is born (and also insured under the state's Medicaid program), it might be too late to come to the aid of the child because transmission might have already occurred.

One difficulty in extending primary care services to this population comes from the problem of designating some counties serving large numbers of minority populations as "medically underserved areas" (MUAs). Counties thus designated would be eligible for the placement of federal National Health Service Corps health care professionals (physicians, dentists, and nurses). The Office of Research, Demonstrations and Rural Health Development in North Carolina is responsible for submitting these applications for designation to the United States DHHS. Last year, only 20 new MUAs were designated in the U.S.; in North Carolina, only Wilson County was added to this list. This situation puts new burdens on state and private foundation funds to create new primary care programs to serve rural and minority populations.

The need for additional health and health education services and programs serving minority populations in our state is reflected in the public health statistics for infectious diseases. There is a dramatic racial disparity with regard to the incidence and prevalence of STDs among adolescents in our state. Although North Carolina's population is 75% white, 22% African American, 2% Hispanic/Latino, 1% Native American, and 1% Asian, 82% of reported cases of primary and secondary syphilis cases among 13-19-year-olds in 1998 were among minorities, 71% of these among African American adolescents. These disparities were even more evident for gonorrhea, where 86% of cases were among minorities. Minority adolescents accounted for 72% of all reported cases of chlamydia infection. Seventy-six percent of all reported cases of HIV/AIDS in adolescents were among African Americans.[12]

CURRENT PROGRAMS AND POLICIES

The problems of assuring access to adequate primary health care and immunization and educational programs to protect North Carolina's children from vaccine-preventable diseases are major concerns of both our public health agencies and the private sector child health care providers. There are many reasons to be pleased with recent progress made in this state in these arenas of child health. Among these are the following:

Pediatrician number growing: There has been tremendous growth in the number (and perhaps the distribution) of pediatricians in our state. Over 180 new members have joined the North Carolina Chapter of the American Academy of Pediatrics (AAP) in one year recently. We now have over 1000 dues-paying members of the Academy in North Carolina.

Outreach programs: The North Carolina Medical Society hotline for families and individuals seeking a physician works well. In addition, voluntary efforts of local medical societies in Buncombe and Cleveland Counties have extended the outreach of professional communities through model programs to the underserved, guaranteeing that no family will go without the care of a physician if medical care is needed. These efforts, which have received national attention, have the potential of being replicated in other North Carolina communities. Special efforts in Wayne County (Goldsboro) to create three school-based health centers staffed by nurse practitioners have been successful, and have been given five additional years of support from the Robert Wood Johnson Foundation.

Increased number of children with health insurance: Families USA recently reported that North Carolina had the greatest increase in the number of insured children between 1996 and 1999, adding nearly 79,000 children (a 15.8% increase). The closest other state, Louisiana, had only an 8.4% increase. Even New York added only 51,000 children to its list of insured children. Clearly this is a record of which we can be proud.

Vision and hearing coverage: Vision and hearing testing of children under Medicaid or NC Health Choice have been significantly expanded. Eyeglasses have become one of the largest expenditures under NC Health Choice for children.

School-based health centers: School-based or -linked primary care health centers (i.e., freestanding clinics serving students from particular neighborhoods and schools) have been proposed as another strategy for assuring access (particularly for adolescents) to primary health care services. Twenty-nine North Carolina counties have one or more school-based or -linked health centers. Most school-based health centers are in middle or high schools, and most are not allowed by local education authorities to offer STD or family planning services.

The General Assembly provides about $1.5 million annually to support these school-based health centers, but the centers face substantial financial difficulties, which has lead to more aggressive billing practices. Many teens are afraid of seeking services from school-based centers if their parents' health insurance will be billed. Data provided by the North Carolina DHHS indicate students are enrolled for services only with parental permission and that enrollment ranges from 75-90% per school.

Immunization: Our immunization rates for full coverage of all recommended vaccines among the state's two-year-olds have increased by 28% in the past decade, partly as a result of the decision in 1994 by the General Assembly to make vaccines available at little or no cost and through a statewide initiative (the Universal Childhood Vaccine Distribution Program—UCVDP) involving both private and public sector child health care providers. The UCVDP program is funded through both state and federal dollars. The federal program, Vaccines for Children (VFC), provides funds for children meeting certain eligibility criteria such as being uninsured, Medicaid-enrolled, or Native American/Alaskan Native. These Vaccines for Children funds are supplemented with other federal and state funds to make this program universal.

The North Carolina Chapter of the American Academy of Pediatrics, the North Carolina Academy of Family Physicians, and the North Carolina DHHS have worked collaboratively to increase the rate of coverage with recommended vaccines for children age two and younger. The UCVDP and the mandatory immunization requirements for children enrolled in preschool child care and public schools, with an annual vaccine budget of more than $28 million, have combined to bring about a substantial increase in the proportion of two-year-olds fully immunized in this state, now estimated to be approximately 84%. Currently, North Carolina ranks 11th among the 50 states with regard to this critical prevention indicator. Nearly every North Carolina child is immunized and fully protected by age-appropriate vaccines by the time of school entry.

A statewide proof-of-concept demonstration immunization registry for children has been developed and is currently being implemented in selected public and private provider offices. Although this system does not include all the functionality of a comprehensive registry system, it lays the groundwork for such a system being implemented at a later time.

Sexually transmitted diseases & HIV/AIDS: Primary and secondary syphilis incidence rates declined by 57% from 1994-1998 for all age groups. These rates are expected to decline another 30% for 1999 for all ages. Rates for children ages 19 and under decreased between 1994 and 1998 by 70%, and an additional 13% decline was expected for 1999. At the same time, gonorrhea incidence declined by 34% for all age groups and declined by 42% among persons 19 years of age and younger. Although the incidence of chlamydia increased by 25% between 1994 and 1998 for all age groups, and increased by 24% among 19-year-olds and

younger, these increases were thought to be associated with new screening and reporting procedures. If the year of birth is taken as the standard, and not the age at which diagnosis occurs, there has been an 83% decline in the number of AIDS cases reported for persons born in 1994 when compared with persons born in 1997. The rates of tuberculosis are now decreasing. In addition, the rates of perinatal transmission of HIV/AIDS are going down through early intervention and through greater efforts to get young expectant mothers engaged in prenatal care.

New screening programs for STDs, especially for chlamydia, have been implemented in North Carolina, but only in local health departments, not in private practice settings. This might partially account for the sudden increase in incidence of this STD among adolescents, an increase of 24% between 1994 and 1998. This rate is expected to fall by 5% in 1999.

Hispanic/Latino programs: There are several experimental and grant-supported initiatives in North Carolina targeted to meet the needs of Hispanic/Latino populations, particularly migrant farm worker families and children. The TriCounty Migrant Health Center in Newton Grove (Sampson County) is an example of a health center that is nearly totally focused on the special health needs of the rural Hispanic/Latino population. In addition to the Tri-County Migrant Health Center, there are different, but similarly focused, health care programs in the following counties: Chatham, Duplin, Lee, Lenoir, Montgomery, Henderson, and Richmond. These are the counties with the largest concentrations of Hispanic/Latino residents. These clinics provide a combination of direct primary care medical and dental services, as well as health education intended to build the confidence and self-management skills of the Hispanic/Latino populations served by these programs.

Dental Care: Although the North Carolina General Assembly did not appropriate any new funds for this effort in its 1999 Session, using existing state funds, the Office of Research, Demonstrations and Rural Health Development has been able to recruit 15 new dentists and one dental hygienist to practice in community facilities serving low-income and uninsured patients.

The General Assembly revised the North Carolina Dental Practice Act in its 1999 Session to permit specially trained public health dental hygienists to perform oral health screenings as well as preventive and educational services outside the public school setting under the direction of licensed public health dentists (Sec. 11.65 of HB 168).

The General Assembly directed the North Carolina State Board of Dental Examiners in 1999 to establish a licensure-by-credential procedure that would license out-of-state dentists and dental hygienists who have been practicing in a clinical setting in other states with the intent of increasing the number of qualified dental practitioners in the state. This provision was enacted in Sec. 20.1 of HB 163, whereby the State Board of Dental Examiners was directed to

prepare by May 15, 2000, proposed rules to implement a sound program for the new licensing pathway. The Board will determine how the new procedures should be authorized and developed for the Board to allow less burdensome and more timely entry into the State for qualified out-of-state licensed applicants, while at the same time continuing the same degree of protection of the public as is the case under the current law and procedures.

The NC • IOM is in the process of organizing a work group to study the feasibility of opening additional residency programs in pediatric dentistry in addition to the current program located in Chapel Hill. A report will be presented to the 2000 General Assembly in accordance with Sec. 11.14 of HB 168.

The Division of Medical Assistance (DMA), the state Medicaid Program, added as of April 1, 1999 American Dental Association (ADA) procedure code 1203 to allow dentists to be reimbursed for the application of dental fluoride varnishes without the administration of a full prophylaxis. In addition, provisions were put in place to allow pediatricians to apply these varnishes to the teeth of young children to more rapidly disseminate this proven preventive procedure among the state's low-income children. The DMA began implementing this in the Carolina Access II and III project sites in the fall of 1999. They hope to implement this statewide by the spring of 2000.

NC Health Choice has been expanded to cover dental sealants, fluoride treatment, simple extractions, stainless steel crowns, and pulpotomies. This provision was enacted as part of the 1999 Appropriations Bill (Sec. 11.9 of HB 168).

Gaps in Existing Programs and Policies

Sixteen percent of two-year-olds in this state remain unprotected from vaccine-preventable diseases through age-appropriate immunizations. This is a continuing challenge both for public and private sector providers to find these children, get them scheduled and into provider offices and clinics for these immunizations, and keep them up-to-date until the time of school entry.

Although the American School Health Association and the National Association of School Nurses recommend a ratio of 750 students per nurse, North Carolina currently has an average statewide ratio of 2,451 students per school nurse. Eight of the state's 100 counties currently have ratios of 5,000 or more students per nurse; 23 counties have ratios between 3,001 and 4,999; 29 counties have ratios between 2,001 and 3000; 18 counties have ratios between 1,001 and 2,000. Only nine counties have ideal ratios of less than 1,000 students per school nurse (Graham, Davie, Orange, Washington, Hyde, Dare, Camden, and Currituck Counties). Twelve counties have either no school nurses, a nurse working only "on-call," or less

than a half-time nurse for the county as a whole. There is a need for an estimated 1,100 additional school nurses to bring North Carolina to an adequate level of access to this important child health service.

Medicaid and NC Health Choice do not currently cover the cost of oral rehydration solutions when indicated for low-income children.

Adolescents remain the most underserved age group with the least satisfactory access to user-friendly primary care.

Programs serving the Hispanic/Latino population in North Carolina have had to re-invent themselves for this cultural group, changing not only the language in which clinical care and health education are provided, but the whole culture of the care-providing organization. The Office of Research, Demonstrations and Rural Health Development has worked with local health departments and primary care health centers to help these programs reach out to the Hispanic/Latino communities they serve. Unfortunately, health professionals working in these clinics do not attend the training sessions offered by the Office of Research, Demonstrations and Rural Health Development, preferring instead to send members of their office or clinic staffs.

RECOMMENDATIONS

1. Assure access to a "regular source of health care" for every child, ages 0-19, regardless of insurance status.

The Task Force recommends that special efforts be made to assure that every child in North Carolina has a regular source of health care. This source of primary medical care could be a private practice pediatrician or family physician, a local public health department, a rural or migrant health center, or other organization offering continuous primary care for children. Of special importance is the effort to assure a regular source of health care for adolescents, whose special health care needs have often gone unmet.

2. Form county-based "child health committees" in each county.

There is a need, statewide, for a more organized approach to the coordination of public and private sector efforts in the delivery of child health services. The workgroup on acute illness and infectious disease, as well as the larger Task Force, has recommended the formation of county-based "child health committees" to address the health needs of children, guaranteeing access and assuring that resources are not wasted on unnecessary hospitalizations, prescriptions, and pharmaceuticals.

3. Assure access to primary medical care for all children from families with incomes up to 300% of federal poverty guidelines through enrollment in NC Health Choice or Medicaid.

To assure access to primary medical and dental care for children, all families with incomes up to 300% of federal poverty guidelines should be able to enroll in either NC Health Choice or Medicaid, depending on economic resources. Those families with incomes above this level should be allowed to "buy-in" to NC Health Choice for the coverage of their children. Efforts should be made to persuade Congress to change the provisions of federal law to allow the children of undocumented aliens to be eligible for NC Health Choice.

4. Establish and maintain a statewide childhood immunization registry for all children.

One of the strategies for assuring that every child from birth to age 19 years is protected from infectious diseases involves the establishment and maintenance of a comprehensive childhood immunization registry. Though North Carolina has implemented such a registry in all local public health departments throughout the state, this system has not been expanded to include all private sector providers of childhood immunizations. Inclusion of private providers in this system is vital to the effectiveness of the strategy because approximately 70% of immunizations are now given in the private sector. Another reason for the establishment of a North Carolina statewide childhood immunization registry is that record-keeping for the state's UCVDP would be easier and more efficient. The system could keep track of vaccine supply and distribution, and quality control among immunization providers. The Immunization Branch of the North Carolina DHHS has identified viable registry software solutions from other states for acquisition. Acquiring and implementing statewide childhood immunization registry is vital to the overall health of our children.

5. Fund the UCVDP so that all children can receive all CDC-recommended vaccines in all public and private health care facilities.

The state should fund the UCVDP so that all children can receive all CDC-recommended vaccines in all public and private health care facilities in North Carolina. When a vaccine is recommended by the CDC and funded for Medicaid-eligible children through the VFC program, the state must allocate funds to cover the cost of providing these vaccines to non-VFC-eligible children. Otherwise, the vaccine effort will become fragmented and immunization rates will fall statewide.

We need to make sure that North Carolina can continue to support universal coverage of young children. The UCVDP program has made vaccines available to all children at little or no cost. This program has made it possible for children who previously would have been referred to local health departments for immunizations to remain with their regular source of health care, and has removed cost as a barrier to immunizations. The effectiveness of the

UCVDP program strategy depends on continued state appropriations for vaccines, as the state's population increases and new vaccines become available.

With new vaccines and new recommendations, keeping the UCVDP program seamless will continue to be a challenge. Currently, the major issues arise with regard to two vaccines: varicella (chickenpox) and hepatitis B. Varicella vaccine is the most expensive of those covered by the state's UCVDP, at $37.14 per dose. Over 118,000 doses of varicella vaccine were shipped to providers in 1999, at a cost of approximately $4.2 million. National estimates (1999) of the coverage of children younger than age three for varicella vaccine are 43%; North Carolina ranks first in the nation with 59.8%. Three doses of hepatitis B are required before 19 months of age for all children born on or after July 1, 1994. Additionally, beginning with children entering kindergarten in 1999, all children are required to have completed the hepatitis B series for school entry (if the child's date of birth is on or after July 1, 1994.) North Carolina's nationally acclaimed School Site Sixth Grade Hepatitis B Immunization Initiative is in its fifth year, with a completion rate of over 70%. Under UCVDP coverage criteria, hepatitis B vaccine is available at no charge to all children through 18 years of age.

6. Aggressively promote the provision of varicella vaccine among all child health care providers.

There is a need for a more aggressive promotion among child health care providers and parents of the varicella vaccine against chickenpox. Though the number of children contracting this disease in North Carolina each year cannot be precisely determined, it is estimated that many physicians still are not immunizing their pediatric populations adequately against this disease. The dangers of an inadequately immunized population might be greater for adolescents, immuno-compromised individuals and susceptible pregnant women who might experience more serious consequences from the disease than they would have had if they contracted the disease earlier in life.

7. Increase the level of payment to dentists serving Medicaid clients to 80% of usual, customary and reasonable rates (UCR) for all dental procedures.

The level of payment to dentists for services provided to Medicaid-eligible patients should be increased to 80% of UCR so that dentists will have an economic incentive to see these patients and will not have to lose money in doing so. This is a major recommendation of a previous NC • IOM panel and still deserves serious legislative attention as part of an overall strategy for addressing child health care needs in North Carolina.

8. ***The North Carolina General Assembly should appropriate funds to the NC Dental Health Section for the Ten-Year Plan for the Prevention of Oral Disease in Preschool-Aged Children.***

One out of every four children in North Carolina enters kindergarten with untreated dental disease. Waiting until children reach school is too late if we want to prevent the incidence of dental disease; we must design a strategy that reaches younger children. The North Carolina Dental Health Section's Ten Year Plan for the Prevention of Oral Disease in Preschool-Aged Children would build on North Carolina's successful school dental health program, by expanding their efforts into preschool settings. With additional appropriations, the North Carolina Dental Health Section would expand the use of public health dental hygienists from school-based settings to community-based settings such as day care centers, Smart Start programs, Head Start Centers and other community settings where high-risk children are located. The program would provide health education to mothers and caregivers, apply fluoride varnishes to young children, use dental sealants when appropriate, and provide continuing education courses for any professional who has contact with young children.

9. ***The North Carolina General Assembly should appropriate $1.0 million dollars to establish an Oral Health Resource Program within the Office of Research, Demonstrations and Rural Health Development. These funds would be used to enhance ongoing efforts to expand the public health safety net for dental care to low-income populations in North Carolina.***

While increasing dental reimbursement rates to private dentists is necessary, it will not address the maldistribution or overall shortage of dentists. Nor will simply increasing Medicaid reimbursement rates expand access to dental care for all Medicaid-eligible people or for the uninsured. Thus, the North Carolina General Assembly should appropriate funds to establish an Oral Health Resource Program within the Office of Research, Demonstrations and Rural Health Development. This program would be charged with recruiting dental professionals to serve in dental underserved areas, and providing seed grants to communities to leverage private funds to establish or expand community-based facilities that provide dental care.

10. ***The Division of Medical Assistance (DMA) should expand dental care coordination for Medicaid and NC Health Choice clients.***

The Division of Medical Assistance has Health Check coordinators in three counties that have pilot tested dental care coordination. The Division is in the process of getting the results from these three counties, and plans to extend dental care coordination to additional counties by the fall, 2000.

11. ***Fund the school nurse program statewide to assure the presence of at least one school nurse for every 750 students in NC public schools.***

The state needs to fund a school nurse program that will assure the presence of at least one school nurse for every 750 students in our public schools. These nurses should develop collaborative child health initiatives by working with school personnel, parents, physicians, local health departments, local mental health agencies, and other community agencies. It is recommended that 150 new positions for school nurses be created in each of the next ten years, through 2010. Based on the results of recent surveys of acute care or inactive nurses, many nurses likely would consider applying if the positions were offered. Hence, there should not be a supply problem in meeting school nurse needs if financial resources were made available.

12. ***Increase funding for school-based or -linked health centers to assure that every middle and high school in the state is linked in some way with one of these centers.***

The state presently provides $1.5 million to support school-based or -linked health centers, but these programs exist in only 29 NC counties. These centers, which provide an accessible and user-friendly service, especially to adolescents who are often without any other source of primary medical care, should be made more widely available to middle and high school students in North Carolina.

13. ***Regionalize child health services by dividing the state into five multi-county regions corresponding to the service areas of the state's five major academic health centers and their affiliated Area Health Education Centers.***

Regionalize child health services by dividing the state into five multi-county areas corresponding to the service areas of the major academic health centers. Assign responsibilities to each of these centers and affiliated AHECs to assure the health of children in each region. (The NC • IOM could re-format the Child Health Report Card by Region and make these data available in that form each year as a means of increasing the sense of responsibility for doing something about these indicators in each region.) An incentive for improved performance in areas like immunization coverage could be tied to additional resources in each area.

14. ***Funding should be arranged for a series of "best practices" demonstrations in the area of childhood acute illnesses and infectious diseases.***

Funding should be appropriated for the support of a series of demonstrations of "best practices" in the area of childhood acute illness and infectious disease.

15. ***Mandate inclusion of a comprehensive school health curriculum in every public school system in the state.***

It is unfortunate that so many of our public school systems in North Carolina do not offer the benefits of a comprehensive school health curriculum, even though the state has invested in the development of such a curriculum (the *Healthful Living* curriculum). To emphasize the importance of including basic "education for health" in our state's K-12 curricula, it is recommended that a state mandate for such inclusion be enacted. Funds to support local school system adoption and implementation of a comprehensive curriculum should be appropriated.

16. ***Expand cultural sensitivity training regarding North Carolina's Hispanic/Latino population for health care professionals and their clinic staffs.***

Given that the Hispanic/Latino population of our state is increasing rapidly, and that there are social and cultural barriers associated with language and cultural understanding that prevent certain population groups from benefiting from available health care, it is recommended that the state provide the support necessary for expanding the programs offering language and cultural diversity training for health care professionals in both public health and private practice.

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Chapter 7

Mental Health and Substance Abuse

STATEMENT OF THE PROBLEM

In analyzing the overall health needs of children and adolescents, attention should be given to the prevention, proper identification, and appropriate treatment of children and youth with or at risk of developing mental health or substance abuse problems. The children and youth who are the focus of this chapter are those with diagnosed or diagnosable disorders,[1,2] behavioral problems, or environmental conditions predisposing children to mental health and substance abuse problems. Such attention is needed to maximize immediate and long-term physiological, behavioral, emotional, and social growth. This section discusses the prevalence of children with or at risk for mental health or substance abuse disorders and co-morbidities.

Mental health is a component of overall health. For most people, health and a sense of well-being are characterized by three basic elements: 1) how one feels about oneself; 2) how one feels about other people; and 3) how one is able to meet the demands of life. Children who have problems in one or more of these areas might or might not be diagnosed with mental health problems. Yet, it is important to focus on the mental health of all children, regardless of whether they have been "diagnosed." Identifying and providing services to children who are at risk might prevent some children from developing more severe diagnosable mental health or substance abuse conditions.

This chapter focuses on children who are at risk of developing mental health or substance abuse problems because of certain socio-economic or environmental factors, children with certain non-diagnosable emotional or behavioral problems, and children with diagnosable conditions. Diagnosable conditions run the gamut from learning disabilities, attention deficit and hyperactivity disorder (ADHD), and mild depression, to more severe conditions such as bipolar disorder or schizophrenia. The underlying causes of these problems are a combination of biological, psychological, and sociological factors.

Children of all ages might exhibit certain conditions such as ADHD or autism. Similarly, they might be subject to environmental factors that create risks of later developing mental health or substance abuse problems (such as coming from violent or abusive families, poor families, or families where the parents have substance abuse problems). However, some conditions are more age-specific. For example, younger children (birth to five) might present with developmental delays or emotional problems specific to young children. Primary or middle

school aged children might exhibit problems not common among younger children such as eating disorders, suicidal or self-destructive behaviors, conduct di

sorders or violent behavior, anxiety or mood disorders, or substance abuse problems. Older children experience these conditions as well, but might exhibit more extreme problems such as higher rates of serious suicide attempts, more serious substance abuse/dependency disorders, increased violent and assaultive behaviors, development of personality disorder traits, or problems regarding reproductive health. In addition, older children might experience problems transitioning to adult roles, such as learning independent living skills. A child's social and emotional needs and many risk factors change over the course of childhood and frequently, available policies and services reflect these age differences. Therefore, problems and needs related to effective mental health treatment are better reflected by detailing efforts and strategies in three distinct age groups: a) infants, toddlers, and preschoolers (birth – five); b) school age youth (six-14); and c) middle adolescence (15-18).

Mental health

Estimates are available of the number of North Carolina children with or at risk for serious emotional disturbance.[3] In previous state plans, North Carolina estimates of the prevalence of children who have serious emotional disturbances were based on 2.5% of the total child population. This was a prevalence estimate recommended by the United States Department of Health and Human Services (USDHHS).[4] Recent epidemiological studies have provided new estimates, which has increased the estimates of children with severe and moderate emotional disturbances. For example, the USDHHS estimates that between 10 and 12% of North Carolina youth has or is at risk for serious emotional disturbance. However, the study on which the estimates are based focuses only on youth ages nine to 17 and does not include children from birth to eight years, a population with or at risk of serious emotional disturbance that North Carolina has endeavored to identify and treat. Duke University's national Great Smoky Mountain study estimated that while 5% of youth have the most severe emotional disturbance, another 25% of children with a moderately severe, though distressing, disorder might also require mental health intervention.[5] These children are at risk for serious emotional disturbance, including substance abuse, and might require publicly funded services at some time.

North Carolina utilizes a conservative estimate of a 10-12% prevalence rate for serious emotional disturbance (SED) of children, which is based on the prevalence rate cited in the June 1998 Federal Register.[6] Extrapolating from the 1997 NC Office of State Planning population estimate of 1,730,695 children under age 18, the number of children in this age group with an SED is between 173,069 and 207,683.[7] According to the Great Smoky Mountain study, children with SED are more likely to have certain stress factors than other children.[8] For example, children with SED are:

- Twice as likely to be living in poverty (40% versus 20%)
- 40% more likely to have a parent who has been arrested (17% versus 12%)
- 50% more likely to have a parent with a drug or alcohol problem (11% versus 7%)
- Three times as likely to have a mother who is depressed (18% versus 6%)
- 25% more likely to have a parent who did not finish high school (42% versus 32%)
- Nearly three times as likely to have a poor relationship with his/her parents (49% versus 17%)
- Nearly twice as likely to have witnessed physical violence between parents (13% versus 8%)
- Nearly twice as likely to have one or both parents unemployed (17% versus 9%)
- 50% more likely to come from a family other than one with two biological or adoptive parents (77% versus 50%)

Children with six or more stress factors are forty times more likely to have SED than children without stress factors. Children with serious emotional disorders are more likely to be expelled from or drop out of school, become pregnant, be convicted of a crime or use alcohol or other illicit drugs.

Substance abuse

Definitions of heavy alcohol use and risky drug use have been developed to categorize children in need of substance abuse services. Heavy alcohol use is defined as consuming five or more drinks on three or more days in the prior month.[9] "Risky" drug use is defined as including those students who had ever used marijuana ten or more times in their life; or used inhalants ten or more times in their life; or ever used cocaine, hallucinogens, crack, or uppers in their life, and who have used drugs in the past 12 months. Use of marijuana is associated with escalating use of other illegal drugs. Substance abuse is associated with injury-related morbidity and mortality, and also with unwanted pregnancy, school failure, delinquency, the contraction of sexually transmitted diseases, and an indication of other possible mental health problems. In addition, more than two-thirds of youth in training schools reported using some type of illegal substance.[10]

Drinking: Approximately one of ten high school students in North Carolina, or approximately 31,000 students, reported drinking at what has been defined as a heavy level. Heavy drinking has been linked to physical fighting, destruction of property, academic and job problems, and conflicts with law enforcement authorities.

Almost one of every four middle school students (24.6%) reported having their first drink before age 11.[11] Among middle-school children, males (60.1%) were more likely to report that they consumed liquor than females (54.0%), and whites (59.9%) were slightly more likely to have consumed alcohol than African-American students (54.1%) or children of other races (46.4%). Boys are more likely to start drinking early than are girls.

High-school students were far more likely to report drinking.[12] Three-quarters (75.1%) of high school students reported consuming alcohol, up from 68.9% in 1995. Consumption was generally similar across gender and racial groups, although males were more likely to have started drinking before age 13 than females (37.0% compared with 25.2% respectively). In general, North Carolina youth report less drinking than their national counterparts, but with a slightly higher incidence of having consumed alcohol on school property.

Table 7.1: 1997 Youth Risk Behavior Survey for High School Students North Carolina and National

	North Carolina	National
Had drink in the last 30 days	43.6%	50.8%
Had five or more drinks in a row during the previous 30 days	23.0%	33.4%
Drinking alcohol on school property in last 30 days	6.1%	5.6%

In 1996, there were 2,419 alcohol-related arrests among children under the age of 18.[13] Of these, 984 were for driving while impaired, and 1,435 were for alcohol violations. In addition, there were 66 hospital discharges to children under age 18 with a primary alcohol-related diagnosis.

Drug Use: Among middle school students, almost one-fifth (19.8%) reported using marijuana in 1997, 5.5% reported using cocaine, and 18.4% reported sniffing glue, sprays, or paint to get high.[14] A smaller percentage of middle school students reported using steroids (3.6%) or injecting illegal drugs (2.2%).

A higher percentage of high school students reported using marijuana (44.1%), with 9.7% having used marijuana before age 13.[15] Almost one-fifth of high school students reported sniffing glue, sprays, or paints to get high (17.4%), 6.6% reported using cocaine, 4.0% reported using steroids without a prescription, and 2.5% reported injecting illegal drugs. North Carolina high school students report a lower use of marijuana and cocaine, but are slightly more likely to sniff glue, sprays, or paints than high school students nationally (Table 7.2). North Carolina high school students were more likely to have used marijuana, cocaine, or injected illegal drugs

since 1995, but less likely to have sniffed glue, sprays, or paints, or used steroids without a prescription. A slightly higher percentage of high school students (31.6%) reported being offered, sold, or given illegal drugs on school property in 1997, than they did in 1995 (29.8%) or 1993 (28.9%).

Table 7.2: Use of Drugs among High School Students (1997)
Youth Risk Behavior Survey

Type of drug	North Carolina	National
Marijuana	44.1%	47.0%
Sniffing glue, sprays, or paints	17.4%	16.0%
Cocaine	6.6%	8.2%
Injected illegal drugs	2.5%	NA
Being offered, sold, or given illegal drugs on school property in last 12 months	31.6%	31.7%

An examination of the demographics of the children who were heavy alcohol and risky drug users in North Carolina, from the 1995 Youth Risk Behavior Study shows the following:

Table 7.3: Heavy alcohol and risky drug use among North Carolina high-school students by demographic characteristics[16]

Demographics	Heavy alcohol use Number (%)	Risky drug use Number (%)
Total NC	31,060 (10.2)	67,774 (23.0)
Gender		
Male	21,541 (14.2)	38,396 (26.5)
Female	9,519 (6.3)	29,251 (19.7)
Grade		
9th	6,373 (6.6)	16,552 (17.9)
10th	8,876 (11.1)	20,952 (27.3)
11th	6,846 (10.5)	15,228 (23.8)
12th	8,569 (14.0)	14,678 (24.3)
Race/ethnicity		
White	21,847 (11.7)	47,240 (25.5)
AA	5,680 (5.9)	14,258 (16.2)
Region		
Eastern	6,995 (9.2)	15,667 (21.9)
N. Central	5,680 (10.7)	9,302 (18.6)
S. Central	4,876 (11.1)	7,873 (18.6)
Western	13,508 (10.2)	34,932 (26.8)

Comorbidities: A great proportion of children with mental disorders also have substance abuse problems, although it is difficult to determine the exact extent of this co-occurrence. National studies suggest that between 22 and 82% of adolescents with mental disorders also have substance abuse problems.[17] The different methodologies used among researchers make it difficult to generalize or compare findings. Although the exact prevalence of co-occurrence in adolescents is not known, studies have found evidence of a relationship between emotional or behavioral problems and substance abuse.[18] Studies have shown that hyperactivity, antisocial behavior, problems getting along with others, emotional instability, inattentiveness, and lack of involvement in activities among youth have been associated with later substance abuse problems. Having a dual diagnosis might create more severe functional impairments and poorer prognosis. Therefore, it is critical that the co-occurrence of mental health disorders and substance abuse be addressed.

Current Programs and Policies

Mental health and substance abuse services are available from both public and private providers. Area Mental Health, Developmental Disability, and Substance Abuse programs (hereinafter referred to as "area programs") are a major provider of publicly-funded services; however, children receive needed services from many other sources including health professionals in schools, private providers and other nonprofit or publicly funded agencies. The Great Smoky Mountain Study suggests that 70% of children with severe emotional disorders will seek help from one or more organizations serving children, including private or public mental health providers, pediatric primary care providers, schools, child welfare agencies, or juvenile justice agencies. Only 40% of children with severe emotional disturbances will receive care from a specialty mental health agency.[19] The study found that children who received at least nine sessions with a mental health professional had significantly fewer emotional and behavioral problems following treatment than untreated youth.

About 40% of *all* children in the Great Smoky Mountain Study received some mental health services, most often from school counselors and psychologists. More than 75% of the children who received mental health services were seen in the education sector; 12% received services from specialty mental health sector (generally a public mental health center or private professional). Only 6% of the youth in the study received services from the general medical sector such as the child's primary care physician.

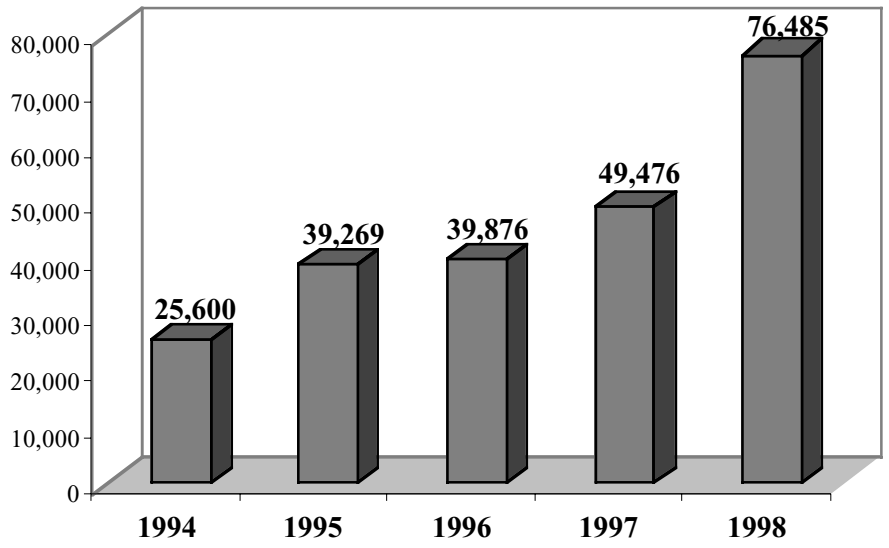
Public providers

Area mental health, developmental disability, and substance abuse programs: Area programs are required to provide: outpatient services, including screening and assessment; consultation and education; case management; inpatient hospital treatment; forensic screening and evaluation for individuals for all disability groups; developmental day services for preschool

children with or at risk for developmental disabilities, including atypical social-emotional development; and early childhood intervention services for children with or at risk for developmental delay, disabilities, or atypical development, and for their families.[20] In addition, the area programs are required to provide emergency services 24 hours per day, seven days per week. Many area programs provide other services in addition to those required, such as assertive outreach, respite, day treatment, and case support. Many of these services are provided to individuals of all ages who have serious emotional disturbances, or who might be suicidal or at risk of becoming homeless.

In SFY 97, the area programs served 49,476 children and adolescents with or at risk for serious emotional disturbance, as shown in Figure 7.1. For SFY 98, the number rose to 52,812 children with a principal mental health diagnosis and an additional 23,673 with dual diagnoses. The area programs served a total of 76,485 children and adolescents with or at risk for serious emotional disturbance during SFY 98. Area programs served about 14,747 children with or at risk of substance abuse problems in SFY 99.[21] Area programs offer a variety of programs, targeted to children of different ages and with different mental health or substance abuse problems, and to their families. Area programs also work with other public and private providers to ensure that children's mental health and substance abuse problems are being addressed.

Figure 7.1: Number of Children and Adolescents Receiving Services from Area Programs, Fiscal Years 1994-1998



Most of the children served by area programs are school-aged, with 82.9% of the children served aged six or older. In part, this is because some of the emotional or behavioral disorders are more readily observed and identified in a school setting. Also, more problems emerge as children age.

Table 7.4: Children and Adolescents Served by Area Mental Health Programs in 1998 by Age and Gender

Age	Female %	Male %	Total Number (%)	
Birth - 2	7.09	6.25	5,032	(6.58)
3 - 5	10.33	10.68	8,062	(10.54)
6 - 11	41.93	48.04	34, 931	(45.67)
12 - 17	40.65	35.03	28,460	(37.21)

Comprehensive community-based systems of care for youth and families: The Child and Family Services Section of the Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (MHDDSAS) has recently implemented three grants designed to develop comprehensive community-based systems of care for children and their families. The PEN-PAL (Pitt Edgecombe Nash-Public Academic Liaison), NC FACES (Families and Children Equals Success) and the SOC (Systems of Care Network) are part of a national effort to improve and evaluate services for children and their families. The projects are targeted to children and youth ages six to 18 with emotional or behavioral problems, and to their families. The community-based initiatives are operational in Buncombe, Cherokee, Clay, Cleveland, Edgecombe, Graham, Guilford, Halifax, Haywood, Jackson, Macon, Madison, Mitchell, Montgomery, Moore, Nash, Pitt, Richmond, Swain, Watauga, and Yancey counties. These projects focus on promoting the full partnership of families in planning, developing, implementing, managing, and evaluating local services; they also emphasize the care of their children and adolescents through the development of nonprofit agency-supported or independent "grass roots" community-based family support and advocacy organizations. Area program staff, family members, and other community agency staff involved in this system of care initiative receive special training from state and private universities and colleges, and community colleges. In addition to the local initiatives, many other communities are developing systems to involve parents, families, and advocacy groups in the delivery and supervision of the mental health and substance abuse systems.

School based services: Schools are a good place to reach children in need of mental health or substance abuse services, given the amount of time children spend in school. School personnel can monitor changes in behaviors that might lead to early detection of emotional or

substance abuse problems.[22] According to the Great Smoky Mountain Study, most children who receive mental health services receive them from school counselors and psychologists.[23] Older children were more likely to use school mental health services than younger children. Another way for children to access mental health and substance abuse services is through the school social worker or nurse. These practitioners help identify and refer children with mental health or substance abuse problems to appropriate community resources, and provide overall care coordination with the child, family, and community agencies.

In addition to school nurses and social workers, more comprehensive school-based or -linked health centers offer great potential for providing easy access to a range of coordinated mental health and substance abuse intervention and treatment services. Across the state, there are currently about 50 health centers located in schools or linked closely with school-based or -linked centers.[24] The health centers offer a range of services that go beyond the typical school nurse model. While almost all of these centers provide primary health care, about 75% provide some form of mental health/substance abuse services. Given that there are about 2,000 school buildings in the state, these 50 or so centers barely scratch the surface of existing need. There is a need to make comprehensive health services (primary care, mental health, nutrition, etc.) more accessible to school-aged children and teens.

Some communities have established itinerant teams consisting of a child psychologist, social worker, educator, and, in some teams, juvenile court counselor who provides assessment and treatment/educational planning services on regularly scheduled days in designated schools weekly. These teams offer consistent consultation to the school personnel and families regarding children with or at risk of serious emotional disturbance.

Community-driven services: Throughout the state, innovative efforts continue to surface to meet the treatment and habilitation needs of youth with mental health and substance abuse problems. Many of these are community-driven efforts often supported by "grassroots" efforts with both formal and informal support networks. Outreach to runaways, therapeutic recreation opportunities, mentoring programs, faith community supported programs, juvenile justice diversion programming, family advocacy and mentoring programs, respite and crisis care exchange programs, child care consultation, and others too numerous to mention provide hope that creative interventions and solutions for meeting the needs of youth with mental health and substance abuse problems are not beyond reach.

Publicly-funded programs for young children (birth through age five)

Perinatal substance abuse programs: The Perinatal and Maternal Substance Abuse Initiative is composed of 23 specialized programs for substance abusing pregnant and parenting women and their children. This initiative was funded to address birth outcomes and family functioning of these families. These programs provide comprehensive substance abuse

services that include, but are not limited to screening, assessment, case management, outpatient services, parenting skills, residential care, referrals for primary and preventive health care, and referrals for appropriate interventions for the children. The children in these families benefit from the services provided by the local health departments (pediatric care), early intervention programs, and child services coordination services.

Intensive home visiting programs: Home visiting programs have been instituted in a number of counties focusing on work with at-risk families to prevent child abuse and neglect, one of the key risk factors in the development of future mental health and substance abuse problems. There are currently 14 counties that operate home visiting programs and eight counties with planning grants. These programs target newborns and work with families to support and teach effective parenting and identify early problems or needs.

Early intervention program: The early intervention program was created to ensure that children with special needs and their families obtain services early in their lives. The program consists of two separate programs for young children: the infant-toddler program covers children birth through age two, and the preschool program covers children from three to five (or until the child enters kindergarten).[25] Children in either program are eligible for a multi-disciplinary evaluation, an individualized family service plan, and a range of services including developmental, medical, nursing, social work, psychological, and therapy services for the child, and training, respite, and counseling for the family. Eligible children may receive child and family assessments, in-home and center-based interventions, parent education regarding patterns of social and emotional growth and development, observation of behaviors and responses, and facilitation of healthy parent-child relationships.

The primary difference between the two programs is that the infant-toddler program can work with children who are at risk of developing a disability; but, to receive services under state policies, older children in the preschool program must actually exhibit a cognitive, communication, social/emotional, or adaptive disability that impacts academic ability to learn.[26] Child service coordination (case management) is a required service for all eligible children in the infant-toddler program, but is optional for three-to-five year olds. In addition, there are different lead agencies involved in administering the two programs: the area programs are responsible for administering the infant-toddler program, whereas the Local Education Authorities (LEAs) are responsible for administering the preschool program. In SFY 1998, there were more than 8,300 children served through the infant-toddler program and 11,300 children served through the preschool program.

Child Service Coordination: Area programs along with local or district health departments provide child services coordination. The Child Service Coordination program works with families with young children (birth to five) who have certain medical, developmental, or social/emotional needs. Child service coordinators provide families with information about

existing programs and services, monitor children's development, work with families in strengthening parent-child interactions, and help to foster family self-sufficiency. The program serves about 50,000 children yearly. A majority of these children are infants and toddlers because this is an optional service for children three-to-five-years of age. Of this population, assessment data indicated that 42% were projected to be at risk of behavioral/emotional disorders.[27]

Smart Start/Head Start: Coordination with Smart Start through local community councils has shown an increase of mental health identification and referral services being offered directly at sites. For example, a 1999 activity report of the North Carolina Partnership for Children showed grants to 16 agencies to provide treatment or counseling for young children or their families.[28] Most of the recipients of these grants were area programs. Head Start and Early Head Start programs also provide some early identification services, mental health consultation, and appropriate referral to community resources for children at risk of mental health issues.

Publicly-funded programs for older children

The state operates a number of programs for older children and adolescents; many of these programs are targeted to children with specific problems. For example, the state funds programs for homeless or runaway children, children involved in the Child Protective Services system, children who are deaf or hard of hearing, children with severe behavioral problems (Willie M or residential treatment programs), and children with substance abuse problems (residential substance abuse treatment centers and substance abuse treatment in juvenile detention facilities).

Services for homeless children and families or runaway youth: Area programs also provide services to homeless families and youth. A 1990 survey of homeless shelters revealed that 78 shelters serve families with children and adolescents.[29] Of these, over half had mental health/counseling services provided on-site and off-site. Although data are not available, it is expected that many of the off-site services provided to children living in homeless shelters were provided through area programs.

Several of the local area programs have developed programs specific to homeless and runaway youth. Wake and Cumberland counties have developed PATH services (Programs to Assist in Transitions from Homelessness) to provide outreach services in runaway shelters, screening and diagnostic services, and mental health and substance abuse services, including case management and residential services. A 1998 federal PATH grant report shows that 102 children and adolescents became enrolled during the year as PATH clients in the two counties; an additional 506 youth with or at risk for serious emotional disturbance and/or substance abuse who were homeless were served by other funding sources of these two agencies. In the next

federal fiscal year (FFY 01), additional services will be developed in Buncombe county, and transitional services for youth aging into adulthood will be enhanced in Cumberland county.

Children involved in the Child Protective Services system

Family Preservation and Family Support Programs: Intensive Family Preservation Services (IFPS) and less intensive family preservation services are both programs that target children and families where children may be removed from the family setting if changes do not occur within that setting. These programs are provided through the local Departments of Social Services (DSS), area programs, and private nonprofit agencies. The programs have proven effective in: preventing children at high risk of abuse or neglect from being removed from their homes; preventing youth with mental health and substance abuse problems from being hospitalized or placed out of their homes; assisting in successful reunification of youth back into their families after out-of-home placement; and supporting families where youth were at risk of entry into the juvenile justice system.

Mental health services for children in local DSS custody: The MHDDSAS is working with the state Division of Social Services to set up a system to screen children in DSS custody to determine their need for mental health treatment and related services. A prior analysis of children in DSS custody in SFY 1997-98 showed that approximately one-third of the population received mental health services.[30] The other children did not receive services, either because their treatment needs were not identified, or because identified services were not obtained. The study showed considerable variation of use of mental health services among different counties. The MHDDSAS and the Division of Social Services are developing a standardized screening instrument to ensure that children are properly identified and that they are referred to appropriate mental health services. Related collaborative efforts with the DSS are addressing joint staff training and the development of a culturally competent system of care for children and their families served by both agencies.

Children with severe emotional and behavioral problems

State psychiatric hospitals: The state operates four psychiatric hospitals that serve adolescents and adults with acute psychiatric problems. These hospitals are located in Morganton (Broughton), Goldsboro (Cherry), Raleigh (Dorothea Dix), and Butner (John Umstead). Dorothea Dix, for example, serves as many as 50 adolescents (ages 12 to 18) with emotional or behavioral problems including adolescent and family disturbances, suicidal disorders, attention deficit disorders, adolescent depression, behavioral disorders, sexual abuse, or childhood schizophrenia. The John Umstead Hospital campus has both a child (20 beds) and an adolescent unit (44 beds), and programs that specialize in treating youth who are assaultive and violent.

Youth who are assaultive and violent: The Willie M. Program began in 1981 as a result of a 1979 class action lawsuit of four children, one of whom was Willie M, suing for the right to receive the treatment and educational services repeatedly denied them because of their history of violent behavior and mental or emotional disabilities. Currently there are 1,661 eligible youth who are assaultive and violent and actively being served.[31] As a group, these children have far more severe problems than other children. For example, about one-half of these children have conduct disorder, about one-third have other disruptive behavior disorders, about half have ADHD, one-fifth have depressive disorders or mental retardation, and a little less than one-fifth have post-traumatic stress disorders. Children who are assaultive and violent are likely to have an early development marked by adversity, significant negative experiences past infancy, come from extremely stressed families, have parents with many problems, or have other childhood disorders. Butner Adolescent Treatment Center provides both a locked residential treatment facility and a non-secure apartment facility for up to 59 eligible children ages 13-17. The Eastern Adolescent Treatment program is another non-secure, non-medical treatment facility located in Wilson on the campus of the North Carolina Special Care center.

The North Carolina DHHS and the Department of Public Instruction (DPI) share the responsibility to provide services to children who are determined eligible. The MHDDSAS acts as the lead agency; ensuring that children receive appropriate services. Youth who are assaultive and violent can receive a broad base of services, including behavioral-therapeutic, vocational, educational, medical-health, housing-residential, and support network-family-social services.[32] Though the class action suit has been closed, the MHDDSAS is statutorily bound to continue to serve this special population of eligible children. Children who have received these Willie M services showed improvement in key life areas, including residential (placing children in the least restrictive environment), behavioral (less violent behaviors), and legal domains (contact with the law). The program has also helped keep children in school. Progress has been the greatest for children with more serious emotional disturbance and offenses; longer participation in the program results in greater progress.

Wright and Whitaker Schools: The Wright and Whitaker Schools are two publicly funded residential schools providing therapeutic and educational residential treatment services. The Wright School targets children ages five-12 years, and Whitaker targets children ages 13-17. Whitaker School tends to treat a higher intensity of children, some with comorbidities of alcohol or substance abuse. A key component of both programs is the linkage with family members and community providers in implementing successful individualized plans, while a child is in treatment and during the transition back to the community.

Youth who are sexually aggressive: During FY 98, 1,116 children and adolescents with sexually aggressive behaviors were treated through the area programs. There have been intensive efforts to increase training opportunities for agencies that serve this population, and positive partnerships with mental health juvenile justice and private agencies to increase

services to this population. Research shows that 50% of identified adult offenders begin their sexually aggressive behaviors in childhood.[33] Therefore, early attention to this population is critical. In addition, the state is also developing treatment responses for children who are victims of juvenile offenders.

Services for deaf and hard-of-hearing youth

Since 1992, North Carolina has provided specialized mental health and substance abuse treatment services to deaf and hard of hearing individuals. Specialized services to children and adolescents include six Child Mental Health Coordinators based in area programs. These coordinators, who are fluent in American Sign Language and knowledgeable in deaf culture and hard-of-hearing issues, work closely with area programs, school systems, the three schools for the deaf, advocacy groups, and family members to ensure that system of care principles are used in providing services to this special population.

Children with substance abuse problems

Residential substance abuse treatment: There are currently eight community-based residential substance abuse treatment programs serving youth with serious substance abuse disorders across the state. These facilities provide intensive treatment ranging from six weeks to six months for adolescents and their families. They are operated with support from the Child and Adolescent Branch of the MHDDSAS and are available to any youth in need on a sliding scale basis. Though only able to provide bed capacity for 56, these facilities are a start in providing this necessary link in the continuum of care for our substance abusing youth.

Substance abuse treatment in juvenile justice facilities: Since 1987, the Child and Adolescent Branch of the MHDDSAS has partnered with the Office of Juvenile Justice to place substance abuse counselors and case managers in all of the five training schools to provide screening, assessment, and treatment services. The Branch also provides substance abuse counselors for the state operated Juvenile Detention Center sites. In addition, an intensive substance abuse program (the Bridge Program) serving 45 youth at a time has been developed at one of the training schools to serve incarcerated youth from across the state with the most serious substance abuse needs. A new initiative, the MAJORS Program (Managing Access for Juvenile Offender Resources and Services), has been in operation at 12 sites for two years to improve coordination between substance abuse treatment and case management services with youth involved in the juvenile justice system.

Private providers

A number of children receive mental health and substance abuse services from private providers. Primary care physicians are sometimes the first point of contact for children

with mental health or substance abuse problems; these providers can offer services and referral to other community providers. [34] In addition to primary care providers or publicly-funded providers, children and adolescents receive mental health or substance abuse services from psychiatrists, psychologists, certified or licensed clinical social workers, certified clinical specialists in psychiatric and mental health nursing, certified substance abuse counselors, or certified clinical addiction specialists working in private practice. The state lacks data on the number of children served by primary care providers or other health professionals in private settings.

Funding

Various sources provide funding for public and private mental health and substance abuse services. Much of the funds come from public payers: Medicaid, NC Health Choice, state funds, or federal block grant and other federal funds. However, some services are supported by private insurance coverage.

Public funding: As illustrated in Figure 7.2, Medicaid was the largest (46.7%) financing source for publicly-funded community-based mental health services in SFY 99. Medicaid is a governmental health program that pays for medical services for children in certain low- and moderate-income families, and for children receiving foster care and adoption assistance. Eligibility for Medicaid varies, depending on the child's age and family income. For example, an infant under the age of one is eligible for Medicaid if their family income is no greater than 185% of the federal poverty guidelines; children between the ages of one and five are eligible if their family income is no greater than 133% of the federal poverty guidelines, and children between the ages of six and 18 are eligible if their income is less than 100% of the federal poverty guidelines. Children of families with incomes in excess of the Medicaid income limits are eligible for NC Health Choice (the state's Child Health Insurance Program) if their family income is not greater than 200% of the federal poverty guidelines. Together, these programs covered 520,349 children birth through age 18 with incomes below 200% of the federal poverty guidelines.[35]

Medicaid provides coverage of inpatient, outpatient services, and other required community-based mental health services. Services must be authorized by a psychiatrist through an individualized treatment plan. In the past, Medicaid would pay for inpatient psychiatric care until the acute episode was stabilized, after which Medicaid payments would be discontinued. This led to the discharge of some children back to the community without appropriate discharge planning or assurance that necessary community services would be in place. However, effective January 1, 1999, Medicaid began paying for inpatient nonacute psychiatric care until community services became available to meet a child's needs.[36] Medicaid provides coverage of substance abuse services for children, including individual and group outpatient treatment, day treatment high-risk intervention, certain types of residential care,

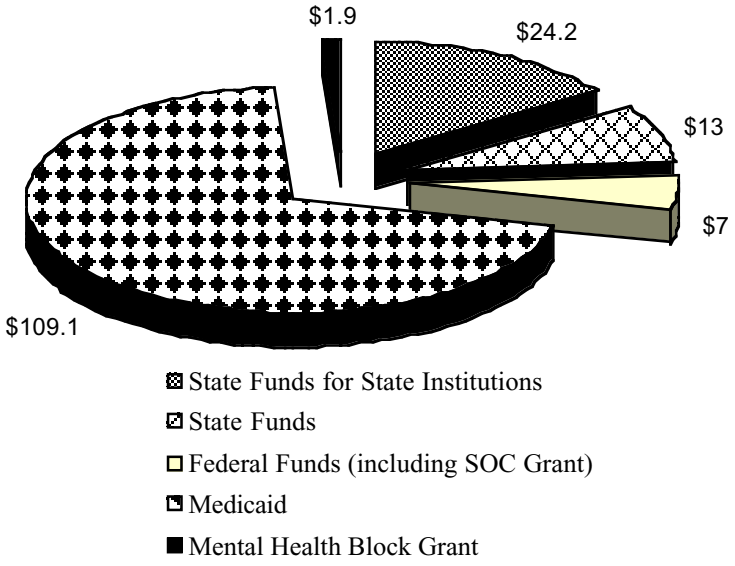
case management, and CBI (community-based intervention). Medicaid does not pay for the room and board component of residential treatment centers.

The NC Health Choice program offers slightly different mental health coverage. Children covered by NC Health Choice are eligible for up to 26 outpatient mental health visits without any prior authorization and additional visits if authorized by the state. The substance abuse coverage is substantially similar to that covered by Medicaid. Under NC Health Choice for children, after the initial 26 outpatient visits, mental health and substance abuse services are managed by Value Options, Inc. (a managed behavioral health company). All services, such as inpatient services, residential treatment, 23-hour observational stay, partial hospitalization, and intensive outpatient program services are covered only if approved in advance by the mental health case manager (Value Options). Before a child is released from a mental health hospital, the discharge planner at the hospital works with the staff at Value Options to identify appropriate step-down or community services. In addition, some of the Health Choice children are eligible as special needs children for additional services not otherwise covered under the traditional Health choice program. These additional services include specialized care management such as high risk intervention (HRI) or client behavioral intervention (CBI).

Medicaid, NC Health Choice, and the State Employees Health Plan will expand their mental health coverage on July 1, 2000. Under the new policy, these plans will pay for children to get up to six mental health checkups, without a diagnosable mental health or substance abuse condition.[37] The goal of this new coverage is to provide preventive mental health screenings, and to identify potential problems earlier.

In addition to Medicaid and Health Choice, mental health and substance abuse services are financed through federal mental health, substance abuse, and Temporary Assistance to Needy Families (TANF) block grant funds, and other grant funds, as well as state appropriations for the state psychiatric hospitals, Willie M. program, and child mental health and substance abuse services.

Figure 7.2: Child Mental Health Funds by Source in Millions of Dollars – State Fiscal Year 1999[38]



In addition, $90.7 million was spent for Willie M. children, of which 65% came from state special population funds through the DMH/DD/SAS; 8% came from state DPI, and 27% came from federal Medicaid funds.

Funding for substance abuse services for children is much smaller. In SFY 99-00, the state appropriated $3.5 million, with an additional $7.1 million from different federal sources (Substance Abuse Prevention and Treatment block grant, Safe and Drug-Free Schools and Communities program, and TANF block grant).[39]

Private funding: Private health insurers typically provide some coverage of mental health and substance abuse services. There are no data that show how many private health insurance plans in North Carolina provide mental health coverage. However, national data suggest that most private insurers offer mental health coverage, although the coverage may be limited. Between 1991 and 1995, the proportion of insured workers with some coverage of inpatient mental health services increased from 87% to 93%, and from 86% to 92% for coverage of outpatient mental health services.[40] While mental health services are typically covered, they are not usually offered as comprehensively as coverage of other medical services.

North Carolina does require that health plans offer some coverage of substance abuse treatment services. Health plans must offer coverage for at least $8,000 in substance abuse coverage during a year, with at least a lifetime maximum of $16,000.[41]

GAPS IN EXISTING PROGRAMS OR POLICIES

While a number of public and private programs are available to provide mental health and substance abuse services to children, a number of systemic problems exist. First, many of the programs are inadequately funded to serve all in need. Some programs are limited to certain geographic areas in the state, many services lack sufficient personnel to meet needs, and some programs operate with waiting lists. Second, there is a lack of adequately trained personnel to address the mental health and substance abuse needs of North Carolina children. Third, there is a lack of coordination between public programs, and between public and private providers. Fourth, there is inadequate supervision of the mental health system. Fifth, there are problems in both public and private financing of mental health and substance abuse services. Sixth, there are other problems that create barriers to children receiving appropriate mental health and substance abuse services.

Inadequate resources

Area programs: Despite a marked increase in the population served by area programs, there is wide variation in the rate of service provision to children with or at risk of serious emotional disturbance. For example, the Smoky Mountain area program provides services to 11.5 children per 1,000 compared with 1.6 children per 1,000 served by the Wake county area program.[42] In addition, there is a large gap between those identified as needing services and those who actually receive needed services. A recent study by the DMH/DD/SA, Child and Family Section, found 9,123 children waiting for services, as shown in Table 7.5. Of the 9,123 children waiting for services, 7.6% are of preschool age (birth-five), 43.5% are 6-11 years of age, and 48.9% are ages 12-17.[43] A child might be forced to wait for three to five months, depending on the services needed.

The study also analyzed the types of mental health services needed. More than 20% of the children with unmet, immediate short-term service needs were waiting for outpatient assessment, outpatient treatment, intensive outpatient treatment, or wraparound services. Children who received no services were more likely to need day treatment services, after hours outreach services and hospital services for crisis stabilization or intensive assessment than were children who received some services.

In addition to the services listed above, children with more severe needs had increased need for outpatient treatment, both for the child and family. More than 20% of the

children who receive no services were identified as needing therapeutic homes, group homes, and intensive residential services. The study concludes:

> The overall picture of services provided through area programs shows that, although the numbers of children receiving services has grown steadily over the past decade, the types of services these children need are not available. Within each area program, most of the types of services needed exist to some extent. However, the volume of each type of service is simply not sufficient to meet growing needs. The survey data clearly indicate that many children are waiting for services, and that, for the most part, the services they need are outpatient and day treatment services.

While residential services were not given highest priority for the general population of children with mental health needs, for some children with serious problems (such as youth who are sexually aggressive), residential services are critical. A survey of the 39 area programs showed that the greatest need for these youth was for non-secure residential treatment, followed closely by secure residential treatment.[44] Similar findings came out of a survey of Juvenile Court Counselors in 1999. When residential services are needed, some combination of non-residential services might not work well as a substitute. Area programs also indicated a need for therapeutic homes, intensive in-home services, school-based services, day treatment, and group homes.

This lack of capacity creates a barrier for people wanting to refer children and their families for help.

Table 7.5: Children Waiting for Services in Area Programs (SFY 97-98)

Treatment received	Identified as waiting	Eligible for Medicaid Number (%)
None	1,169	842 (72)
Some	7,954	6,365 (80)
Total	9,123	7,207 (79)

In the arena of substance abuse, most of the residential programs have a waiting list—varying from a few weeks to several months. Area programs do not maintain waiting lists for outpatient child substance abuse services.

Further, many of the programs offered by area programs or other public agencies are limited to certain geographical areas, such as the IFPS available in 37 counties, or the community-based system of service delivery being offered in 11 counties.

School personnel: In the 1998-99 school year, there were 1,236,967 children who enrolled in the public school system in the first month (1,228,539 in public schools, and 8,428 in charter schools). The state had 3,142 full-time guidance counselors. Yet, there were only 588 psychological staff (1:2,104 psychological staff:student ratio).[45] Psychological personnel includes psychologists, psychometrists, psychiatrists, and psychological-social workers. The DPI does not normally report the number of school social workers separately; however, a 1997-98 survey of school social work practitioners indicated that there were only about 420 practitioners employed by public schools at the end of 1997.[46] School systems lack adequate health professionals skilled at recognizing or treating children with mental health or substance abuse problems.

Through local arrangements, area programs outstation agency staff in school-based or -linked health centers.[47] Although each of the approximately 50 school-based/school-linked centers have some capacity to address the mental health and substance abuse needs of students, staffing is inadequate. Most sites have less than 50% of a full-time equivalent mental health professional, most of whom are clinical social workers.

Private providers: The inadequacy of the mental health and substance abuse infrastructure is not limited to the public sector. There is also a dearth of private providers available to provide mental health or substance abuse services to children in some parts of the state. The Cecil G. Sheps Center for Health Services Research at UNC-Chapel Hill maintains a database of licensed physicians, nurses, psychologists, and selected other health professionals. Examining the data for physicians, nurses, and psychologists with mental health or substance abuse expertise shows that there are 29 counties without physicians with a mental health specialty (such as psychiatrists, child psychiatrists, psychoanalysts or psychosomatic medicine specialists); there are 15 counties without practicing clinical psychologists (with clinical, counseling or school counseling expertise); and there are six counties without a school nurse (at the RN level).[48] Ten counties, Alleghany, Camden, Davie, Gates, Graham, Jones, Madison, Perquimans, Tyrell, and Washington, have neither a physician with psychological expertise or a psychologist licensed to practice in that county. County-level data are not maintained on other mental health or substance abuse professionals, such as social workers or different types of chemical dependency counselors.

Adequately Trained Professionals

Another problem that children encounter is the lack of adequately trained mental health personnel. Primary care providers might need additional training to keep pace with the changing understanding of the underlying causes of mental health and substance abuse problems, and with new pharmacologic therapies. As the demographics of our state changes, health professionals within the public and private health care systems might need additional training to ensure cultural competence.

Lack of coordination

Lack of coordination: Ideally, children should obtain coordinated services from all health care professionals. However, coordination problems arise when multiple agencies or providers are involved in the delivery of services to that child and family. Fragmentation can exist, for example, when both a DSS and an area program are treating a child who is part of the child protective services system. Similarly, partnerships between school systems and area programs have their problems. School-based health centers may provide space for mental health professionals from area programs. However, these partnerships are hampered by complex paperwork, lack of reimbursement for mental health services provided to non-Medicaid eligible children, and rigid job descriptions that fit poorly with the school environment.[49] Another problem is created when the child is required to seek approval from a gatekeeper before accessing mental health or substance abuse treatment. The underlying challenge is that there is no systemic way for different providers to identify children with mental health or substance abuse needs and refer them to appropriate providers.

To make appropriate referrals, primary care providers and school personnel should have a thorough understanding of all available mental health and substance abuse services in the community (both public and private). Once a child is referred to another health professional, there should be ongoing dialogue between the providers to ensure that the child receives coordinated care. However, too often the system does not work like it should.[50] Some primary care providers or school personnel lack information about mental health or substance abuse resources in the community. There are inadequate procedures for communication among various providers. In some instances, this might lead to a situation where one provider is unaware of the medications or treatment plan prescribed by another professional. The MHDDSAS has recently taken steps to address this gap by requesting that each area program identify a liaison with pediatricians in the community, an effort that resulted from dialogue between MHDDSAS and the North Carolina Pediatric Society.

Transitional coordination problems: Fragmentation also occurs when a child ages out of one program and into another. The early childhood program for infants and toddlers serves young children (birth through age two) who have or are at risk of developmental delay or atypical emotional development. The area programs serve as the lead agency for this program. However, once the child turns age three, he or she is required to transition to the preschool program administered by LEAs. The preschool program has different eligibility requirements—for example, they do not serve children who are at risk of developing a disability. The state eligibility rules and state interpretations cause some children to lose eligibility. Further, transitional problems occur because of the different agencies administering the programs.

Other programs for children with mental health or substance abuse needs abruptly end when a child reaches a certain age. For example, Child Services Coordination is only required for eligible infants and toddlers, and available for children between ages three through five. There are few other publicly-funded resources that can provide the necessary care coordination to the child and family once the child turns age six. Similarly, Medicaid only pays for services for children up to age 21, and Health Choice only covers children through age 18. Although a child's mental health or substance abuse needs might continue, their publicly financed health insurance usually ends once they age-out of these programs—making it difficult to pay for needed services.

Inadequate supervision of mental health system

The Charlotte Observer recently published a series of articles about the state's mental health system. The reporters found there are training requirements for the state-run psychiatric hospitals, as well as nursing homes and adult care homes. However, there are no specific training requirements for the staff in private psychiatric hospitals. In addition, the state has minimal requirements for those operating group homes for people with mental illnesses or developmental disabilities.[51] According to the Observer series, state and federal investigations have cited dozens of mental health facilities for failing to provide additional training for employees, including how to restrain violent patients, administer medications, conduct suicide searches, investigate reports of abuse, or teach basic living skills to patients.

Financing

Problems with Medicaid funding: Medicaid is the primary payer for mental health and substance abuse services for many children of low-income families. With certain limited exceptions, Medicaid is required to pay for health services for children who have a specific health problem. However, the Medicaid reimbursement policies limit access to mental health providers. For example, Medicaid will pay for the services of a certified clinical social worker (CCSW) employed by an area program, but not for a CCSW employed by the school system. A clinical psychologist (PhD) can bill Medicaid only if employed by an area program. A psychologist with a master's or doctorate who practices independently cannot bill Medicaid directly, but Medicaid can be billed if the psychologist is employed and supervised by a physician. A psychologist can also bill if working for the same legal entity with a physician (such as an area program or other health care agency) and the physician provides supervision. Medicaid does not pay for medical patient conferences or telephone calls, which are particularly important in caring for children with special health needs, such as those with mental health problems.

The reimbursement rate is particularly low for providers who need to spend a lot of time in evaluating a child with complex health needs. The North Carolina Pediatric Society

illustrated this problem with an example of a pediatrician's care for a child with ADHD. A physician who spends 120 minutes evaluating this child, developing a treatment plan, coordinating treatment, writing reports, and following up by telephone would receive $114.21 reimbursement from NC Medicaid (compared with $128 or $148.50 by different private plans). The low reimbursement rates discourage physicians in private practice from treating children with more complex conditions, leading to overtaxing of an already overburdened public system.

Medicaid financing mechanisms create other problems for area programs. Typically, federal, state, and county government split the costs of Medicaid-covered services. The federal government pays approximately 63% of service costs, and the state and county split the remaining 37% (approximately 31% state, 6% county). However, services provided by area programs are financed differently. Instead of having the state and county split the non-federal share of services provided by area programs, the state MHDDSAS and the area programs are required to pay the 37% non-federal share. In addition, in SFY 1999 the state changed the cost-finding process, which is how it sets its Medicaid reimbursement rate for area programs. The changed methodology had the effect of lowering the Medicaid reimbursement rate for many of the services offered through area programs—in effect, limiting revenues to area programs. The net effect of both of these provisions is to limit the funds available for area programs.

Private financing: Although national data suggest that most privately insured workers have access to some mental health coverage, the national data also show that the coverage for mental health benefits is not as comprehensive as for coverage of other health care services. In 1995, for example, among insured full-time workers in large private firms, only 18% of persons with mental health coverage had benefits for inpatient care that were as comprehensive as the coverage offered for physical problems.[52] For outpatient mental health services, only 2% had coverage that was equivalent to physician visits. Typically, the health plans imposed more restrictive day or visit limits or dollar limits in their mental health coverage than they imposed for other services.[53]

A study conducted by the NC•IOM that examined the services covered and excluded under the most commonly purchased HMO plans in North Carolina revealed similar results.[54] Of the 13 primary HMOs in the state, almost all limited inpatient mental health coverage to 30 days or less. Outpatient mental health visits were typically limited to 20 visits per calendar year, although some additional days may be covered by substituting one day of inpatient coverage for additional outpatient visits. In addition, some insurers limit coverage of residential and other alternative services. Therefore, some privately insured children who need these services might be unable to obtain them. Publicly funded programs can offer limited coverage to privately insured patients, but most of their services are targeted to lower income children on Medicaid or NC Health Choice. Coverage for substance abuse services was even more limited. In North Carolina, such coverage is typically limited to $8,000 per year, with a $16,000 lifetime maximum.

Other barriers

Confidentiality: For many children seeking mental health or substance abuse services, confidentiality is an issue. Without the assurance that information provided by the child will not be shared with parents or others, children may refuse to seek treatment. This concern is particularly problematic in the school setting, as students may refuse to obtain care if they think the information will be shared with their parents or the school administrators. Current laws allow children to seek confidential mental health treatment. Greater protections are afforded to children seeking treatment of alcohol or substance abuse through federal laws.[55] However, these protections are not always known to the children needing care.

Data collection: Another problem in designing a system to meet the mental health and substance abuse needs of children is the lack of comprehensive data about the health status of children. There is no standardized screening instrument used by primary care physicians, school systems, day care, or other child care settings for risk assessment. For example, with older children, the state lacks any mechanism to identify children at-risk of delinquent behaviors. Further, a segment of the child population is left out of any existing screening mechanisms, namely those being home schooled. It is also hard to track children as they move from county to county, or if they receive services from more than one public agency. The state collects data on the number of children served by the agency, but not always on the number of children turned away or made to wait before receiving services.

RECOMMENDATIONS

In developing the Task Force's recommendations, the members were mindful of prior work and recommendations in this area. The most recent and comprehensive look at child mental health services was completed by the North Carolina Child Futures Committee. The Committee issued a report in 1999 that delineated a set of principles regarding system design, funding, and necessary services to support a comprehensive system of care for the youth of North Carolina. These principles helped guide the recommendations of the Task Force.[56]

There are numerous ways to have an impact on the mental health and substance abuse needs of children and adolescents in North Carolina. Some of the recommendations focus on improving the publicly funded system of care; others focus on expanding services by private providers; and others focus on the interplay between the public and private system. Because the nature of a child's mental health or substance abuse problems changes with age, specific policy recommendations have been grouped around different age populations.

Publicly-funded programs for young children

1. ***Expand early identification, referral, and treatment of children ages birth-through-five years needing mental health and substance abuse services. Services should be provided to both the children and their families.***

Although early intervention services for infants and toddlers are available and required in all 100 counties, the statewide penetration of services to this age population is well below expectations. North Carolina has been providing home and center-based early intervention services to young children and their families for more than 25 years. However, while North Carolina has the 10th largest population, it ranks 27th for the number of young children served by early intervention, and 19th in the country for children ages three-to-five.[57] The penetration rate for finding and serving birth-through-two-year olds should be 8-13%, but currently the state only serves 2.1% of children in this age group. Similarly for three- through five-year-olds, the expected penetration rate should be 5-8%, but North Carolina only serves 5.24%. In a study of unmet needs in the infant-toddler program, families reported a number of unmet needs. For example, 43% of families report an unmet need in the area of family counseling and therapy, 38% reported lack of parent support, 37% reported lack of respite care, 33% noted lack of child care, 27% reported lack of transportation, and 23% reported that their financial assistance needs were unmet.[58]

These programs lack universal screening tools needed to identify children with mental health problems or those impacted by parental substance abuse problems. In addition, more concerted efforts are needed to identify children in need of these services through hospitals, community well-child visits, child service coordination, DSS, day care, and preschool settings. The state should increase the penetration rate among eligible children by a minimum of 1% annually.

2. ***Expand intensive home visiting services statewide.***

Intensive home visiting programs are available in only 24 counties, with seven additional counties in the planning stage. The state should expand the home visitation program statewide. Past evaluations of similar programs showed that the program helps to reduce the rates of childhood injuries, helps mothers defer subsequent pregnancies and move into the workforce, reduces the incidence of abuse or neglect, and subsequently improves parent-child relationships and parenting skills.

3. ***Enhance child service coordination for children birth-through-five-years of age, and for their families.***

The infant-toddler program and preschool program provide early intervention services for children with special health needs , and for their families. While services for children birth-through-age two can be facilitated by Child Service Coordination (CSC), responding to the mental health needs of children ages three-through-five has been difficult. At the present time, there are no reporting requirements or mechanisms for children experiencing difficulties. Many of these three-through-five-year-old children are removed from multiple day care settings without ever being referred for evaluation or intervention services. Physicians are often hesitant to refer children who might have potential problems. Expansion of CSC as a required service for three-through five-year-olds and enhancement of CSC for infants and toddlers would serve to facilitate communication among service providers and systems with the family and child caregivers.

4. ***Have available specialized treatment services for pre-school youth in all areas of the state.***

Another problem is the lack of specialized treatment services for preschool children. Mental health services for this age group are often not available. Many of the therapeutic preschools offering (day treatment) once federally funded and supported in part by state and local funds are no longer in existence. The capacity and volume of available services is far below the need. There is a lack of trained early intervention professionals who can intervene and provide consultation to child caregivers and parents. This lack of capacity creates a barrier for people wanting to refer children and their families for help. Project Enlightenment, a Wake County program that is funded by the schools and the local mental health programs to provide center-based, in-home, and parent intervention, serves as an example of the type of services needed in every community.

5. ***Recommend mental health and substance abuse prevention/intervention services be part of all early childhood programs.***

Many early childhood programs offer mental health services for young children and their families. Sometimes this is within the context of providing counseling or parenting services to families at risk of child abuse or neglect, other times the grants are in the context of working with children with special health needs (including mental health). However, not all early childhood programs address children's mental health or substance abuse needs. Early childhood programs should examine the mental health and substance abuse needs of young children within their planning efforts.

6. ***Expand expertise in Intensive Family Preservation and other family-based service programs to include specialists able to work with pre-school aged children.***

Children served in these programs often experience complex multiple needs. Thirty-one percent of children served by the IFPS are under the age of six.[59] Because almost a third of the children served in the IFPS program are young children, staff need appropriate expertise to work with these children and their families. (See recommendation 10 below).

7. ***Look at development of emergency and planned respite care for parents who are fragile or at risk of abuse/neglect, and develop parenting education so that it is consistent and accessible to all families.***

One of the most critical services that families request is respite care, both planned and emergency respite, to promote family stability and prevent out-of-home placements. Families report that respite services facilitate their ability to face new challenges in preventing out-of-home placements and obtaining community-based services to address the changing developmental and disability-related needs of adolescents.

In the arena of families with children with special needs, the most requested service is respite care, either planned or emergency. All families need a break from the caretaking and caregiving tasks, especially those with children who are more difficult to care for because of complicated medical and behavioral intervention needs. Respite care is an assumed entitlement for those with typically developing children. Often families, including foster families, lose sleep at night in their effort to maintain safe care of overactive or assaultive and violent children. Finding care providers who are trained and able to provide safe and appropriate therapeutic care for such children is difficult, especially if families do not have sufficient financial resources. Building and maintaining resilience in both the caregivers/caretakers and in the children with serious emotional disturbance is the key to successful intervention with children who are violent and assaultive, and with their families. In the infant-toddler program, respite care is a required service. In the IFPS program, respite care is a core service. After reviewing child fatalities over the past three years, the North Carolina State Child Fatality Task Force identified a lack of safe emergency or planned child care as a contributing factor to a number of children's deaths, especially for children under the age of six.

Nationally and in North Carolina, there are many successful program models being implemented. Costs range from $10/day/child to $90/day/child. A means of reimbursement sufficient to cover the costs of providing respite care is needed. In addition, the MHDDSAS has implemented a federal initiative to establish and maintain a National Resource Center for Respite and Crisis Care Services. Part of the role of this Center is to collect data on cost-benefit and impact.

Publicly-funded programs and resources for school-aged children

8. ***Expand school-based support services including nurses, guidance counselors, social workers, child mental health, and child substance abuse professionals and implement a coordinated system of mental health and substance abuse services for school-aged children statewide to assure that at-risk children receive mental health and substance abuse assessment, intervention, and treatment services.***

The Great Smoky Mountain study showed that most children who receive mental health services obtain the services from school personnel—most often school counselors or psychologists. However, there are insufficient staff to meet the mental health needs of children in schools. The state should establish minimum staffing levels for school-based support personnel (e.g., nurses, guidance counselors), and should hire more staff with expertise in child mental health and substance abuse to ensure that children with emotional, behavioral, mental health, substance abuse, or other health needs are identified and provided appropriate services (or referred to appropriate community resources).

9. ***Implement a coordinated system of school-based or -linked health centers throughout the state and expand the staff to assure that all centers provide mental health and substance abuse assessment, intervention, and treatment services.***

There are currently only about 50 school-based/school-linked health centers around the state. Such centers make primary health services accessible to youth, and offer some mental health services. The number of these centers should be expanded.

In addition, the MHDDSAS has a plan to enhance the delivery of mental health and substance abuse services through the schools. The Division will allocate $4.3 million ($2 million in mental health funds, and $2.3 million in substance abuse funds) to recruit master's-level mental health professionals and qualified substance abuse professionals to area programs to work in conjunction with local school systems. Funds will be distributed based on need and responses to a competitive request for proposals (RFP) offered by the state.

10. ***Expand Intensive Family Preservation and other family-based services to every county in North Carolina, including services to youth in transition, homeless and runaway youth, and others at risk of out-of-home placement.***

Currently, the IFPS is limited to 37 counties, and the less intensive family preservation program operates in 11 counties. As noted in Chapter 8, evaluations of the IFPS showed that the program has been successful in preventing out-of-home placements with between 88 and 93% of all children over the last five years.[60] The IFPS has been found to be very cost-effective.

The potential placement costs of the 915 children served in SFY 98 who were at imminent risk of out-of-home placement was $11.8 million. However, the actual number of children placed was 92, at a cost of $1.2 million. The IFPS program successfully saved the state an estimated $10.5 million in placement costs, an 89.1% cost savings. The cost for delivery of services to children at imminent risk was $2,866 in SFY 98 and $4,682 per family. Had all 915 children been placed as originally indicated, the placement cost per child would have been a minimum of $9,538 and the families would not have received any services as part of these placements. These data and the child and family outcomes are compelling, indicating a need to maintain and expand family preservation programs statewide.

The program has improved environmental factors that affect child safety, social support systems, parenting skills, family interactions, and child well-being. In addition to the reduction in out-of-home placements, IFPS has helped to reduce the level of care needed among children who are placed outside of the home. The family preservation programs should be expanded statewide.

Family resource programs, which offer individualized family service coordination (including family counseling, intensive family services, and emergency services and support programs) operate in 29 counties. In addition, PATH programs for homeless children and their families or runaway youth are available in two counties. These programs should be expanded statewide to ensure that all children receive the benefit of these programs.

11. Develop a mechanism for early identification and referral for universal screening for mental health and substance abuse issues at regular intervals during school for all age groups.

As noted previously, the state lacks a uniform assessment instrument to screen children for mental health or substance abuse issues. The MHDDSAS should work with the DPI and other appropriate parties to identify or develop a common screening instrument for use in the public schools.

Once children are identified as needing or as at risk of needing mental health or substance abuse treatment services, the system should be streamlined to assure that appropriate referrals can be made. Teachers and other school personnel often face cumbersome paperwork or administrative protocols that thwart their efforts to refer a child with or at risk for mental health or substance abuse problems. Often trying to obtain consultation before referral is also difficult. Establishing incentives to refer and serve these children in the school setting would facilitate increased identification and referral of children for appropriate services.

12. Improve coordination through systems of care for children with or at risk for mental health or substance abuse problems.

Currently, families who need services must negotiate through a complex and fragmented care delivery system. Families don't know where to obtain services and the services provided by multiple agencies or providers are not often coordinated. For the children with the most serious emotional disturbances, this leads to overuse of restrictive and costly residential care and out-of-home placements. However, in some communities, a new model of care is emerging—one that is coordinated and involves children and their families, local medical providers, human service and juvenile justice agencies, schools, and other community resources, and includes partnerships with medical centers and universities. Such a model can have an impact on the outcomes of those children who are assaultive and violent, sexually aggressive, or are in other special populations. However, the model can be used for children with the full range of mental health or substance abuse problems. This "System of Care" model should be expanded statewide.

In developing these systems of care, local communities must assure: full family participation at all levels; child and family teams that assess psychosocial risk and protective factors; use of culturally competent, community-based services; and local ownership and governance. These systems of care involve coordination between mental health programs and community primary care providers, as well as ties with medical centers and universities. Other key components of the systems of care model include the use of universal screening tools, evidence-based practice (e.g., evaluating what works and incorporating best practices), and the creation of blended funding plans that combine resources from all public child-serving agencies and gives agencies more flexibility in designing treatment plans that best meet the needs of the child and family.

Recommended programming and resources for older adolescents

In addition to the recommendations outlined above for school-aged youth, which would also apply to older adolescent youth, the following would be developed to enhance resources and service coordination for the 15–18 years age group.

13. Expand capacity for residential substance abuse treatment services and the local follow-up capacity.

The state currently lacks the capacity to provide residential substance abuse treatment services to all children in need. To meet the need, the state would need to fund at least two programs in each region (for a total of four residential treatment programs in each of the four regions of the state). Residential treatment programs focus on re-engaging children in an educational environment and on keeping children out of the juvenile justice system.

While the residential treatment programs provide useful services to children in their care, there is a lack of coordination with community services once the child leaves the residential environment. Follow-up is needed to ensure that children continue to receive substance abuse services on an outpatient basis.

14. Develop therapeutic step-down programs for youth with mental health and substance abuse issues, building on independent living skills training and transitioning to adult living.

The state currently lacks the capacity to provide transitional skills and services for children who leave residential mental health or substance abuse treatment centers but choose to live independently (rather than with family).

15. Expand substance abuse efforts with at-risk children and youth.

The state currently offers programs to children who are *diagnosed* with substance abuse problems, but offers little to children who are at risk. Children of parents with substance abuse problems, those who drop out of school, become pregnant while a teenager, or those who are adjudicated as delinquents are more likely to become substance abusers at some time in their lives. The state has little capacity to work with children who are at risk of substance abuse. The state should design a system to provide preventive services to at-risk children. The goal of this system would be to reduce risk factors (for example, teach children of alcoholic parents how to cope with the alcoholism), and to increase their own personal resiliency.

Recommended Policy, Organizational and Funding Strategies

16. Develop and implement a consistent Medicaid policy aimed at the expansion of mental health and substance abuse services for children. This policy review should focus on such issues as service definitions, levels of care, payment rates, consumer choice, a review of local penetration rates, and the implementation of a consistent service model across the state.

Current state Medicaid policy limits choice of mental health providers (favoring staff in area programs to the exclusion of similarly qualified staff in private practice). In addition, Medicaid's cost-finding process, which establishes reimbursement rates, has created financial crises for some of the area programs, thus limiting their ability to provide services to other non-insured or inadequately insured children. The Division of Medical Assistance with the MHDDSAS should review their policies to expand mental health and substance abuse services for children.

17. Expand the capacity of those agencies responsible for licensing and monitoring mental health and substance abuse facilities, and delineate the responsibility and expand the supervisory function of those entities that oversee consumer rights and fatality review in all mental health and substance abuse facilities serving youth in the state.

As *The Charlotte Observer* series showed, the state lacks a meaningful mechanism to oversee the care provided in mental health or substance abuse facilities. The state must develop monitoring mechanisms to ensure that children are receiving high-quality services, and that staff receive appropriate training.

18. Require private insurers to cover mental health and substance abuse services in parity with other medical services.

The state should mandate that private insurers cover mental health and substance abuse services in parity with coverage of other medical services. As noted previously, most insurers provide less extensive coverage of mental health or substance abuse services than for other medical services. The rationale given for this difference in coverage is that comprehensive mental health and substance abuse coverage would be cost-prohibitive. Yet, facts provided by the State Employees Health Plan do not substantiate this assumption.[61]

The state began covering mental health services in parity with other medical services in SFY 92 (for three months). Before the state provided mental health in parity with other medical services, the cost per active member for mental health services was $5.93 per member per month. In SFY 1993, the first full year of mental health parity, the cost per member per month was $5.21 with case management. These costs have actually decreased over the years, despite mental health parity. In SFY 99, the cost of mental health and substance abuse services for active members was $4.89 per member per month.

The state does not have as much experience with substance abuse parity. The State Employees Health Plan began covering substance abuse services in parity with medical services in October 1997 (SFY 1998). In SFY 1997, before substance abuse parity, there were 3.1 days/1000 for inpatient alcohol services, and 2.6 days/1000 for inpatient drug abuse treatment services. The inpatient days/1000 increased in state fiscal year 1998 to 3.6 and 3.0, respectively. (The state offered substance abuse services in parity for nine months in SFY 1998). One possible explanation for this increase is that people who have both mental health and substance abuse problems were in the past being classified as having a primary mental health diagnosis, so as to continue to receive coverage for those services. Once substance abuse services were offered in parity with other health services, these individuals could be reclassified as having a primary substance abuse diagnosis. There is some evidence for this from the mental health data, which showed an unexpectedly large decrease in inpatient days/1000 in SFY 1998—the same time for the increase in alcohol and drug abuse inpatient

days/1000. Since this "correction" in SFY 1998, the state has experienced a decline in inpatient admissions/1000 as well as days/1000 for both alcohol and drug abuse services. Given the state's experience with parity, there seems to be little reason to believe that mental health and substance abuse parity within the private insurance market will lead to increased costs, if these services are subject to some form of case management.

19. Expand NC Health Choice and/or Medicaid to cover more uninsured children.

There are currently approximately 64,000 uninsured children in North Carolina with family incomes between 200-300% of the Federal Poverty Guidelines, and 119,000 children with incomes less than 200% of the federal poverty guidelines. The state should continue its outreach efforts and should expand NC Health Choice and/or Medicaid to cover more of these children with health insurance. Providing insurance coverage to these children would also provide insurance to meet their mental health or substance abuse problems.

20. Expand state and county funding to ensure a continuum of mental health and substance abuse services are available for each child in need and that the services are community- or region-based.

A critical array of services should be available to address the full range of needs of children and their families. The services should be provided in response to comprehensive assessments that measure the child and family's needs and changes in functioning over time. Further, services should be, to the greatest extent possible, community-based, so as to provide the least disruption to the child's support base within the family, friends, school, and neighborhood.

21. Make a concerted effort in North Carolina to establish core services and service targets for basic mental health and substance abuse treatment in each county and/or region.

There is wide variation in services available to meet the mental health or substance abuse needs of children in North Carolina. North Carolina should develop service targets to ensure that children can access needed mental health or substance abuse services in the public or private system. These targets should include: outpatient services, day treatment, therapeutic foster care, family support services, such as respite, early childhood intervention, residential treatment beds, inpatient beds for acute crisis for both children and adolescents, respite beds, and 24-hour emergency assessment services.

22. Develop a central registry system listing public and private mental health and substance abuse treatment resources available with easy access to consumers and professionals and regular updating of capacity, admission requirements, waiting lists, etc.

It is often difficult for school personnel and other individuals who work with troubled youth to know where to refer children in need of mental health or substance abuse services. Establishing a central registry that lists public and private mental health and substance abuse treatment resources in each county would facilitate appropriate referrals.

23. Consider improved blended funding to finance treatment for youth involved in multiple systems (e.g., Social Services, Juvenile Justice, etc.).

A key component of the systems of care model is the ability to blend existing funds from all public child-serving agencies to best meet the needs of children and their families. There are two primary ways in which the state could help to provide increased flexibility in funds—either by providing additional non-categorical block grant funds to local communities (e.g., to fill in the gaps), or to "decategorize" existing categorical funds.[62] The former approach might cost more money; the latter approach might require a waiver or approval from the federal government. The state should consider different strategies to increase the flexibility of existing funds to better meet the needs of children and their families.

24. Consider expanding IV-E waiver to provide a continuum of services for youth at risk of foster care and out-of-home placement statewide.

The state Division of Social Services obtained a federal waiver to increase funding flexibility for traditional foster care services (IV-E), in order to offer more preventive and targeted individual services that promote reunification, respite, family preservation services, and pre- and post-adoptive support. There are currently 16 counties operating under this waiver. These counties can determine locally how to use their funds to serve eligible children.

Counties that have implemented the IV-E waiver have increased their ability to provide family support; use of the waiver promotes family stability for children at-risk of out-of-home placement. Preventive as well as step-down services are made available to adoptive, foster, and kinship families who might not have received such support without program funding flexibility. This flexibility offers opportunities to collaborate with other agencies in community, strengthening work between area programs, DSSs and juvenile justice.

25. Expand partnering with university and college systems for specialized training needs of mental health and substance abuse providers.

The existing systems of care projects have involved partnerships with universities and medical centers (Public-Academic Liaisons). The state should expand these partnerships with the universities and colleges in order to provide more technical assistance to local communities, involve the universities and colleges in training, to ensure that university and college curricula include concepts of systems of care approaches and newer treatment methods; and to help in the evaluation of the local programs to ensure continuous quality improvement.

26. Establish minimum levels (ratios) of community support personnel to children, as well as levels of staffing.

There are currently no staffing or caseload standards used in area programs. Caseload size is enormous, and varies across counties and from program-to-program. The Division of Social Services has tried to address this issue for Child Protective Services by setting recommended caseload standards and offering some funds to counties to hire additional workers. However, the state has not established similar caseload standards for mental health professionals providing case management or other community-based non-residential services. This lack of meaningful staffing guidelines has led to overworked staff, an inability to take the time needed for training or supervision, and high turnover rates. The state should establish maximum caseload standards, and should provide some additional funding to enable area programs to hire and retain qualified staff.

[1] For purposes of definition, children and adolescents with serious mental health problems or emotional disturbance are persons from birth to age 18 who have currently or at any time during the past year have had a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet criteria specified within the DSM-IV that has resulted in functional impairment, which subsequently interferes with or limits the child's role or functioning in family, school, or community activities.

[2] Children and adolescents with maladaptive patterns of substance use are those persons under the age of 18 who meet criteria for substance abuse or substance dependence as outlined in the DSM-IV and show significant impairment and difficulties in role-functioning in areas of home, school, work, community, legal, social relationships, and emotional well-being.

[3] Children with serious emotional disturbances are defined as "persons from birth up to age 18, who currently or at any time during the past year have had a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified with DSM-III-R, that resulted in functional impairment which substantially interferes with or limits the child's role or functioning in family, school, or community." 58 Fed.Reg.29422-29425 (1993). Cited in Mental Health Services for Children and Families. Report of the Futures Committee. April 1999 at p. 7.

[4] 63 Fed. Reg. 38661-38665 (July 17, 1998).

[5]Duke University Medical Center conducted a national epidemiological study, called the Great Smoky Mountain Study, to determine the prevalence of children with serious emotional disturbance. The study, which included a population of children in western North Carolina, determined that 5% of children have severe emotional disorders. This study defines these children as having a psychiatric diagnosis that impairs one's ability to develop and function normally at home, at school, or in relations with others. In addition to the 5% of children with the most severe emotional needs, the study identified another 25% of children with a moderately severe, though distressing, disorder that might require mental intervention. These children are at risk for serious emotional disturbance and might require publicly funded services at some time.

[6] Behar L. A Multi-State Comparison of Expenditures for Children with Mental Health Disorders Receiving Services through Public Agencies. Child and Family Services, Division of Mental Health, Developmental Disabilities and Substance Abuse Services. Dec. 1999.

[7] Report to the Legislative Study Commission, Child and Family Services. Division of Mental Health, Developmental Disabilities and Substance Abuse Services.

[8] Costello EJ, Angold A, Burns BJ, Behar L. Improving Mental Health Services for Children in North Carolina: Agenda for Action. p. 7.

[9] NC Department of Health and Human Services, Division of Mental Health, Developmental Disabilities and Substance Abuse Services. Substance Use and Need for Substance Abuse Services in North Carolina's High School Population: 1995. December 1997. This definition is similar to one commonly used in studies on alcohol use, such as that used in the National Household Survey on Drug Abuse for those aged 12 or older, which defines "heavy use" as having five or more drinks on a weekly basis, and the Monitoring the Future Study of Secondary School Students, which defines it as having five or more drinks in the past two weeks. Defining "heavy alcohol use" as use on three or more days in the past month is a fairly stringent definition that will capture only the youth who are using at the highest rates. Ideally, a lower threshold would have been used for females because typically they have a lower body weight than males.

[10] Governor's Commission on Juvenile Crime and Justice. Final Report. March 10, 1998.

[11] Public Schools of North Carolina, Department of Public Instruction. Youth Risk Behavior Survey: Middle School 1997 Survey Results. March 1997.

[12] Public Schools of North Carolina, Department of Public Instruction. Youth Risk Behavior Survey: High School 1997 Survey Results. March 1997.

[13] Buescher PA, Martin BA, Foss RD. Health Consequences of Underage Alcohol Use in North Carolina. State Center for Health Statistics. No. 111, September 1998.

[14] Public Schools of North Carolina, Department of Public Instruction. Youth Risk Behavior Survey: High School 1997 Survey Results. March 1997.
[15] Public Schools of North Carolina, Department of Public Instruction. Youth Risk Behavior Survey: High School 1997 Survey Results. March 1997.
[16] NC Department of Health and Human Services, Division of Mental Health, Developmental Disabilities and Substance Abuse Services. Substance Use and Need for Substance Abuse Services in North Carolina's High School Population: 1995. December 1997.
[17] SAMHSA. The Relationship between Mental Health and Substance Abuse among Adolescents. Accessed February 24, 2000 from Internet: www.samhsa.gov/OAS.NHSDA/A-9/comorb3c.htm.
[18] Hechtman L, Weissman G, Perlman T. Hyperactives as young adults: Past and current substance abuse and antisocial behavior. American Journal of Orthopsychiatry, 1984;54:415-425; Jones MC. Personality correlates and antecedents of drinking patterns in adult males. Journal of Consulting and Clinical Psychology. 1968;32:2-12, Cadoret RJ, Troughton E, O'Gorman TW, Heywood E. An adoption study of genetic and environmental factors in drug abuse. Archives of General Psychiatry. 1986;43:1131-1136; Sussman SS, Dent, CW, Stacy AW, Burciaga C et. al. Peer-group association and adolescent tobaccos use. Journal of Abnormal Psychology; 1990;99:349-352; Shedler J, Block J. Adolescent drug use and psychological health: A longitudinal inquiry. American Psychologist. 1990;45:612-630. Cited in SAMHSA. The Relationship between Mental Health and Substance Abuse among Adolescents. Us Department of Health and Human Services. April 1999. Internet: www.samhsa.gov/OAS/NHSDA/A-9/comorb3c.htm.
[19] Costello EJ, Angold A, Burns BJ, Behar L. Improving Mental Health Services for Children in North Carolina: Agenda for Action.
[20] Division of Mental Health, Developmental Disabilities and Substance Abuse Services. Child Mental Health Block Grant Plan. October 1999.
[21] Division of Mental Health, Developmental Disabilities and Substance Abuse Services, NC Department of Health and Human Services. North Carolina Area Programs Annual Statistical Report: Fiscal Year 1999.
[22] Behar L, Stein F. A Proposal to Expand Mental Health and Substance Abuse Services in Schools. Division of Mental Health, Developmental Disabilities and Substance Abuse Services, February 2000.
[23] Costello EJ, Angold A, Burns BJ, Behar L. Improving Mental Health Services for Children in North Carolina: Agenda for Action.
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[25] Silberman P. Programs Serving Young Children and Their Families. NC Institute of Medicine. Chapel Hill, NC. 1999.
[26] Federal law would permit North Carolina to serve "at-risk" children in the 3-5 year age range, but North Carolina has not chosen to do so.
[27] Sampling of early intervention programs statewide completed by Division of Mental Health, Developmental Disabilities and Substance Abuse Services, Nov. 1999.
[28] NC Partnership for Children. FY 1998-99 Activities – Incomplete, Update in Progress. June 8, 1999.
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[30] Child and Family Services Section. Mental Health, Developmental Disabilities and Substance Abuse Services to Children in Custody of Social Services, July 1, 1997-June 30, 1998. Department of Health and Human Services.
[31] Division of Mental Health, Developmental Disabilities and Substance Abuse Services. Comprehensive Guide to the Willie M Program. Spring 1999.
[32] Division of Mental Health, Developmental Disabilities and Substance Abuse Services. Comprehensive Guide to the Willie M Program. Spring 1999.
[33] Division of Mental Health, Developmental Disabilities and Substance Abuse Services. Child Mental Health Block Grant Plan. October 1999.

[34] North Carolina Pediatric Society Position Paper. Mental Health Care Access and Reimbursement. February 20, 2000.
[35] Personal communication with June Milby, Division of Medical Assistance, NC Department of Health and Human Services, March 8, 2000.
[36] 10 NCAC 26B.011 (effective January 1, 1999).
[37] Wilson T. Mental Helath Coverage Widened. The News and Observer. March 9, 2000.
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[43] Division of Mental Health, Developmental Disabilities and Substance Abuse Services, Child and Family Services Section. A Report of Children with Serious Mental Health Problems and Waiting for Treatment. May 1999.
[44] Report to the Legislative Study Commission, Child and Family Services. Division of Mental Health, Developmental Disabilities and Substance Abuse Services.
[45] NC Public Schools: Statistical Profile. 1999. Table 18: State Summary of Public School Full-Time Personnel, 1998-99.
[46] Public Schools of North Carolina. School Social Work in North Carolina: Survey of Practitioners for 1997-98 school year. 1999. A precise number of school social workers could not be determined at the time of the survey because of the varied use of the position title. School social workers function under a broad range of titles that include, but are not limited to: Home School Coordinators, Dropout Prevention Advisor, Attendance/School Social Workers, Family School Specialists, Student Advocacy Counselors, and Case Managers.
[47] Behar L, Stein F. A Proposal to Expand Mental Health and Substance Abuse Services in Schools. Division of Mental Health, Developmental Disabilities and Substance Abuse Services, February 2000.
[48] Data are provided by the respective licensing boards effective October 1998. Numbers include those who are active in the profession and those with unknown activity status; inactive are excluded. Total physicians include active, non resident-in-training, non-federal physicians, both MDs and DOs. Federal physicians are those in the armed services, US Public Health Service, Indian Health Service, and the Veterans Administration. All data are compiled by the NC Health Professions Data System, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill.
[49] North Carolina Pediatric Society Position Paper. Mental Health Care Access and Reimbursement. February 20, 2000.
[50] North Carolina Pediatric Society Position Paper. Mental Health Care Access and Reimbursement. February 20, 2000.
[51] Cenziper D. Private Care Standards Not As Strict. *The Charlotte Observer.* January 23, 2000.
[52] Jensen GA, Rost K, Burton RPD, Bulycheva M. Mental Health Insurance in the 1990s: Are Employers Offering Less to More? Health Affairs. May/June 1998;17(3):201-208.
[53] This study was conducted before the implementation of the Mental Health Parity Act (1996), which mandated that if employers provide mental health coverage, they could not offer more restrictive annual or lifetime limits for mental health coverage than provided for other services.
[54] Silberman P. Consumer Guide for Health Plan Selection. Comparison of Mental Health Inpatient and Mental Health Outpatient Services. NC Institute of Medicine.
[55] 42 USC §290dd-3; 290ee-3, 42 CFR §2.1 et. seq.

[56] The Report of the Futures Committee developed the following principles to guide the development of a comprehensive child mental health system:

- There must be a consistent, common set of core services available to consumers statewide.
- Standards of nationally recognized practice must be used in service delivery.
- There must be adequate resources (staff, programs, and funds) to provide needed services.
- Excess capacity within the systems should be appropriately reconfigured before new delivery systems are developed.
- Child and family needs should drive services, not dollars or politics. Dollars should be flexible to fund services across the continuum, and funding should be flexible across agencies. Treatment should be tailored to the needs of each child.
- The system of care must provide services in the least restrictive and most appropriate setting, with emphasis placed on development of community services.
- There should be one cross-agency plan for a child, and treatment and support dollars should follow the child.
- Cross-agency and cross-provider issues should be resolved.
- The state psychiatric hospitals and regional treatment facilities have a critical and needed role in providing services to youth and should be an integral part of the system of care.
- Services for children should expand as the population of the state grows.
- Accountability measures within the system should assure children/families and policymakers that the system is meeting the needs of the child.

[57] Annual Report of Part C Implementation in North Carolina to the Federal Interagency Coordinating Council, Division of MH/DD/SAS and NC Interagency Coordinating Council, FFY 1998.

[58] Early Intervention in North Carolina: Annual Report to the Governor on Services to Children With or At Risk for Disabilities Birth to Age Five and Their Families in the State of North Carolina, NC Interagency Coordinating Council, 1998.

[59] Intensive Family Preservation Program 1998 Annual Report. Division of Social Services, NC Department of Health and Human Services. January 1999.

[60] Division of Social Services. NC Department of Health and Human Services. Intensive Family Preservation Services. 1998 Annual Report. Presented to the Governor and the Joint Legislative Commission on Governmental Operations. Jan. 22, 1999.

[61] Personal conversation with Jack Walker, Executive Administrator, State Employees Health Plan. Information taken from presentation to Legislative Study Commission on March 9, 2000.

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Chapter 8

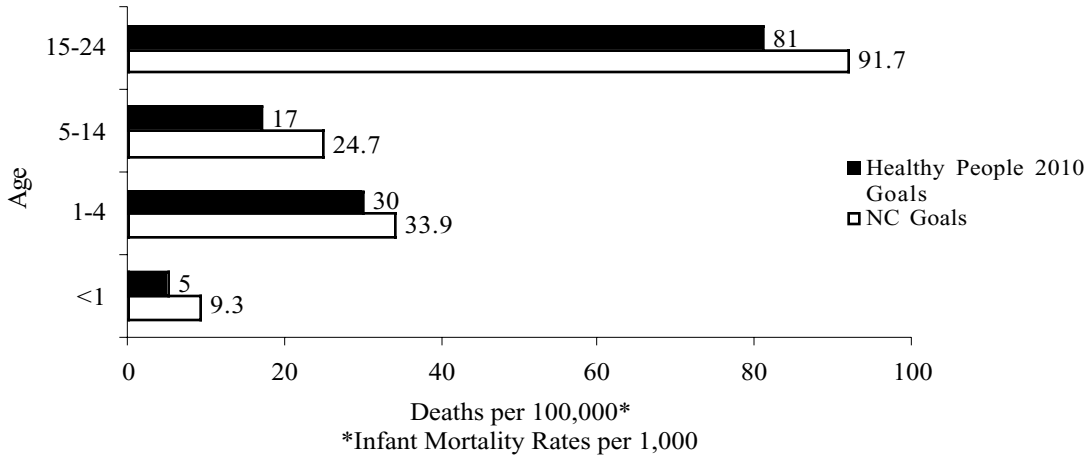
Child Injury and Fatality

STATEMENT OF THE PROBLEM

Deaths

No discussion of child well-being would be complete without examining the causes of child death and injury, especially given that, beyond infancy, the major cause of childhood morbidity and mortality is injury, intentional and unintentional. In 1998, there were 1,637 deaths of children younger than age 18 (or 89.5 children per 100,000).[1] North Carolina child death rates exceed the goals established by Healthy People 2010.

Figure 8.1: Child Death Rates Compared to National Goals (North Carolina 1998 and Healthy People 2010 Goals)

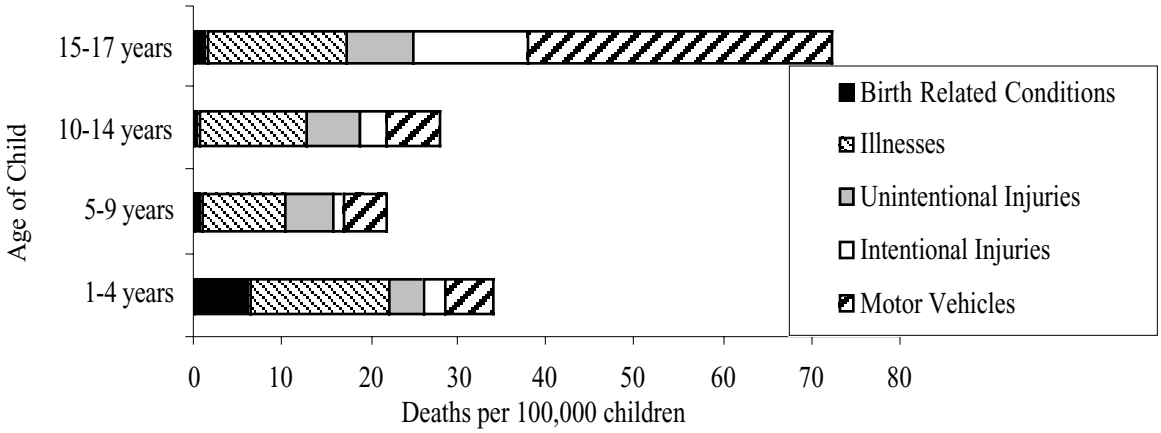


Infants: Almost two-thirds (64%) of the deaths of children under age 18 in North Carolina occur among infants. In 1998, 1,037 infants died, 19% (196) from birth defects, 54% (563) from perinatal conditions, 9% (98) from SIDS, 13% (130) from illnesses, and 5% (50) from intentional and unintentional injuries (discussed in Chapter 4).

Children: Seventy-eight NC children ages 1-18 died from intentional injuries, 297 died from unintentional injuries, and 322 children died from illnesses. Most deaths among children under age five are from birth-related conditions and illnesses. Deaths among older

children (15-17) are more likely to be caused by intentional injuries (i.e., violence) or motor vehicle crashes.

Figure 8.2: 1998 NC Child Death Rates by Age Category and Cause of Death[2]
Ages 1-17



Death by causes, birth through 17

Illnesses: In 1998, 332 children died from illness.[3] African-American children were disproportionately likely to die from illness (36% compared with 28% of the population). (See Chapter 6, acute and infectious diseases). Heart disease, cancer, diseases of the nervous system or sensory organs, respiratory system diseases, pneumonia, flu, or septicemia accounted for over two-thirds of childhood deaths from illness.

Homicides: In 1998, there were 48 deaths of children under age 18 ruled to be homicides.[4] Of these, 45.8% were classified by the Office of the Medical Examiner as abuse, and 54.2% were non-abuse homicides. A study by Herman-Giddens et al., (1999), of children under age 11 over a ten-year period (1985-1994) showed that 84.9% of child homicides in North Carolina resulted from child abuse.[5] The rate of child abuse homicides among children ages 11 and under increased from 1.5 per 100,000 person years in 1985 to 2.8 in 1994. The incidence of child abuse homicides has been greatly underreported, with approximately 60% of all deaths from abuse not recorded as such in the vital records system. Biological parents account for 63% of the perpetrators of fatal child abuse.

Suicides: In 1998, there were 30 suicides among children under age 18.[6,7] The suicide rates among adolescents and young adults has risen markedly over the last 30 years nationally[8] and in North Carolina, although the state has seen a slight reduction in suicides in the 1990s (2.5 per 100,000 in 1992 to 2.0 in 1996).[9]

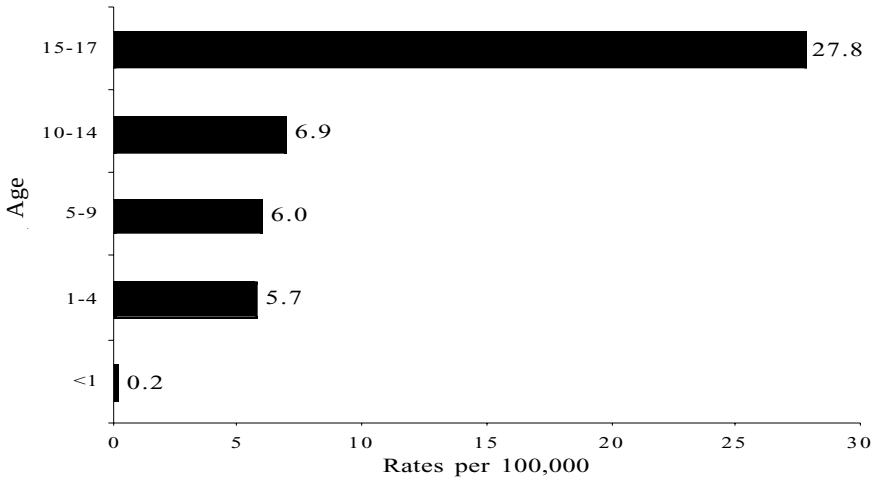
Motor vehicle deaths: In 1998, 297 children died of unintentional injuries in North Carolina, 199 of which occurred because of a motor vehicle crash (15.6 per 100,000).[10] North Carolina's motor vehicle death rate exceeds national Healthy People 2010 goals by 37% (11.4 per 100,000).[11] Boys have a greater risk of dying than do girls (19.5 males per 100,000 compared with 11.4 females). In addition, African Americans have a 5.7% increased risk of dying compared with whites (15.5 African Americans per 100,000 compared with 14.6 whites).

Table 8.1: Motor Vehicle Death Rates for Children per 100,000 (1998)

			Gender		Race	
	National	North Carolina	Males	Females	White	African American
Rates	11.4	15.6	19.5	11.4	14.6	15.5

The risk of dying from a motor vehicle crash increases considerably as the child reaches driving age. Data from the UNC-CH Highway Safety Research Center show that older children are far more likely to die than younger children. For example, per 100,000 children, 5.7 between the ages of one and four died during 1994-1998, whereas 27.8 older children between the ages of 15 and 17 died.

Figure 8.3: NC Motor Vehicle Death Rates for Children per 100,000 (1994-1998) by Age[12]



Past data have shown that 16-year-old drivers were the most likely to be involved in car crashes (25% of all crashes), with almost half of these crashes resulting in injury or death

to an occupant.[13] However, these risks might change because of recently enacted graduated driver's license requirements.

Other unintentional injury causes of child mortality: In addition to motor vehicle crashes in 1998, 55 children died from other unintentional injuries, 25 from drowning, 17 from injuries caused by fire, and 14 from bicycle injuries.[14] Ninety-six percent of the children who died from a bicycle injury were not wearing helmets.[15] Between 1994 and 1998, there were 2,916 bicyclists under age 18 who had nonfatal injuries, and 60 were killed because of a crash with a motor vehicle.[16] Thirty-five children died for other reasons (such as unintentional suffocation or poisonings, medical misadventures, shootings and falls).

Table 8.2: Causes of Child Deaths (1998)[17] Number (Rates Per 100,000) by Age

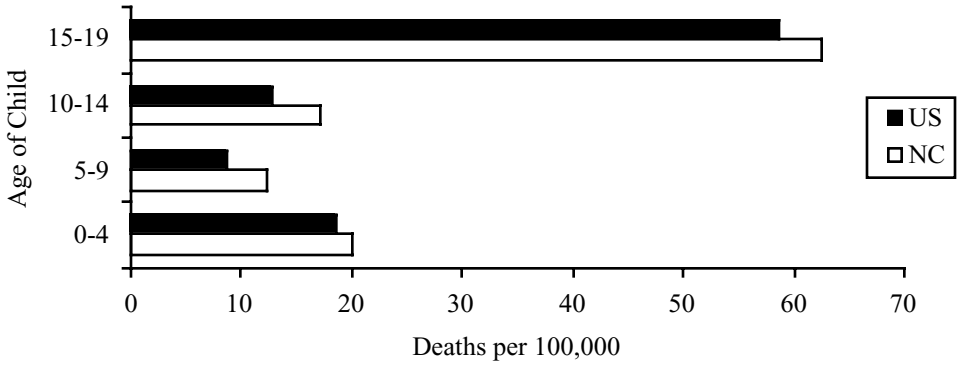
	<1	1-4	5-9	10-14	15-17	Total <18
White	510 (6.4)	88 (30.9)	67 (18.5)	99 (28.5)	137 (69.2)	
Nonwhite	527 (16.3)	51 (40.7)	49 (29.1)	40 (26.3)	69 (79.7)	
Illnesses						
Birth defects	196	19	5	3	5	228
Perinatal Conditions	563	6	0	0	0	569
SIDS	98	0	0	0	0	98
Other illnesses	130	62	47	55	38	332
Intentional Injury						
Homicides	10	10	6	3	19	48
Child maltreatment	11	10	1	0	0	22
Non-Abuse	0	0	4	3	19	26
Suicides	0	0	0	13	17	30
Unintentional Injury						
Motor vehicle	9	22	26	30	99	186
Bicycle-motor vehicle	0	0	4	9	1	14
Fire and flame	0	4	7	4	2	17
Drowning	0	4	7	8	6	25
Firearms	0	0	3	3	3	9
Other injuries	15	8	8	6	10	46
All other	16	4	3	6	6	35
Total	1037	139	116	140	206	1637

Injury death rates

North Carolina has a higher childhood death rate per 100,000 due to injuries than the United States as a whole.[18] For example, the child death rate among North Carolina children ages 0-4 is 20.04, compared with 18.59 nationally. Similarly, the death rates for children 5-9 in North Carolina is 12.24, compared with 8.75 nationally; for children 10-14 the North Carolina death rate is 17.05 compared with 12.89 nationally, and among older children (15-19), the North Carolina death rate is 62.53 compared with 58.57 nationally. North Carolina male and female children both have higher rates than national figures. Most of these

differences might be attributable to the difference in the death rate among children involved in motor vehicle crashes and other unintentional injuries.

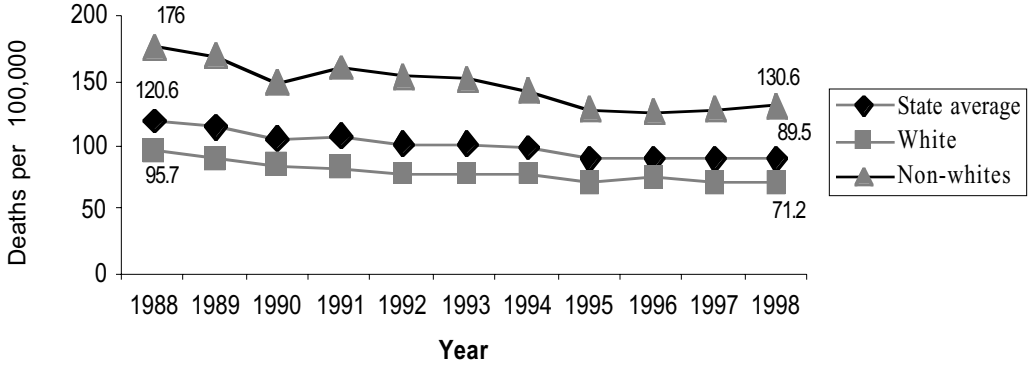
Figure 8.4: Child Deaths Due to Injuries (1997)
North Carolina and United States



Death rates by race and gender

The death rate for minority children exceeds that of white children. In 1998, the death rate for white children was 71.2 deaths per 100,000 children, whereas the death rate for minorities was 130.6 (an 83% difference). The data are not available for differences in death by ethnicity. Boys are also more likely to die than are girls: In 1998, 100.9 boys died per 100,000 compared with 77.7 girls. Nationally, data for children age 21 or younger showed that males were more than twice as likely to die from injuries than females.[19] Boys were also more likely to be involved in nonfatal injuries.

Figure 8.5: North Carolina Child Death Rates by Race (1988-1998)
Ages 0-17 Years



Recent Trends

Though North Carolina has higher child death rates from injuries than the nation as a whole, the state has made significant progress in reducing the rate of child deaths. The rate has declined from 120.6 per 100,000 in 1988 to 89.5 in 1998 (a 26% reduction).[20] Almost all of the decline in child deaths has occurred among children who are four or younger, and much of it is attributed to reductions in our infant mortality rates (26% reduction).[21]

There has also been a 17% reduction in the number of children killed in motor vehicle crashes during this same time period (1988-1998), in large part due to the increase in child safety seat and seat belt use from enactment and enforcement of mandatory child safety ("child safety seat" or "child restraint") and seat belt laws. The reported usage rate for children less than 16 years old has increased from less than 10 percent before 1982 to a current reported rate of 90 percent. At the same time, the percentage of fatal and serious injuries for these children has been cut more than half (from approximately 2.10% in 1982 to less than one percent in 1998.)[22] Unfortunately, other rates have risen, for example, deaths from child abuse.

Contributing factors

Poverty: Children who live in poverty are far more likely to be injured than other children. A national study that examined the rate of nonfatal injuries among children age 21 or younger found that the poorest children had the highest rate of nonfatal injury.[23] Those in the highest income brackets had the lowest rate of injuries. A study that examined North Carolina child death rates from 1985 to 1988 also found that the poorest children (those eligible for Aid to Families with Dependent Childrn (AFDC)) were 2.7 times more likely to die than non-AFDC-eligible children.[24] Compared with children not living in poverty, poor children were 6.9 times more likely to die from fire, 6.1 times more likely to die from poisoning, 4.7 times more likely to die from homicides, 3.1 times more likely to suffer death from unintentional injuries, 2.3 times more likely to die from drowning, and 1.4 times more likely to suffer a motor vehicle fatality. The disparity was greater for whites than minorities.

Alcohol-related deaths: Use of alcohol is also a factor in many of the childhood deaths in this state. For example, a 1995 North Carolina Medical Examiner's report indicated that among children ages 10-20, 18.2% of motor vehicle deaths, 25.2% of homicides, 10.8% of suicides, and 25% of injuries or other fatal injuries involved a child who had consumed some alcohol.[25] A 1986 study that focused exclusively on motor vehicle deaths involving children showed that 15% of these deaths involved alcohol. In two-thirds of these deaths, the driver of the vehicle in which the child was riding was the person who had been drinking (as opposed to the driver of the other vehicle).[26] In addition, a 1988-89 study that focused on fire fatalities showed that 15% of the children who died from fires during a 12-month period were in

homes where one or more of the surviving adults was judged to have been impaired by alcohol or other drugs.[27]

Use of alcohol is a particular problem for young drivers.[28] Approximately 2% of young drivers (under age 21) in 1996 had been drinking, although 12.4% of all fatal motor vehicle crashes involved a young driver who was using alcohol. In 1996, there were more than 6,000 DWI arrests of young drivers under the age of 21; 994 to children under age 18.

Firearms: A significant percentage of homicides and suicides are from firearms. Handguns are present in nearly 25% of all North Carolina homes and are often stored unlocked and loaded, making them easily accessible to children during play or to suicidal adolescents, as well as for use in criminal activity.[29] Nationally, a study in King County, Washington showed that most guns involved in self-inflicted and unintentional firearm injuries came from either the victim's home or the home of a friend or relative.[30] In 1998, 45 North Carolina children under age 18 died as a result of injuries associated with firearms. Fourteen of these individuals were victims of homicides committed with firearms; 21 children committed suicide using a firearm, eight children died from accidental firearm injuries, and two died from undetermined firearm injuries. Between 1992 and 1996, there were between nine and 19 firearm-related deaths each year of children under age 18 that were judged to be "accidental," usually the result of gun play or inappropriate gun handling.[31] National studies suggest that for every child under age 15 who dies from a firearm-related injury, another four children suffer a nonfatal injury.[32] The rate of NC deaths from firearm fatalities decreased between 1992 and 1996, from 5.2 per 100,000 in 1992 to 3.8 per 100,000 in 1996.

Nonfatal injuries

Examining child fatalities is only part of the story. "For every childhood death caused by injury, there are approximately 34 hospitalizations, 1,000 emergency department visits, many more visits to private physicians and school nurses, and an even larger number of injuries treated at home."[33] Again, injuries generally fall into two broad categories: intentional and unintentional. The two largest causes of childhood injury and morbidity are child abuse and neglect (intentional injury) and motor vehicle crashes (unintentional). However, children are injured through a variety of other causes.

Child abuse, neglect, or dependency: In SFY 98/99 there were 63,200 reports of child abuse,[34] neglect, or dependency, involving 127,930 children.[35] These reports include suspected physical abuse, sexual abuse, emotional abuse, neglect, or dependency perpetrated by parents or caretakers. Of these numbers, there were 19,912 substantiated reports, involving 37,326 children. The total number of reports increased only 7.7% from SFY 94/95, but the number of children involved in substantiated reports increased approximately 25% between SFY 94/95 and SFY 98/99. The vast majority of children involved in substantiated

reports are classified as being neglected (90%), in part because in North Carolina children physically injured from “excessive discipline” are counted as "neglect" cases unless injures are severe. Fewer than one out of ten children (8%) are classified as abused (3.55% were physically abused, 3.73% were sexually abused, and 0.65% were subject to emotional abuse or moral turpitude), and fewer than 2% of abused children were classified as “dependent.”

Child abuse affects a child’s ability to grow, learn, and develop. It can affect school performance as well as create mental and physical health problems.[36] Studies suggest that abused and neglected children are more likely to be convicted of serious crimes, suffer from mental illness, have substance abuse problems, or die at an early age.[37] Childhood abuse increases an individual’s chances of delinquency and adult criminality.[38]

In addition to the reports that are investigated, there are multiple other reports that are not accepted for investigation (i.e., “screened-out”) because the information provided to the county Division of Social Services (DSS) does not appear to meet the statutory definition of abuse, neglect, or dependency. The screening process, or the process of determining which cases to accept for investigation, is not an exact science. Many families that are “screened-out” might be at risk. The state does not currently collect data on “screened-out” families at a statewide level, although it does look at screened-out data at the county level when it conducts biennial reviews of county Child Protective Services (CPS) programs.[39] When appropriate, local DSSs offer services or provide referrals to other agencies that might provide assistance to these families.

National studies indicate that the number of children subject to abuse and neglect might be much higher, and that the incidence of child abuse and neglect is increasing more rapidly than North Carolina data might suggest. The National Incidence Survey of Child Abuse and Neglect (NIS) assesses professionals in health, education, social work, and the law in randomly selected counties around the country. This survey asks these professionals about incidents of child abuse and neglect cases whether or not these cases were officially reported to CPS. The study has been conducted on three occasions (1979-80, 1986-87, and 1993-94). Data indicate that the number of incidents of child abuse and neglect reported through the NIS study is more than 50% higher than those reported by the states through the state child protective service agencies (National Child Abuse and Neglect Data System (NCANDS) (Table 2). In addition, the number of abused and neglected children increased 149% in the 15 years between the first and last surveys. Experts suggest this is a real increase in maltreatment that does not result merely from increased reporting because of societal recognition of the problem.[40]

Table 8.3: Comparison of National Estimates of Child Maltreatment 1993-1995[41]
Number (Rates Per 1,000)

	NIS-3 (1993-94)	NCANDS (1994)	Difference
Number physically abused	381,700 (5.7)	258,320 (3.0 - 4.5)	47.8%
Number sexually abused	217,700 (3.2)	139,980 (1.6 - 2.4)	55.5%
Number neglected	879,000 (13.1)	535,510 (6.2 - 9.5)	64.1%
Total number maltreated	1,553,800 (23.1)	1,011,628 (11.7-17.9)	53.6%

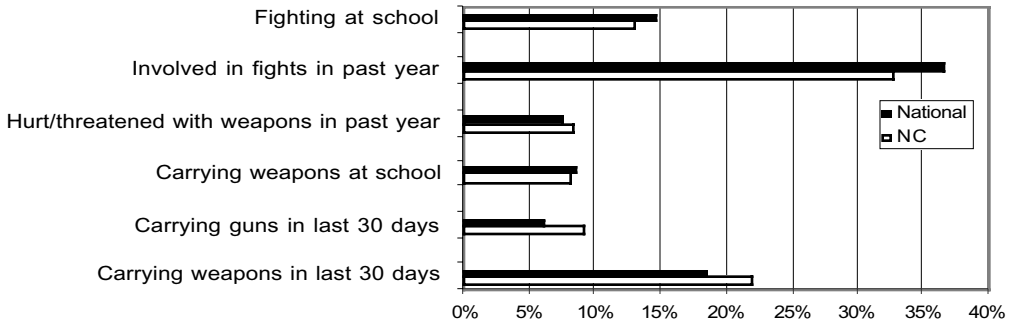
Some studies suggest that children who are investigated for child abuse and neglect are likely to come under the constant scrutiny of DSS, even if the initial investigation does not lead to a substantiated report. For example, data from Washington State University suggest that many of these families will cycle back to DSS. A sample of 300 children reported to DSS in Seattle in 1992 were investigated and 170 were substantiated. However, these 300 children experienced another 2,000 reports to DSS over the next six years. The numbers of re-reports and substantiated reports during the follow-up period did not differ for the children originally unsubstantiated compared with the substantiated cases.[42]

Youth violence: Unlike child abuse and neglect, there appears to be progress in reducing youth violence, although the number of arrests for weapons violations in North Carolina has increased. "Since 1993-1994, the North Carolina rate of reported incidents of school violence has declined 19%, and the number of guns brought to schools has dropped 65%. Youth violence has also been addressed with juvenile justice reform now being implemented and the number of juveniles arrested for murder is down 28 percent since 1995."[43:3] Yet, despite this progress, there is still reason for concern. In 1997, almost two out of every three North Carolina middle-school children (65.7%) reported being in at least one physical fight, 7.6% reported being injured seriously enough to require medical treatment.[44] Almost one-third (32.9%) of middle school students reported carrying a weapon, and 16.7% reported ever carrying a gun for other than hunting or target practice. Approximately three percent (3.2%) reported carrying a gun on school property. One of every ten middle school students (10.2%) reported being threatened or injured with a weapon at school.

Surprisingly, fewer high school students reported carrying weapons or fighting than did middle school students. Approximately one of every three high school students (32.7%) reported fighting, compared with 36.6% nationally (CDC, 1998).[45] While North Carolina's rate of reported fighting is lower than the national average, our rates of weapon carrying and being threatened or injured is higher. Almost 22% of North Carolina high school students reported

carrying weapons in the 30 days before the survey (compared with 18.3% nationally), and 9.0% reported carrying guns (compared with 5.5% nationally). In North Carolina, 8.2% of high school students reported being hurt or threatened with weapons, compared with 7.4% nationally.

Figure 8.6: 1997 High School Youth Risk Behavior Survey (North Carolina and National)



While the incidence of violence in North Carolina's schools has been decreasing, the number of arrests for weapons violations among juveniles has increased. The number of arrests has grown from 417 in 1987 to 1,491 in 1996.[46] Between 1990 and 1995, 83% of the murders committed by juveniles aged 11-18 involved the use of firearms.[47] Because children are prohibited from buying guns legally, children obtain the guns used in the commission of these crimes from home or from illegal markets.

Studies suggest that viewing violence on television can desensitize children to the pain and suffering of others.[48] Children who watch a lot of violence on television are less bothered by violence and more likely to behave in aggressive or harmful ways to others. Longitudinal studies have shown that children who watch many hours of violent television programs show a higher level of aggressive behavior when they become teenagers, and are more likely to be prosecuted for criminal acts as adults. Overall, 26% of children watch four or more hours of television per day, and 67% watch at least two hours per day.[49]

Sexual assault: There were 920 new victims of sexual assault under 13 years of age, and 1,050 victims between the ages of 13 and 17 who were seen in rape crisis centers in North Carolina in 1998.[50] National statistics suggest that approximately one in four females and one in seven boys is sexually abused by the time she or he reaches 18 years of age.[51]

Motor vehicle injuries: Between 1994 and 1998, there were, on average, 25,439 children younger than 18 injured nonfatally in motor vehicle crashes each year (1,325 children per 100,000).[52] More than 1,100 North Carolina children under age 18 were injured severely enough to require hospitalization in 1998.[53] Older children—or those who reach

driving age—are four times more likely to be injured nonfatally in motor vehicle crashes than are younger children (approximately 4,171 children per 100,000 for children 15-17, compared with fewer than 1,000 for younger children), reflecting higher exposure to being in cars. African-American children have a 31% higher risk of being injured nonfatally than do white children (1,587 per 100,000 compared with 1,207, respectively). Females under age 18 have a slightly higher risk of being injured nonfatally (14%) than do males (1,412 per 100,000 females compared with 1,237 for males). In addition, 5,818 children or 60.6 per 100,000 were injured nonfatally in motor vehicle crashes in which at least one driver was under the influence of alcohol.

Injuries at work: Many teens are injured at work. A statewide survey of teens in 1995 suggested that as many as 80% of teenagers work at some point during high school. Thus, among the more than 63,000 students expected to graduate from North Carolina high schools in 1999, approximately 51,000 would have had work experience during their teenage years. Estimates reported in the National Academy of Sciences report, *Protecting Youth at Work,* indicate that 40% of seventh graders and 74% of those in grade 12 have jobs. As teens age, they also are more likely to work longer hours. [54] For example, data from the AddHealth study indicate that as many as 8% of tenth graders, 20% of 11th graders and 46% of 12th graders worked in excess of 19 hours per week during the school year and 25%, 43%, and 70% of tenth, 11th, and 12th graders, respectively, worked 20 or more hours a week during the summer. If these figures are applied to North Carolina students, we could expect more than 336,000 North Carolina teenagers to be employed this year. According to a 1995 North Carolina telephone survey of teens who had jobs for pay outside the home or worked on farms, 54% reported having been injured at least once, with 14% being injured twice, 7% injured three times, and 6% injured four or more times. [55] A substantial proportion of the injuries were serious enough to require a visit to a doctor, nurse, or hospital (16%), or to result in at least one day of missed work or school (12%). Combining this information with the national estimates of proportions working by grade level suggests that more than 29,000 of the teens graduating from high school in 1999 will have been injured on the job, with nearly 4,400 having been hurt seriously enough to require them to visit a doctor, nurse, or hospital; and nearly 3,300 injured seriously enough to result in at least one day of missed work. Twenty-nine percent reported that their injuries resulted from being cut, while 24% reported being burned by a hot object or spilled grease. National studies also suggest that the more children work, the less well they do in school and the more likely they are to use their income for alcohol, tobacco, drugs, or gambling. [56]

Among all industrial sectors, agriculture is one of the most dangerous for teens who live and/or work on farms. Data from a North Carolina survey of teen workers indicate that 82% of teens working in agriculture have ridden a tractor, 77% have handled or fed large animals, 73% have loaded or unloaded heavy goods, and 64% have driven a tractor.[57] Many of those who have operated tractors have done so in ways that are particularly dangerous: 86%

without the use of seat belts, 81% without rollover protection devices installed; and 68% while carrying a passenger (by definition, not using a seat belt). Almost 15% of the teens working on a farm reported being injured enough to cause them to seek medical attention or to miss school, work, or both. Fatality figures from a ten-year study (1980-89) in North Carolina revealed 71 work-related deaths among persons under age 20, of which 19 (27%) involved farm work.[58]

Sports injuries: Sports injuries are another major cause of child morbidity. Preliminary data from the UNC-CH Injury Prevention Research Center indicate that there were 10,794 injuries in North Carolina high school sports during the 1997-98 school year. Football was the leading cause of injuries (4,696), followed by soccer (1,706), basketball (1,039), baseball or softball (825), track (778), and wrestling (772). Of these injuries, 2% were significant enough to require a hospital admission.

North Carolina does not collect data on sports injuries that occur outside of the school setting. However, national data suggest that each year, approximately 3.5 million children age 14 or younger experience a sports- or recreation-related injury; with more than 775,000 requiring treatment in a hospital emergency room.[59] Most of these injuries are from falls, collisions, being struck by an object, or overexertion, and occur during unorganized or informal sports activities. The types of injuries vary with age. Young children (ages five to nine) are more likely to sustain playground and bicycle-related injuries. Older children are more likely to suffer from bicycle, sports-related injuries, or overexertion. Contact sports produces the most injuries, but injuries from recreational activities and individual sports are more likely to be severe. Boys are more likely to be injured than girls, accounting for nearly 75% of all sports-related injuries. Children who do not wear or use protective equipment are at greater risk of being injured, as are children who play in unsafe conditions (e.g., improper field surface or maintenance).

Playgrounds: National data suggest that playground injuries are the leading cause of injuries to children in school and child care environments.[60] Nationally, a 1998 study of playground equipment in child care centers, elementary schools, and parks found that appropriate surface materials were found in 75% of playgrounds, but only 44% had sufficient depths of materials to protect children from serious head injury. Thirty-eight percent failed to provide materials in adequate use zones around the equipment, 20% had exposed concrete footings, and 25% had equipment with missing or broken parts, or had equipment that was rusted (37%), splintered (36%), or cracked (11%).

A recent study of medically-attended injuries to children in North Carolina child care centers showed that many of the 1,690 injuries reported in day care centers in 1997

occurred when the child was playing on playground equipment.[61] A majority of the injuries occurred to the head and neck (57.0%), followed by injuries to the upper extremities (20.9%).

Injuries resulting in hospital admissions: Another way to look at the incidence of child injuries is to examine hospital discharge data. The causes of injuries are reported separately in the state's hospital discharge database (e-codes). An examination of the 1998 discharge data for children younger than 18 shows that there were 5,044 hospital admissions for injuries (Table 8.4). Of these, 85% (4,300) were unintentional, 7% (372) were self-inflicted, 6% (299) were intentional injuries caused by others, and 1% (73) were for other or undetermined causes. Motor vehicle crashes were the most frequently reported cause of injury leading to a hospital admission (1,107), followed by falls (806), and poisonings (681).

Table 8.4: 1998 NC Hospital Discharge Data[62] for Injuries to Children Younger than 18
(Excludes deaths and duplicate causes of admissions)

Mechanism/cause	Unintentional	Self Inflicted	Intentional	Other	Undetermined	Total
Cut/pierce	140	36	36	0	1	213
Drowning/submersion	39	0	0	0	1	40
Fall	803	0	1	0	2	806
Fire/burn	236	1	2	0	4	243
Fire/flame	90	2	0	0	2	94
Hot object/substance	146	0	2	0	2	150
Firearm	64	3	52	1	14	134
Machinery	27	0	0	0	0	27
MV traffic	1106	1	0	0	0	1107
Occupant	815	0	0	0	0	815
Motorcyclist	39	0	0	0	0	39
Pedal cyclist	60	0	0	0	0	60
Pedestrian	151	0	0	0	0	151
Unknown	31	0	0	0	0	31
Other	10	0	0	0	0	10
Pedal cyclist, other	150	0	0	0	0	150
Pedestrian, other	15	0	0	0	0	15
Transport, other	144	0	0	0	0	144
Natural/environmental	179	0	0	0	0	179
Bites/stings	136	0	0	0	0	136
Overexertion	60	0	0	0	0	60
Poisoning	336	315	0	0	30	681
Struck by/against	286	90	56	9	9	343
Suffocation	64	4	1	0	1	70
Other specified, classifiable	245	2	87	0	0	334
Other specified, unclassifiable	87	3	45	1	13	149
Unspecified	319	7	18	0	5	349
All injury (subtotal)	***4300***	***372***	***299***	***2***	***71***	***5044***
Adverse effects	0	0	0	2230	0	2230
Medical care	0	0	0	1411	0	1411
Drugs	0	0	0	819	0	819
Adverse effects (subtotal)	***0***	***0***	***0***	***2230***	***0***	***2230***
All external causes	**4300**	**372**	**299**	**2232**	**71**	**7274**

Place of injury: North Carolina does not collect aggregate injury data on the place of injury. However, national data suggest that a marked proportion of childhood injuries occur at home. From 1970 through 1984, injuries occurring in and around the home were the cause of one in four fatal injuries to children younger than 15 years old.[63] Fires and burn injuries were the largest cause of home fatalities, followed by drowning.

CURRENT PROGRAMS AND POLICIES

North Carolina has implemented numerous programs or enacted laws to reduce the incidence of child death and injuries. Some of these efforts are aimed at reducing any type of child injuries; while others are targeted at specific causes of childhood injuries. This section describes some of the state's efforts.

Interventions aimed at reducing child deaths

The state has made great headway in addressing and reducing child injuries, both fatal and nonfatal. Using a multi-tiered system, the state investigates the cause of child fatalities thorugh the efforts of the Child Fatality Task Force,[64] the North Carolina Child Fatality Prevention Team,[65] local Child Fatality Prevention Teams,[66] and community Child Protection Teams.[67] The Child Fatality Prevention Team reviews all deaths investigated by the North Carolina Medical Examiner for children under age 18, especially of children in the CPS system. Recommendations from the Child Fatality Prevention Team are forwarded to the Child Fatality Task Force, which is the public policy arm of the state child fatality prevention system. The Task Force was established by the North Carolina General Assembly and is charged with developing policies and legislative recommendations to reduce child deaths. Local Child Fatality Prevention Teams (CFPT) review deaths of all children under the age of 18 in the county. The CFPTs provide county commissioners with recommendations to prevent future deaths; and also report findings to the state. Local Community Child Protection Teams (CCPTs) are more involved with the oversight of child abuse and neglect cases, including those leading to fatalities. In addition, the state recently appropriated $190,400 for child death investigators to investigate death scenes. Over the years, the state has also made significant investments in reducing infant deaths (see Chapter 4, Healthy Pregnancies and Healthy Newborns).

Motor vehicle injuries and fatalities

The state has implemented many educational programs and enacted many laws with a goal of reducing motor vehicle injuries and fatalities. One key state response has been to implement and enforce occupant restraint laws. In 1981, the state enacted its first child passenger safety law and further strengthened it in 1985, 1995, and 1999. By law, children under the age of five or who weigh less than 40 pounds must be buckled into child safety

restraints. Children five or older or heavier than 40 pounds may be buckled in seat belts. In addition, the state enacted a mandatory seat belt law in 1985 that applies to drivers and all front seat passengers, including adults. Violations of the child passenger safety law incur a penalty of up to $25.00 plus court costs (currently about $85). The law specifies that if the child is less than age five and proof is presented at trial that a safety seat has been acquired since the date of violation, charges will be dropped. Most recently (1999), the General Assembly strengthened the motor vehicle protections for children by mandating that all riders under age 16 wear seat belts regardless of where they sit. Violators of these seat belt laws are subject to a penalty of $25.00.

The General Assembly also took steps to reduce injuries among children when they reach driving age by establishing a graduated driver's license. This system introduces new teen drivers to driving by first allowing them to drive only in the safest conditions (with an experienced responsible adult driver in the car). After obtaining this experience, the teens are allowed to drive unsupervised until 9:00 p.m. They cannot obtain an unrestricted license that enables them to drive unsupervised during the night (the most dangerous driving conditions) until they have had their license and driven for at least six months without violations.[68]

The state also has a law aimed at reducing the incidence of reckless driving with children in the car. Drivers who speed to elude the police are normally subject to a Class 1 misdemeanor, NCGS 20-141.5. However, a driver who speeds to elude police with a child under the age of 12 in the vehicle is subject to a Class H felony.

Interventions to reduce child abuse, neglect, or dependency

The state funds several programs trying to reduce and ameliorate incidents of abuse, neglect, or dependency. Some of these programs are aimed at primary prevention—reducing the likelihood that high-risk families will commit child abuse or neglect. These programs include the Intensive Home Visiting and Adolescent Parenting Programs. Others are aimed at tertiary prevention—that is, protecting the child and/or improving parenting skills once abuse or neglect has occurred. Most of the programs fall into this category, including CPS, Foster Care, Adoption Services, Family Preservation, and the Guardian ad Litem programs.

Intensive home visiting programs: The state has recently started funding intensive home visiting programs. The state is funding three different intensive home visiting programs: Early Childhood Nurse Home Visitation (three counties), Linkages for Prevention (six counties), or Healthy Families (five counties). There are also one Early Childhood Nurse Home Visitation, three Linkages for Prevention and five Healthy Families sites that are not funded by the state. All of these programs are targeted to at-risk families to prevent child abuse. State-funded programs work with low-income, first time mothers. Nurses, social workers or early childhood educators visit the families on a weekly or biweekly basis, from before the child is born

(ideally before the 28th week of pregnancy) until the child's second birthday. Results of two randomized trials of the Nurse Home Visitation model show that the program helped to reduce the rates of childhood injuries and poison ingestions, and helps mothers defer subsequent pregnancies and move into the workforce.[69] In addition, long-term follow up shows that nurse-visited mothers were less likely to abuse or neglect their children or to have pregnancies with short birth intervals. The children had fewer arrests and convictions, smoked and drank less, and had fewer sexual partners.

Linkages for Prevention is an extension of the Nurse Home Visitation program. Linkages uses the Nurse Home Visitation model, but enhances the services by offering home visits by child development specialists in addition to nurse home visiting. This model is being tested in nine counties, with five more in the planning stages.

Ten counties in North Carolina are testing the Healthy Families Program, which draws largely from the knowledge and experiences of the Hawaii Healthy Start program. A randomized trial of this intervention began in 1992.[70] When families who participated in the Healthy Start program are compared with those who did not, findings include: less potential for physical abuse (as measured by the Child Abuse Potential Inventory), improved parent-child interaction (as measured by the Home Observation Measurement scale and Nurse Child Assessment Satellite Training instrument), and fewer confirmed reports of child mistreatment. A two-year follow-up evaluation showed that the program was successful in linking families with pediatric medical care, improving maternal parenting skills, decreasing parental stress, and decreasing injuries resulting from partner violence. There were also positive effects on child development.

The Intensive Home Visiting Cooperative provides training, program enhancement, and evaluation for all three different enhanced home visiting models: Nurse Home Visitation, Linkages, and Healthy Families.

Adolescent Parenting: The state also helps to fund 30 Adolescent Parenting Programs (APP) throughout the state. The program is for adolescents 17 years of age or younger who are either parenting for the first time or are pregnant and Medicaid eligible. The program helps teens prevent second pregnancies, finish their secondary education, and improve parenting skills. In addition, program participants were less likely to be confirmed for neglect or abuse. A 1998 evaluation of the program of participants from 1995 through 1997 showed that 3.8% of APP participants were substantiated for child abuse and neglect, as compared with 8% of teen mothers statewide.[71]

Child Protective Services: The CPS program is mandated by state and federal law. County DSS must investigate all accepted reports of suspected abuse, neglect, and dependency of children under the age of 18 by their parents or caretakers (if the report was

true and met the statutory definition of abuse, neglect, or dependency). If the report is substantiated, DSS must provide services to the child and his or her family to ensure that the child is protected. In SFY 1998, approximately $194.1 million of federal, state, and local funds were spent on CPS in North Carolina.[72] Law enforcement personnel investigate allegations of abuse by individuals other than parents or caretakers.

Foster care: The state also provides foster care services for children. Foster care placement is temporary care provided for children when their parent(s), caretaker, or guardians are unwilling or unable to provide adequate care. Approximately $100.9 million was spent on this program in SFY 97-98. In June 1998, there were 6,702 North Carolina children in foster care living arrangements. Another 4,840 children were in the custody and placement responsibility of local DSS, but not in foster care placements.[73]

Family preservation: In addition to CPS and Foster Care, the state operates family preservation programs that provide intensive, in-home services to prevent children from being removed from their homes, and less-intensive services to children and families experiencing a crisis. The Intensive Family Preservation Services (IFPS) program provides services to families in which the children are at imminent risk of being removed from the home. The IFPS program served 564 families in SFY 1998.[74] The program is intended to improve family functioning to enable children and families to remain together safely, or to ensure an appropriate level of services for children who are ultimately placed out of the home.

Evaluations of the IFPS program showed that the program has been successful in preventing out-of-home placements with between 88 and 93% of all children over the last five years.[75] The program has improved environmental factors that affect child safety, social support systems, parenting skills, family interactions, and child-well being. In addition to the reduction in out-of-home placements, IFPS has helped to reduce the level of care needed among children who are placed outside of the home. Long-term client tracking data showed that families remained intact in the year following IFPS (79%), although some children did experience a brief period during which they did not live at home (17%). Most school-age children were in school and receiving passing grades or better. Furthermore, they stayed out of trouble with the law. Only a small number of children had experienced legal problems, been arrested, or been put under court supervision. Families were able to access other community services, finding them helpful. This program has been shown to be very cost effective, with $2.99 saved for every dollar spent in IFPS services.

The North Carolina General Assembly appropriated $2.0 million of TANF Block Grant funds to expand the IFPS program. The program is expected to be expanded to the following counties: Rutherford, Mecklenburg, Wilkes, Forsyth, Guilford, Cumberland, Robeson, and Johnston.[76] In addition, the state is going to fund regional approaches in DSS Region 9: Bertie, Camden, Chowan, Currituck, Gates, Hertford, Martin, Pasquotank, and Perquimans Counties,

and in Region 10: Beaufort, Carteret, Craven, Dare, Hyde, Jones, Lenoir, Onslow, Pamlico, Tyrrell, and Washington Counties. These counties were picked on the basis of highest needs (based on rates of out-of-home placements). A regional approach is being tested in the eastern counties because the counties are so small that they would obtain insufficient funding from a general funding formula to support the staff and administrative structure necessary to implement the program successfully.

Caseload and staffing: The state sets *recommended* caseload and staffing standards for CPS and Foster Care/Adoption, and mandatory caseload standards for the Family Preservation program:

Child Protective Services Investigative Assessment	1:12 families
Child Protective Case Planning and Case Management	1:12 families
Foster Care/Adoption	1:15 families (not to exceed 20 children)
Intensive Family Preservation	1:4 families
Family Preservation	1:8 families

The CPS and Foster Care/Adoption caseload standards are recommended, and as of January 1, 1998, funding was made available to achieve the recommended caseload standards. Most counties are in compliance with these standards; those that are not are having trouble filling vacant positions.

Guardian Ad Litem Program: The state also funds the Guardian ad Litem program. Guardians ad Litem are appointed to represent children when DSS files a judicial action alleging child abuse or neglect. Approximately three percent of all investigated cases of child abuse or neglect will end up in court where a guardian will be appointed. Most guardians are volunteers, who work under the supervision of the Guardian ad Litem program in the judicial district in which the petition was filed. Guardians help determine the child's need and the resources in the community needed to meet the child's needs, help represent the child's interest in court, and conduct follow-up investigations to ensure the court's orders are being enforced.

Child Abuse Evaluation Centers: There are currently seven regional child abuse evaluation centers, located in Asheville, Durham, Fayetteville, Greensboro, Greenville, Raleigh, and Winston-Salem. These centers receive clinical fees of $225 for sexual abuse cases and $75 for physical abuse cases to provide a medical and psychological evaluation of children who are alleged to have been subject to physical or sexual abuse, though the Child Medical Examiners program does not cover psychological treatments. These centers have multidisciplinary teams to do the evaluations, but not all are able to provide follow-up

treatment. Despite these fees, the true costs are much higher; a survey of these clinics suggests they lose more than $150 per case.[77]

Interventions to reduce youth suicides

The state has also created a Youth Suicide Prevention Task Force, housed within the Prevention Branch of the Division of Public Health. It was formed in 1998 and is currently in the process of developing recommendations to reduce youth suicides.

Youth violence prevention programs

Safe school plans: Every school system has a safe school plan, which is the school's plan to prevent and respond to violence.[78] The State Board of Education (SBE) is required to provide technical support to local school administrative units to assist them in developing and implementing plans for alternative learning programs for students at risk of academic failure.[79] Students who experience academic failure are at increased risk of being involved in crime or violence.[80] Some local school systems have established more targeted youth violence prevention programs. For example, in Wake County, schools targeted a violence prevention program to the most at-risk schools and students. The strategy was to intervene in potentially violent episodes before they 'got out of hand' with the use of in-school detention, while decreasing the number of out-of-school suspensions. At the same time, the schools redirected mental health staff from behavioral crisis intervention (most often associated with behaviorally and emotionally disabled (B-ED) students), to on-site group therapy with self-identified youth at risk for violence, substance abuse, or school failure. The result of both of these initiatives has been decreased violent events, decreased school absenteeism, and better school performance among at-risk youth. In addition, Wake County just won a three-year multi-intervention grant to address safe schools objectives, which will fund a range of services including school resource officers, policy development and implementation, increased mental health services, increased early intervention services, and community-based resource development.

Efforts to reduce access by minors to firearms: It is illegal under current state laws for an owner to store a gun in a way that the owner knew or should have known that an unsupervised minor could gain access to a firearm without parental permission.[81] This law is limited to gun owners who have children living with them, and does not apply to other gun owners. The gun owners who have children living with them are currently subject to a Class 1 misdemeanor if they store a firearm in a manner that allows children to gain access to the guns without parental permission. However, adults are rarely charged or convicted under this misdemeanor,[82] making the current version of the law relatively meaningless.

North Carolina also has laws regarding gun permits and records of sales.[83] These laws require individuals to obtain gun permits before they can obtain pistols, and mandate

that federally licensed gun dealers keep records of sales of gun purchases. The General Assembly recently passed a new law that requires the North Carolina Department of Justice to keep records on all guns used in the commission of crimes, and trace these guns back to the dealers to determine if they were sold by illegal gun traffickers. If these guns are being sold illegally to children, then the dealers can be put out of business. Presumably, this would make it more difficult for children in the future to obtain weapons.

Efforts to reduce child work-related injuries

Workplace Safety Laws: There are federal and state laws aimed at protecting children in the workplace.[84] The laws differentiate between agricultural and non-agricultural occupations. In general, younger children have greater restrictions than older children, and children under the age of 16 in agricultural jobs, and under age 18 in non-agricultural jobs are generally prohibited from working in hazardous occupations. Federal and state laws prohibit younger children from working during school hours or in late evenings. In addition, state law adds late-night work limits for older children. While the laws generally protect children from engaging in hazardous occupations, there are major exemptions for children working in agricultural jobs.

Efforts to address sports-related injuries

Efforts to reduce school sports injuries: The SBE has regulations that govern interscholastic athletic competition for students in grades 7-12. In addition to meeting certain age, grade, and scholastic requirements, the SBE also requires that students receive a medical examination at least once a year before participating in school sports.[85] In addition, each Local Education Authority (LEA) must designate a teacher/athletic trainer for each high school.[86] The athletic trainer is responsible for the administration of paramedical emergency lifesaving and sports medicine services with the high school. The trainer must complete courses in CPR, first aid, and basic and advanced athletic training. The athletic trainer must be in attendance at all football practices and games, unless excused because of an emergency. The LEAs might also require that the trainer be in attendance at practices or games involving other sports. The SBE also authorized the North Carolina High School Athletic Association (NCHSAA) to establish other safety requirements.[87] The NCHSAA has additional requirements for how soon athletes can return to participation in school sports after an injury.

Efforts to reduce playground injuries: The state adopted temporary playground safety rules in 1997 that require all licensed child care centers to eliminate entrapments or protusions, install resilient surfacing under and around equipment, have appropriate fall zones around equipment, include protective guardrails or barriers around the playground equipment, and have swing seats made of flexible materials.[88] In addition, child care facilities

must have at least two staff persons trained in child safety and at least one staff member with training in CPR.[89]

The Department of Public Instruction (DPI) does not have specific requirements governing the safety of school playground equipment. The DPI has issued guidelines that discourage schools from setting up playgrounds in locations that require children to cross streets or parking lots for access, and also encourages school systems to follow the Consumer Product Safety Commission playground safety guidelines. However, these guidelines are not mandatory on school systems. Some local school districts have imposed their own rules. For example, Orange County schools require that school playground equipment follow the Consumer Product Safety Commission guidelines.

Overall injury prevention

Healthful Living Curriculum: DPI has developed the *Healthful Living* curriculum that covers stress management, skills to protect self and others, relationship building techniques, nutrition and weight management, information aimed at reducing the incidence of substance abuse, personal fitness, recreational dance, game and sports, and developmental gymnastic skills. Part of the curriculum includes instructions aimed at reducing some of the causes of childhood injuries and deaths.[90] For example, public schools are required to provide instruction on stress management (grades K through 8, high school); fire safety (grades K, 2, 3, 5, 7); crossing streets (grade 1); resolving conflict without fighting (grades 1, 3, 4, 5, 6, high school); bicycle safety (grade 4); seat belt use (grade K), preventing choking (grade 4), water safety and preventing drowning (grade 6); CPR (grade 8), and assessing one's own health risks (grades K-8, high school). In addition, children are taught about inappropriate touching in the first grade. The healthful living curriculum contains health and medical content as well as personal skills in managing one's own risk behaviors. Schools are required to teach the *Healthful Living* curriculum in kindergarten through eighth grade; and students are required to have one credit hour (150 clock hours of instruction) of the *Healthful Living* curriculum during high school. Most high schools provide the 150 hours of instruction in the ninth grade with no additional required instruction thereafter.[91]

Reducing youth access to alcohol: Because alcohol is a contributing factor to so many youth injuries, reducing access to alcohol could help reduce the incidence of childhood injuries. It is currently illegal in NC for persons under the age of 21 to purchase or possess alcohol. An underage individual who possesses or purchases alcohol is subject to a Class 3 misdemeanor. It is also illegal for adults to give or sell alcohol or for an adult to assist underaged persons in obtaining alcohol.[92] The penalty for either of these violations is a Class 1 misdemeanor, and includes fines of $250 for the first offense and 25 hours of community service (or $500 and 150 hours of community service for subsequent offenses), unless the

judge imposes an active sentence. There is no prescribed penalty for Class 1 misdemeanors, so in practice, penalties vary depending on the judge and jurisdiction.[93]

Gaps In Existing Programs or Policies

Child deaths and injuries

Local Child Fatality Prevention Teams and Community Child Protection Teams are underfunded. Additional funding is needed for research, educational programs and administrative support. While the state has a system to review certain child deaths, there is no state or local agency or task force that is charged with reviewing the causes of all childhood nonfatal injuries.

Race and poverty

North Carolina data show that minority children are disproportionately likely to die from injuries, be injured or killed in motor vehicle crashes, or be victims of abuse and neglect. Part of this discrepancy might result from poverty and the inherent dangers of living in substandard housing, driving older and less safe cars, and having more stress from lack of income. Yet, while the state has numerous initiatives to reduce the incidence and severity of specific injuries, it has not focused on the larger problem of poverty, and the disparity in injuries and fatalities among racial groups.

Motor vehicles

The state has made great headway in reducing the risk of injury through seat belt and child safety laws. However, violation of these laws carries no demerit points against the driver's license. Studies show that the most dangerous drivers are the least likely to buckle up their children, and that they are more likely to follow traffic safety laws if they think that they could lose their licenses for violations. In addition, although bicycle helmets have been shown to decrease the risk of head and brain injury, North Carolina lacks a statewide law requiring bicyclists to wear helmets.

Abuse, neglect, and dependency

The state has implemented many programs attempting to reduce child abuse, neglect, and dependency. However, none of the programs are aimed at primary prevention of child abuse, neglect, and dependency for *all* families. Of the *targeted* prevention programs that do exist, none are available statewide. There are similar gaps in some of the programs that work with families after abuse or neglect occurs. The IFPS program is only available in 39 counties.

The less intensive program is available in 11 counties. In addition, the intensive home visiting program is available in only 14 counties, with eight more in the planning stages. The Adolescent Parenting Program (APP) is only available from 30 public and private agencies throughout the state. Seven regional child abuse evaluation centers have been established to evaluate children from all 100 counties—but services are more readily accessible to children in some areas of the state than others. While most of these centers can conduct a multi-disciplinary evaluation to determine whether physical or sexual abuse exists; few of these centers can then provide counseling or follow-up treatment. Managed care also creates barriers to care. Many managed care organizations do not have experienced examiners in their network, but will not authorize care out of the plan. Getting access to mental health services can also be a problem.[94]

There is also marked variation among counties in the child abuse and neglect reporting rates. For example, 139.82 children per 1,000 were reported as abused, neglected or dependent in New Hanover County in SFY 98/99 compared with only 12.21 in Tyrell County. This might reflect a difference in the public's awareness of this issue among different counties, publicity from a high-profile case or fatality, or issues within local DSS agencies.

In addition, North Carolina is undercounting the number of children who are subjected to physical abuse from a parent or caretaker. The state's definition of physical abuse is more narrow than employed in some other states. North Carolina defines abuse to include a *serious* physical injury inflicted or allowed by a parent or caretaker or substantial risk of serious physical injury to the child by other than accidental means. Several other states include in their definition of physical abuse injuries that cause bruising or swelling. North Carolina does not define "physical injury" and thus leaves discretion to the local DSS about whether a case should be categorized as "abuse" or "neglect." Using a belt and causing extensive bruising in the buttocks, for example, does not automatically constitute physical abuse. How a case is labeled affects the type of intervention involved. If a case is labeled "abuse" it is also referred to the police for criminal investigation and possible removal of the perpetrator from the home if the perpetrator is arrested. However, cases that are categorized as "neglect" are not sent to the police for investigation and possible prosecution. The flexibility afforded in the state's definition of abuse leads to an undercount of the incidence of physical abuse, and an artificial inflation of the incidence of neglect. Sexual abuse cases are also undercounted due to somewhat different reasons. In addition to skewing the statistics, safety planning for children may sometimes be compromised due to the psychological effect of a "neglect" label. Some professionals and agencies outside of DSS may not perceive "neglect" as serious or life-threatening as an "abuse" label, especially when multidisciplinary parties may be involved who do not have knowledge of the actual details of the "neglect" event. In addition, there are legal ramifications in that Child Protective Service workers do not report cases substantiated as neglect to the police even when the children have lower body bruises or other evidence of physical assaults. Thus, systems involved with child protection such as

law enforcement, mental-health, DSS, and the courts, may not always afford the same level of checks and balances as in "abuse" cases.

In addition, there are few preventive services to ensure that children are not subject to abuse and neglect. For example, the public school system generally fails to teach parenting skills. Aside from the Intensive Home Visiting and Adolescent Parenting Programs, there are few other resources available for at-risk families. In fact, the state does not capture information on at-risk families. Families that are "screened-out" for investigation at the local level are not reported to the state. Therefore, the state has little data on the extent to which families are "at risk."

Another potential problem exists with regard to the recommended caseload standards. While the state found sufficient funding to help counties hire staff to meet current CPS adoption and foster care caseload standards, there is no statutory provision to ensure that additional state funds will be appropriated if additional workers are warranted because of increased caseloads.

Suicide prevention

The DPI does not have a specific suicide prevention curriculum, although part of the healthful living curriculum might impart some skills that could reduce the risk of suicide (such as identifying and communicating feelings, trying to improve self-esteem, and stress management techniques). Schools are required, as part of their safe schools plan (see below) to have a crisis management plan. The crisis management plan describes staff responsibilities in the event of certain crises, including a suicide or attempted suicide by a student. However, there is no requirement that schools have suicide prevention or suicide contagion plans.

Youth violence prevention

Violence prevention in schools: The state does not have a specific youth violence prevention curriculum, although some of the *Healthful Living* curriculum is aimed at finding productive ways to manage conflict. Most schools also have school counselors, psychologists or social workers who can work with students during a time of crisis (for example, an attempted suicide or someone who has been involved in violent actions). However, schools have inadequate personnel to provide preventive services, and most schools are inadequately staffed to work with students who have been identified as "at risk."[95] Each school district is mandated to develop a safe school plan—although the Governor's Task Force on Youth Violence and School Safety recommended that more be done to help the schools build on their progress and measure the performance of their safe school plans. In addition, the report noted that the state lacked a systematic method to identify early warning signs of violent behavior.

The North Carolina DPI has taken some steps to implement recommendations of the Governor's Task Force on Youth Violence and School Safety since publication of the final report in August 1999. First, the state has distributed *Early Warning Timely Response: A Guide to Safe Schools* [96] to each school. In addition, the state has two teams of consultants available, upon request, to work with local school systems to develop or evaluate their Safe School plans. The state also provides a one-percent salary enhancement to principals and assistant principals who have successfully implemented a Safe Schools plan. To qualify for the salary enhancement, the superintendent of the local education authority and local school board must certify that the school is in compliance with its own Safe Schools plan. There is, however, no statewide monitoring or evaluation of local Safe Schools plans.

Access to firearms: The state has done little to reduce youth access to firearms. While North Carolina does have a generic law requiring gun owners to store guns safely, it does not mandate that the guns be stored in either a locked box or with a trigger lock. [97] Further, this law is rarely enforced—making it relatively meaningless. [98] The law is limited to gun owners who have children living with them, and does not apply to other gun owners. In addition, the state's laws on records of sales do not apply to private gun sales or sales through gun shows. This means that private gun sellers do not need to keep records of gun sales, which makes it more difficult to track the illegal transfer of guns. Strengthening gun laws has the potential of reducing the number of inadvertent injuries and intentional injuries (homicides, suicides) caused by guns.

Health education

Healthful Living curriculum: While schools are required to provide health and medical information and teach children skills to reduce risky behaviors, there is no accountability to ensure that local schools follow the *Healthful Living* curriculum. Since these subjects are not tested in the end-of-year tests, some Task Force members have raised the concern that these subject areas do not receive the same attention as other subjects included in the end-of-year test. Even if the curriculum were followed, problems would exist. First, some of the areas are covered inadequately. For example, children are only taught about "inappropriate touching" in first grade. The goal of this instruction is to reduce the incidence of child sexual abuse, but covering this topic in only one grade might be inadequate. Second, the high school *Healthful Living* curriculum is targeted to the health needs of ninth graders; it does not cover issues of concern to older adolescents—such as parenting skills or skills to prevent sexual assault (including date rape).

Work-related injuries

Federal and state laws generally protect children from engaging in hazardous occupations that could lead to childhood injury or deaths. However, there are major exemptions to these laws for agricultural employment. First, children of any age can work in any type of agricultural job as long as they are working for their parents on their parents-owned farm or for persons standing in the place of their parents.[99] Theoretically, a child of any age can operate a forklift or other hazardous machinery as long as they are working on their parents' farm. Once a child reaches the age of 16, the federal farm labor laws no longer apply, so the adolescent can operate any type of machinery. Children can also work on farms that are not owned by their parents. Children ages 12 to 13 can work on farms outside of school hours where the parent is employed or if the child has parental consent. Further, younger children can be employed on small farms with parental consent. In addition, neither federal nor state laws prohibit children from working in jobs exposing them to pesticides.

RECOMMENDATIONS

There are multiple ways to reduce the likelihood and severity of childhood injuries.[100] Interventions can be directed at changing the characteristics (e.g., behavior) of individuals (e.g., parent or children) to protect them. Mandatory child restraint legislation and programs designed to encourage parents to childproof their homes are examples of interventions aimed at changing behaviors. Interventions can also be directed at improving product design (e.g., sports equipment), the physical environment (e.g., playground equipment), or the social environment (e.g., drinking and driving). In addition, interventions can be designed to affect different phases in the injury process. For example, the state has designed interventions to: 1) prevent injuries from occurring (e.g., laws that prevent children from working in hazardous industries); 2) minimize the severity of the impact if an injury event does occur (e.g., child safety-restraint laws); or 3) ensure the child receives appropriate care to reduce the effects of the injury (e.g., expanding child health insurance coverage or requiring day care providers to be trained in first aid). Some of these changes can be accomplished through education of children, families, or health professionals; the regulation of products, facilities, or professions; or legislation to affect behaviors (such as seat belt use), services (such as CPS), physical environment (such as road design), or social environment (including laws against drunk driving). Litigation can help reduce the incidence of child injuries—for example, product liability suits can lead to safer products.

The Child Health Task Force focused on interventions that could occur at the state level; thereby ruling out product safety designs over which the state had little control. In addition, the Task Force focused on interventions that would reduce the incidence of child injury or fatalities or those that would minimize the severity of these impacts—rather than those that would ensure treatment for the child once the injury has occurred. The Task Force's

highest priority recommendations are highlighted in bold. Some of these programs/interventions have been evaluated in other contexts; many have not. Whatever programs are implemented should be subject to rigorous evaluations to determine whether these programs or policies help to reduce childhood injuries.

Child fatality and injury prevention

1. ***The state should create a Child Injury Prevention Task Force, or expand the current Child Fatality Task Force, to investigate the causes of child injuries.***

The state has a multi-tiered system to investigate the causes of child fatalities, and to identify gaps in systems, policies, and laws that might have contributed to child deaths. However, the state lacks a similar system to investigate the causes of child injuries, and make recommendations on how to reduce the incidence or minimize the severity of childhood injuries. The state should expand the focus of the Child Fatality Task Force or should create a new task force to focus on the underlying causes of child injuries, and to "...identify gaps in systems, policies, and laws that contribute to child injuries." In addition, this task force should monitor, study the causes, and develop policies to address racial disparities in fatal and nonfatal injuries.

2. ***Expand the mandatory school health curriculum to ensure that children are taught basic personal safety skills, with additional focus on suicide and violence prevention, and that older children are taught parenting skills.***

The *Healthful Living* curriculum of the North Carolina DPI includes some instruction that can help reduce the incidence of intentional or unintentional injuries. For example, the curriculum includes instructions and skills training on conflict resolution, stress management, bicycle safety, and seat belt use. Because so much attention is placed on end-of-year-tests (which put the focus on reading, writing, and mathematics), schools do not place as high a priority on teaching the content of the *Healthful Living* curriculum. Moreover, the curriculum lacks an emphasis on important skills needed for older teens, including information on how to prevent sexual assaults (including date rape), and parenting skills. Some areas of the curriculum appear to be covered inadequately. For example, schools are required to teach children about "inappropriate touching" in the first grade, but addressing this topic in only one grade might not be sufficient given the large number of children subject to either physical or sexual abuse. The curriculum should be expanded to include more comprehensive information on basic personal safety skills, and should be provided throughout high school. In addition, the DPI should be required to monitor and encourage the schools to make sure these curricula are taught, even if they are not included as part of the end-of-year tests.

3. The state should provide additional funding for local Child Fatality Prevention teams.

The state has a multi-tiered system to investigate the cause of child fatalities: the Child Fatality Task Force, the State Child Fatality Prevention Team, local Child Fatality Prevention teams, and Community Child Protection teams. The Community Child Protection teams are required to review deaths as a result of suspected abuse or neglect when DSS has had involvement with the family within the last 12 months, and to review active child welfare cases to identify barriers to service. It is the responsibility of the local Child Fatality Prevention teams to review other deaths. There is no funding for Community Child Protection teams, and little funding for local Child Fatality Prevention teams. Additional funding is needed to support these local efforts for research, educational programs, and administrative support.

Motor vehicle injuries and fatalities

The state has already made great headway in reducing the severity of injuries from motor vehicle crashes through the mandatory seatbelt laws and child restraint laws. In addition, the state recently enacted a graduated driver's license, which might also help to reduce motor vehicle injuries and deaths among teens. Since motor vehicle crashes are the leading cause of injury and death after infancy, additional attention is warranted.

4. Enact legislation to add two drivers license points for drivers who allow any child to ride without a seat belt or appropriate safety restraint.

The state already requires all children under age 16 to wear seatbelts, regardless of where they sit. However, violation of this law carries no demerit points against the driver's license. Studies show that the most dangerous drivers are the least likely to buckle up their children. People who fail to use seat belts are more likely to be involved in high-risk behaviors, such as drinking and driving, are 35% more likely to be involved in crashes, and less likely to have health care coverage.[101] When a driver is buckled, the use of child restraints is much higher. For example, the restraint use for children under age 12 is 95% for buckled drivers compared with 44% for unbuckled drivers.[102] Surveys of North Carolina individuals who do not use seat belts suggest that they would be likely to respond to the assignment of driver license points.[103] These drivers are more likely to follow seat belt and traffic safety laws if they think that they could lose their license for violations. Not only would this law improve the safety of children, but it would reduce the overall motor vehicle death and serious injury rates. The UNC-CH Highway Safety Research Center estimated that increasing seat belt use from the current 80% to 90% would lead to an estimated 90 lives saved and the prevention of 800 serious injuries.[104] This would reduce direct medical costs by $1.3 million for fatalities and $15.3 million for serious injuries.

5. Enact legislation that would require all bicyclists aged 18 and younger to wear approved bicycle safety helmets.

Almost all of the children who are killed while riding bicycles are not wearing bicycle helmets. Wearing an industry-approved helmet significantly reduces the risk of a head injury during a crash or collision. Studies show that helmets decrease the risk of head and brain injury by 70-88% and facial injury to the upper and mid-face by 65 percent.[105] While this would not prevent all bicycle deaths, this could reduce the number of children who die from bicycle crashes, and would significantly reduce the number of serious injuries. There are numerous local jurisdictions in the state that have passed bicycle helmet laws. Currently, there is legislation pending in the North Carolina General Assembly that would require all children under age 12 to wear bicycle helmets. This bill should be amended to apply to all children under age 19. Studies show that legislation is effective in increasing helmet use, and that the impact of these laws is not dependent on enforcement.[106] Parental and peer use of helmets can help supplement direct enforcement of these laws by police. These laws are most effective if preceded by a helmet promotion campaign. Education efforts aimed at increasing bicycle helmet use also can be successful if they include media announcements, bike rodeos, and helmet discounts (an effective way to increase use of helmets among poorer children).[107]

Child abuse and neglect

6. Extend the home-visiting program statewide.

The state should expand the home visitation program statewide. Past evaluations showed that the program helps to reduce the rates of childhood injuries and ingestions, helps mothers defer subsequent pregnancies and move into the workforce, and helps reduce the incidence of abuse or neglect. It costs approximately $3,000 per family per year to have a professional home visitor for the two and a half years of the program. There were 49,203 births to first-time mothers in 1998. Approximately 40% of these births were to Medicaid mothers, and of these, approximately 42% were to families living at or below the federal poverty guidelines.[108] Thus, there are approximately 8,300 first-time births to Medicaid-eligible mothers with incomes at or below the federal poverty guidelines each year who would be eligible for this program.

7. Extend the family preservation programs statewide.

As noted earlier, the IFPS provide services to families in which the children are at imminent risk of being removed from the home. Evaluations of the IFPS showed that the program has been successful in preventing out-of-home placements with between 88 and 93% of all children over the last five years.[109] Long-term client tracking data showed that families remained intact in the year following IFPS intervention (79%), although some children did

experience a brief period during which they did not live at home (17%). Most school-age children were in school and receiving passing grades or better. This program has been shown to be very cost-effective, with $2.99 saved for every dollar spent in IFSP services. The less-intensive family preservation program also works with families with substantiated charges of abuse, neglect, or dependency—but families where the children are not at imminent risk of removal. Caseworkers in the less intensive family preservation program spend less time with each family and are thereby able to work with more families. These programs should be available throughout the state.

8. Mandatory workload standard, indexing of staffing, and equal partnership between state and counties for CPS social workers (i.e., so that the number of social workers increases as incidents of child abuse and neglect increase).

Adequate staffing based on reasonable workload standards is critical for protecting abused and neglected children in North Carolina. Prompt investigations must be made of abuse and neglect allegations, with frequent visits to families recovering from abusive situations. Children presently in the foster care system and moving to permanency with adoption or living with relatives need intensive help dealing with their own difficulties associated with separation from their biological families, with adjustment to foster or adoptive placements, and with their own future well-being. The present recommended CPS standard of one social worker to twelve families is appropriate for investigative assessment and case planning and case management. However, the foster care and adoptive standard of one social worker to fifteen families should be changed to one social worker to twelve children. This intensive work demands time and energy to move the child to permanency as quickly as possible. The intensive preservation and regular family preservation existing caseload standards are appropriate. These standards should allow reasonable work loads throughout North Carolina.

To protect children adequately, plan for their future, and cause permanency resulting in family reunification, placement with relatives, or adoption, counties and state should enter an equal financial partnership in achieving the results. Indexing the number of social workers to the workload assures adequacy of protection of children statewide. The proposal for an equal funding partnership recognizes that it takes a joint effort between counties and the state to assure the safety and well-being of North Carolina's children. Therefore, mandatory workload standards, indexing of staff standards, and an equal funding partnership between the state and counties are critical to assure the safety of a vulnerable population whose health and well-being are the highest priority.

9. Collect data on "screened-out" children at the state level.

Counties should report screened-out reports to the state, so the state and child advocacy groups can keep track of the numbers of potentially at-risk families. Because there is some discretion in determining whether a case should be investigated (i.e., whether the report would meet the definitions of abuse, neglect, or abuse if true), collecting screened-out data at the state level would also help the state monitor counties to determine if counties were consistent in determining which cases should be investigated. Local counties do keep copies of these screened-out reports. The state is in the process of developing an automated system that will allow the state to have complete access to all screened-out and other child welfare information. Until the automated system is developed, the state should require counties to report screened-out data. There would be little additional cost in requiring that screened-out data be reported to the state.

10. Increase educational efforts to report incidents of child abuse, neglect or dependency.

The North Carolina DHHS contracted with Prevent Child Abuse of North Carolina ($100,000) to conduct a general education effort to increase public awareness of child abuse and neglect and of how to report potential problems. Prevent Child Abuse bought media time for their public awareness campaign. This campaign should be expanded to target children and health care professionals as well.

11. Establish additional multidisciplinary clinics and teams to treat child abuse.

There are currently seven Child Abuse Evaluation Centers operating throughout the state, all at teaching hospitals. These centers have teams of medical examiners and mental health professionals to diagnosis child abuse and neglect. However, most of these centers cannot offer clinical treatment services because of lack of funding. The state should augment the Child Abuse Evaluation Centers with multidisciplinary treatment teams to treat child abuse and neglect. Bills were introduced in the 1995 General Assembly to appropriate $600,000 on a recurring basis to Child Maltreatment Resource Centers to conduct evaluations (HB 292, SB 906). This bill should be resurrected and expanded to enable the centers to provide follow-up treatment as well. Alternatively, clinical fees could be increased to help offset teaching costs incurred at these centers. In addition, the state should pay for a certain amount of mental health services directly (e.g., 25 hours) without prior authorization.

12. Change the definition for what constitutes physical abuse.

North Carolina's definition of physical abuse is more narrow than the definition used by a number of other states. Also, the application of the definition might not be consistent across workers or agencies. The Task Force was concerned that this might compromise efforts

to protect children who are physically injured by excessive disciplinary procedures, or who might have been subject to sexual abuse. Also, the state's definition leads to inaccurate statistics about the number of children who are victims of physical or sexual abuse. The state DSS, in conjunction with the North Carolina Pediatric Society and Child Fatality Task Force, should study this issue further, to determine if a change to the state's definition of physical abuse is warranted, and whether there should be another means of indicating the original category of the report (even if DSS ultimately classifies the substantiated case under another category).

13. Provide adequate funding for mental health services for children and parents.

The Division of Mental Health, Developmental Disabilities and Substance Abuse Services has been working with the DSS to ensure that children in DSS custody (a subset of the children who have been substantiated for abuse or neglect) receive appropriate mental health services. The state conducted a study of children in DSS custody and estimated that approximately 36% of the children are receiving mental health services.[110] Among children who need mental health services, 4% have a high need for services (at an estimated cost of $58,710 per child in 2000-01 rates), 36% had a moderate need ($17,747 per child), and 60% had a low need ($887 per child).[111] Extrapolating these data to the whole population of 37,326 substantiated children, we might expect that about 13,450 children will need mental health services:

High need: 537 children
Moderate need: 4,837 children
Low need: 8,062 children
Total: 13,437 children

Much, although presumably not all, of the costs of these services might be paid for by Medicaid or NC Health Choice.

Youth suicide prevention

14. The state should work with communities to develop local suicide prevention programs targeted at adolescents and young adults.

In the past, most suicide prevention strategies have fallen into the following general approaches: preparing school staff, community members, or health care providers to identify and refer students at risk for suicide; educating students through general education efforts about suicide and how to seek help for themselves or others; providing screening programs to identify high-risk adolescents and young adults; setting up peer support programs; establishing crisis centers and hotlines; restricting access to lethal means (such as handguns

or drugs); or following up with interventions after suicide (to prevent or contain suicide clusters). The Centers for Disease Control and Prevention (CDC) has examined these different suicide prevention strategies and noted gaps in current program design. For example, teens are targeted more frequently than young adults, even though the suicide rate is higher for young adults; [112] programs are inadequately linked to mental health resources; some of the most promising strategies are infrequently applied; potentially effective programs (e.g., youth alcohol and drug prevention programs, teen pregnancy programs, and dropout prevention programs) are not seen as suicide prevention programs; and few programs have been adequately evaluated.

Because there have been few evaluations of the different suicide prevention models, the CDC does not recommend one strategy over another. However, the CDC does recommend that communities consider the following in developing their suicide prevention programs.

- Ensure that the suicide prevention programs are linked closely with professional mental health resources in the community;
- Avoid reliance on any one prevention strategy. A multi-faceted approach to suicide prevention is recommended.
- Incorporate promising strategies into current programs, such as restricting access to lethal means of committing suicide. Peer support groups for adolescents and young adults also holds promise, but should be implemented carefully. Suicide prevention efforts might also be enhanced by working closely with other prevention programs, such as alcohol and drug-abuse treatment programs.
- Expand suicide prevention efforts to target young adults.
- Evaluate suicide prevention efforts.

The Youth Suicide Prevention Task Force should help develop a plan that incorporates these suggestions and disseminate this plan to local communities.

Youth violence

15. The Department of Public Instruction, the Center for the Prevention of School Violence, and other agencies should work with schools to help them develop more effective school safety plans.

These plans should include prevention, intervention, and rapid response; and should be developed with input from students, parents, teachers, local law enforcement, and other community resources. For example, the DPI should work more closely with school systems to ensure that they develop systems for identifying children who are at risk of violent behaviors. Exposure to multiple risk factors during childhood (for example, perinatal

difficulties, physical trauma to infants, poor family management practices, communities with high crime rates, academic failure) increases the risk of violence among children as they grow up.[113] Some of the early warning signs include social withdrawal; excessive feelings of isolation or rejection; being a victim of violence; feelings of being picked on and persecuted; low school interest and poor academic performance; expressions of violence in writing and drawing; uncontrolled anger; patterns of impulsive and chronic hitting, intimidating, and bullying behaviors; history of discipline problems; past history of violent and aggressive behaviors; intolerance for differences or prejudicial attitudes; drug or alcohol use; affiliation with gangs; inappropriate access to, possession of, and use of firearms; or serious threats of violence.[114] Schools can reduce violence by: 1) using management and instructional practices that promote the development of social bonding to school and academic success; 2) promoting pro-social norms and behaviors; 3) teaching conflict resolution skills; and 4) minimizing the availability and acceptance of weapons. The SBE should adopt a statewide accountability standard to ensure the effectiveness of safety plans and the planning process.

16. Schools should employ additional school social workers, counselors, and school psychologists, and communities should ensure adequate community mental health resources to work with students who are identified as being at risk of violent or suicidal behaviors.

Most schools have too few personnel to work with students who have been identified as at risk of school violence or suicidal behaviors. The schools should hire additional counselors, psychologists, or social workers with specific job responsibilities to work with students who have been identified as at risk of violent or suicidal behaviors. Additional community resources should be made available and coordinated with services provided through the school.

Gun safety

17. Require that guns without personalized safety locking mechanisms be stored in a locked box or with a trigger lock, and increase the penalty for the gun owner if someone is injured or killed with an improperly stored gun.

The state should also strengthen current laws to reduce youth access to firearms. A national study examined state laws that make gun owners criminally liable if someone is injured because a child gains unsupervised access to a gun; the laws were shown to reduce unintentional shooting deaths for children younger than 15 years by 23%.[115] Last year, legislation was introduced that would have required all adults to store guns safely, and would have increased the penalty from a misdemeanor to a felony if a child obtained access to a gun (H 1231). This legislation would apply to all guns, including existing guns that do not already have personalized gun safety locks. Owners who store their guns in a locked box or with

tamper-resistant mechanical locks would not be subject to the felony. The state should enact this or similar legislation that requires safe storage of guns for all gun owners, and increases the penalty if improperly stored guns are used in the commission of a crime.

18. Enact legislation requiring guns to have personalized gun safety locking mechanisms

The state should enact a gun safety bill requiring that any new handgun manufactured, possessed, sold, offered for sale, traded, transferred, shipped, leased, distributed, or acquired within North Carolina be personalized so that it can only be fired when operated by that handgun's authorized user.[116] Generally, these designs fall into three categories: locks that require the entry of personalized codes, electromagnetic locks that require a radio or magnetic field emitted from something the gunowner wears, or guns that recognize the owner's fingerprints. North Carolina should require that all new guns registered in the state use one of these technologies, and that the safety features are incorporated into the design of the gun and not as an accessory. Further, the law should ensure that the guns be manufactured such that the personalized characteristics can not be deactiviated easily. Guns with this personalized technology generally cost about $100-$200 more than comparable guns.[117] Older guns should be retrofitted with a gun-locking device; these locks generally cost between $70 and $90. This legislation could reduce the number of accidental shootings, homicides, and suicides with a firearm.

19. Enforce gun laws for private gun sellers

State and federal law requires that licensed gun dealers maintain records of sales of handguns to private purchasers. However, private sellers are not required to follow these same laws. The state should enact legislation to require private individuals and non-licensed gun-show sellers to comply with existing laws governing records of sales. Last year, legislation was introduced to require private gun-show sellers to follow the laws that licensed gun dealers must follow (H 1275). Further, the bill would have made it easier for sheriffs to enforce the law. This, or similar legislation, should be enacted.

20. Limit gun sales to one per month.

Many of the handguns used by children are obtained on the illegal market. Restricting the number of handgun purchases to one per month has been shown to reduce the illegal transfer of firearms. Researchers studied the impact of Virginia's 1993 law, which limited handgun purchases to one in a 30-day period.[118] The study showed that the number of illegal handguns recovered nationally that could be traced back to Virginia was reduced by 36%, and that the number of illegal handguns used in the northeast corridor that could be traced back to Virginia was reduced by 66% after the law went into effect. North Carolina should enact similar legislation limiting the purchase of handguns to one per month.

21. Require guns to be licensed and registered.

North Carolina currently makes it illegal for any person to sell, give away, or transfer a pistol to any person unless the person has a gun license or permit. To obtain the gun permit, the sheriff must conduct a criminal background check, ensure that the person is not precluded under state law from obtaining a gun, and be satisfied that the person is of "good moral character." Unlike automobile licenses, North Carolina's gun permit laws do not require that an individual pass a gun safety examination. Similarly, North Carolina's law regarding records of sales is relatively weak. The law requires gun *dealers* to maintain records of sales, but does not require that other gun *sellers* keep records of sales. Further, unlike automobile licenses, records of sales are not maintained in any centralized location. These limitations make it more difficult to track the illegal transfer of guns.

Reducing job-related injuries

22. Develop a Child Labor Review Committee to examine the working patterns and injury experiences of children in North Carolina, and to make recommendations about necessary data collection mechanisms and interventions.

An interagency committee should be convened by the Department of Labor to make specific recommendations about the adequate surveillance of the working patterns and injury experiences of children in North Carolina and improvements in child labor regulations and enforcement. Specific attention should be paid to regulations to protect children working in agricultural jobs and to the need for improved enforcement of child labor violations and training of both employers and teenagers. To facilitate the work of this committee, all child labor injuries should be reported to the state. The North Carolina Department of Labor shall report any recommendations annually to the North Carolina General Assembly.

23. Child labor laws should be extended to provide better protections to children working in agricultural jobs.

At present, child labor laws at the federal and state level restrict youth under age 18 from working in certain hazardous jobs and during restricted hours. However, regulations do not cover youth working on family farms (IOM, 1998). The National Academy of Science Institute of Medicine report, *Protecting Youth at Work*, published in 1998, recommended, "The current distinctions between hazardous orders in agricultural and nonagricultural industries should be eliminated. Furthermore, the minimum age of 18 should apply for all hazardous occupations, regardless of whether the adolescent is working in an agricultural or nonagricultural job, and whether the minor is employed by a stranger or by a parent or other person standing in for the parent."[119] This recommendation is based on findings from

multiple studies indicating that agricultural work is particularly dangerous, including exposure to heavy equipment, pesticides, large animals, and grain silos. National data indicate that 40% of all fatal work injuries among teenagers occur in agriculture, forestry or fishing. Of these fatal injuries, 54% were to youth working in a family business or farm. The child labor laws should be extended to cover children working on family farms and small farms. Additionally, the law should be extended to clarify that working with pesticides is a hazardous occupation.

Reducing sports injuries

24. Schools should be required to implement the recommendations of the National Athletic Trainers Association.

Sports injuries are known to be amenable to intervention. To help reduce sports injuries, high schools should adopt the recommendations of the National Athletic Trainers Association (NATA) that have not already been adopted by the SBE or the NCHSAA.[120] These recommendations include:

1) An emergency plan.
2) Team physician/consulting physician.
3) Guidelines for inclement weather and for adequate rehydration methods (NCHSAA has rehydration guidelines for football, but not for other outdoor sports. These requirements should be extended to all outdoor summer athletics, both at the high school and middle school level. In addition, the NCHSAA should develop guidelines that guide school sports during inclement weather, and similar rules should be developed for middle-school students).
4) Coach participation in ongoing education in CPR and first-aid. Athletic trainers are currently required to have completed courses in CPR and first-aid. However, trainers are only required to be present at football events, not soccer, baseball, track, wrestling, or other school sporting events. Coaches or athletic trainers with the requisite training should be present at all middle school and high school athletic events.
5) Proper maintenance of school fields and facilities
6) Safe sports equipment [121] that is properly fitted, in good repair, and inspected on a regular basis. The NCHSAA requires that high schools follow National Federation of High School rules, which specify the requirements for the playing fields and equipment used in high school athletics. However, these same requirements are not mandated for middle-school athletics. Middle schools should be required to follow these same rules.
7) Pre-season, in-season, and out-of-season conditioning programs should be available to all student athletes.

Playground safety design

25. The DPI should adopt playground safety equipment rules.

The North Carolina DPI should adopt playground safety rules for use by all schools. These rules should be based on the standards set by the Consumer Product Safety Commission.[122]

Reducing alcohol use among underage youth

26. Increase the alcohol tax to reduce consumption of alcohol.

North Carolina currently has an alcohol excise tax of 53 cents per gallon of beer.[123] This tax was established in 1969. Adjusted for inflation, the tax is now the equivalent of 13 cents per gallon. Alcohol, particularly beer, is relatively inexpensive. Studies show that increasing the price of alcohol will reduce consumption among young drinkers, who have less disposable income. A 1998 study, for example, showed that raising the price of beer by 10% would decrease consumption, leading to a 5% reduction in the number of incidents of violent behavior among college students.[124] A statewide poll in 1997 indicated that 77% of North Carolinians are very concerned about underaged drinking, and that 82% support increasing the excise tax on beer by five cents a bottle/can to help reduce underage drinking.

[1] NC State Center for Health Statistics. NC Department of Health and Human Services. Information obtained from Judith Devine. Special data analysis, Dec. 1999.
[2] NC State Center for Health Statistics. NC Department of Health and Human Services. Information obtained from Judith Devine. Special data analysis, Dec. 1999. Note: Any death rate with a small number of deaths in the numerator will have substantial random variation over time (a large standard error). A good rule of thumb is that any rate based on fewer than 20 events in the numerator may be subject to serious random error. As such, extreme caution and reservation should be taken when comparing or assessing trends with rates calculated with fewer than 20 events. Some of the death rates in this figure have numerators smaller than 20.
[3] NC State Center for Health Statistics. Information obtained from Judith Devine, Nov. 1999.
[4] Ibid.
[5] Herman-Giddens ME, Brown G, Verbiest S, Carlson PJ, Hooten EG, Howell E, Butt JD. Underascertainment of child Abuse Mortality in the United States. Journal of the American Medical Association. 1999;282(5):463-467.
[6] NC State Center for Health Statistics. Information obtained from Judith Devine, Nov. 1999.
[7] There are a number of risk factors that may increase the likelihood that someone tries to commit suicide. These risk factors include: previous suicide attempts; mental disorder (particularly mood disorders); co-occurring mental and alcohol and substance abuse disorders; family history of suicide; hopelessness; impulsive and/or aggressive tendencies; barriers to accessing mental health treatment; relationship, social, work or financial loss; physical illness; easy access to lethal methods, particularly guns; unwillingness to seek help because of the stigma; influence of significant people who have died by suicide; cultural and religious beliefs; local epidemics of suicide that have a contagious influence; and isolation. U.S. Department of Health and Human Services. U.S. Public Health Service. The Surgeon General's Call to Action to Prevent Suicide: 1999.
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a) Inflicts or allows to be inflicted upon the juvenile a serious physical injury by other than accidental means; or
b) Creates or allows to be created a substantial risk of serious physical injury to the juvenile by other than accidental means; or
b1) Uses or allows to be used upon the juvenile cruel or grossly inappropriate procedures or cruel or grossly inappropriate devices to modify behavior; or
c) Commits, permits or encourages the commission of a violation of the following laws by, with, or upon the juvenile: first degree rape...second degree rape...first degree sexual offense...second degree sexual offense...sexual act by a custodian...crime against nature...incest...preparation of obscene photographs, slides or motion pictures of the juvenile...employing or permitting the juvenile to assist in a violation of the obscenity laws...dissemination of obscene material to the juvenile...displaying or disseminating material harmful to the juvenile...first and second degree sexual exploitation of the juvenile...promoting the prostitution of the juvenile...and taking indecent liberties with the juvenile ...regardless of the age of the parties; or
d) Creates or allows to be created serious emotional damage to the juvenile. Serious emotional damage is evidenced by a juvenile's severe anxiety, depression, withdrawal or aggressive behavior toward himself or others; or
e) Encourages, directs, or approves of delinquent acts involving moral turpitude committed by the juvenile.

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Chapter 9

Health Promotion and Disease Prevention

STATEMENT OF THE PROBLEM

This chapter focuses on health promotion and disease prevention activities for children. It covers six areas: food security, nutrition, physical activity, overweight and obesity, body image and eating disorders, and tobacco use prevention (prevention of alcohol and other illegal substance use is covered in Chapter 7). Many factors contribute to a child's health and well being. In addition to being raised in a nurturing environment, children need healthy foods and physical activity. Investing in our children's health will help prepare them to deal with health issues that are ahead of them.

Physical activity and nutrition are at the heart of health promotion. North Carolina has many nutrition programs that provide assistance to vulnerable families and children, but does not have a comprehensive statewide nutrition plan similar to plans in place for physical activity and tobacco use prevention. There are many successful nutrition programs, but they may focus on low-income families and children, which often leaves other marginal groups (e.g. the working poor) to struggle without assistance. Many of these people might be eligible for food stamps and not realize it. Schools and other institutions could provide more effective nutrition programs with some assistance.

Physical activity is being addressed comprehensively in North Carolina through the *Be Active North Carolina* plan, launched in January 2000. Through this plan the state will make major strides in increasing activity by supporting individual citizens and organizations. Although the Task Force endorses the entire plan, we have selected the most pertinent recommendations from *Be Active North Carolina* for this report.

Similarly, much effort has gone into tobacco use prevention in North Carolina and other states. The Centers for Disease Control and Prevention (CDC) and the National Cancer Institute (NCI) have invested heavily through project ASSIST and the Best Practices for Comprehensive Tobacco Control Programs. After eight years of work with these groups, North Carolina now has a statewide Tobacco Use Prevention and Control Branch (NCTPCB).[53] The section of this report on tobacco use prevention is, in many ways, a model of what we would like to see developed with regards to other health promotion issues.

Food insecurity

Problems in health promotion and disease prevention begin with families who cannot afford enough food. This nutrition-related problem is closely associated with poverty. Almost 15 million children in the Unites States are living at or below the national poverty level according to the United States Census Bureau. In North Carolina the statistics are comparable to those on the national level. In 1998 approximately 391,000 of North Carolina's children under the age of 18 lived in poverty.[1] Although most households in the United States and North Carolina have enough food to meet their nutritional needs ("food secure"), between 1996-98 10 million United States households (9.7% of total) had inadequate food ("food insecure[2]") and 3.5% of these households suffered severely enough that one or more household members were hungry at least some time during the year.[3,4] North Carolina is just under the national averages with 8.8% of households food insecure, and 2.6% of households food insecure with hunger.[3]

Hunger and food insecurity can have harmful physical and behavioral consequences of particular concern for children.[11,4,13] Compared with nourished children, undernourished children have difficulties in social interaction with peers, lower attention spans, and higher school absence rates because of physical illnesses. All of these factors contribute to poor academic progress. Children who are hungry obtain lower scores on standardized tests used to determine progress within the school system. These difficulties can compound and increase the risk for dropping out of school later in life, which will affect the child's ability to obtain a job and progress in the labor market. In addition, several studies have shown that potentially irreversible brain abnormalities and cognitive and psychological impairments can result from even mild undernourishment in a child.[5] The longer nutritional, emotional, and educational needs go unmet, the greater the overall cognitive impairment.[5] In the United States, approximately 8% of 12-year-olds experience food insecurity each year, which profoundly affects their emotional, behavioral, and cognitive development.[6]

A recent study by the Center on Hunger, Poverty and Nutritional Policy at Tufts University found compelling evidence that cognitive, psychological, and other brain abnormalities resulting from undernourishment can be modified or even reversed by improving nutrition.[7] For example, studies have shown that children with iron-deficiency exhibit decreased attentiveness and lower intelligence scores.[5,8] The negative effects of iron-deficiency anemia on cognition in children can be prevented or mitigated by consumption of high quality foods such as those provided through the School Breakfast Program (SBP).[5,9]

Food insecurity and hunger might coexist with malnutrition, but they are not the same issue nor even necessarily closely associated. Food insecurity and hunger are poverty-based problems with harmful health and behavioral impacts in their own right.[4,10] These are of particular concern for pregnant women, children, elderly persons, and other nutritionally vulnerable groups.[4]

Nutrition

Healthy eating patterns in childhood and adolescence promote optimal health, growth, and intellectual development; prevent immediate health problems, such as iron deficiency anemia, obesity, eating disorders, and dental caries; and might prevent long-term health problems, such as coronary heart disease, cancer, stroke, diabetes, high blood pressure, overweight, and osteoporosis.

The Dietary Guidelines for Americans recommend that one eat a variety of foods and choose a diet plentiful in grain products, vegetables, and fruits; moderate in salt, sodium, and sugars; and low in fat, saturated fat, and cholesterol. Unfortunately, few United States children and adolescents follow the recommendations of the Dietary Guidelines for Americans or the Food Guide Pyramid. On average, children and adolescents consume foods containing too much fat, saturated fat, and sodium, and not enough calcium and fiber.[11,12] Children's diets are typically also low in fruits and vegetables. Children and adolescents obtain 33-35% of their calories from fat and 12-13% from saturated fat (above the recommended levels of 30% and 10%, respectively).[11,12] Only 16% of children ages 6-11 years and 15% of adolescents ages 12-19 years consumed the recommended amount of fat; only 9% of children and 7% of adolescents consumed the recommended amount of saturated fat.[12,13] Almost half of eighth- and tenth-grade students eat three or more snacks a day, and most of these snacks are high in fat, sugar, and/or sodium.[12]

Adding to the national picture, data from CDC's 1997 Youth Risk Behavior Survey (YRBS) indicate that, on the day before the survey, less than a third of students reported eating the recommended five or more servings of fruits and vegetables. Male students (32.1%) were significantly more likely than female students (25.7%) to have eaten five or more servings of fruits and vegetables. On a more positive note, nearly two-thirds of students had eaten two or less servings of foods typically high in fat content (hamburgers, hot dogs, or sausage; french fries or potato chips; and cookies, doughnuts, pie, or cake) during the day preceding the survey. Female students (70.6%) were significantly more likely than male students (55.5%) to have eaten less fat. Hispanic/Latino (63.8%) and white (62.9%) students were significantly more likely than black (54.9%) students to have eaten less fat.[14]

According to the 1997 North Carolina YRBS, a large number of adolescents consume high fat and high sugar foods on a regular basis. Over half of North Carolina high school (58%) and middle school (62.2%) students ate high-fat meats the previous day. More than two-thirds of high school (69.3%) students and 65.2% of middle school students ate high fat potatoes on the previous day. Just over three-fourths of high school (75.7%) and middle school (76.5%) students said they had eaten high-sugar foods the previous day. Along with eating unhealthy foods, many forego eating more nutritious foods like fruits and vegetables. A little over half (58.4%) of North Carolina middle school students ate green salad or vegetables the previous

day. However, 78% of middle school students did report eating fruit or drinking fruit juice the previous day.[15]

Table 9.1: NC Adolescents' 1997 Reported Eating Habits[15]

YRBS categories	1997 NC	
Students ate the previous day:	**High school**	**Middle school**
High fat meats	58.0%	62.2%
High fat potatoes	69.3%	65.2%
High-sugar foods	75.7%	76.5%
Green salad or vegetables	NA	58.4%
Fruit or fruit juice	NA	78.0%

Children and adolescents appear to be familiar with the general relationship between nutrition and health, but are less aware of the relationship between specific foods and health. For example, young persons understand the importance of limiting fat, cholesterol, and sodium in one's diet, but they do not know which foods are high in fat, cholesterol, sodium, or fiber.[12] One study indicated that adolescents were well-informed about good nutrition and health, but did not use their knowledge to make healthy food choices.[11,12]

Physical Activity

North Carolina is ranked 38th in the country for our regular and sustained levels of physical activity, with only 12 states reporting less physical activity.[16] That is an improvement from 1994 when North Carolina was ranked 49th.[17] Public health experts estimate that 26% of total annual premature deaths and disabilities in the United States result from poor nutrition and lack of regular physical activity.[18,19] In North Carolina, the total annual deaths from preventable causes closely mirrored the national percentage (26% in both 1996 and 1997). Poor diet and physical inactivity caused an estimated 9,200 preventable deaths in North Carolina in 1997. Only tobacco use caused more deaths.[19]

Regular physical activity is essential to maintaining good health. Along with enhancing psychological well being, and preventing premature death, regular physical activity reduces the risk of developing heart disease, diabetes, colon cancer, high blood pressure, and depression. It is particularly important for normal skeletal development. Physical activity among youth is important for its immediate health benefits and because the adoption of a physically active lifestyle in childhood tracks into adulthood. Studies have shown that children as young as 3-4 years old who were less active tend to remain less active than their peers after three years.[4,20]

The International Consensus Conference on Physical Activity Guidelines for Adolescents recommends that, "All adolescents...be physically active daily, or nearly every day,

as part of play, games, sports, work, transportation, recreation, physical education, or planned exercise, in the context of family, school, and community activities." The guidelines further recommend that, "Adolescents engage in three or more sessions per week of activities that last 20 minutes or more at a time and that require moderate to vigorous levels of exertion."[21,22]

Nationally, self-reported participation in vigorous physical activity among youth has decreased slightly from 65% in 1991 to 64% in 1997.[14] Nearly half of American youths aged 12-21 years are not vigorously active on a regular basis. About 14% of young people report no recent physical activity. Consistent findings over time suggest that girls are less active than boys, teenagers are less active than younger children, and African American girls are the least active of all.[14] Participation in all forms of physical activity declines dramatically as youth grow older.[23] This has been documented as early as ninth grade, where participation in physical activity, stretching or strengthening exercises have all decreased.[24] Only 55% of North Carolina students reported participating in vigorous physical activity, in contrast to 64% nationally. In middle school and high school, 76.6% and 55.3% of students, respectively, reported getting vigorous physical activity for 20-plus minutes three days per week. Only 44.2% of high school students reported exercising to strengthen or tone muscles at least three days in the previous week.

In 1992, North Carolina children scored 12-15% below the national average on heart-lung fitness tests.[25] North Carolina children are also less flexible, have a higher percent of body fat, and have poorer cardiovascular fitness than children nationally.[26]

Overweight and Obesity

Overweight and obesity are major contributors to many preventable causes of death. On average, higher body weight is associated with higher death rates. Overweight and obesity substantially raise the risk of illness from high blood pressure; high cholesterol; type II diabetes; heart disease and stroke; gallbladder disease; arthritis; sleep disturbances and respiratory problems; and endometrial, breast, prostate, and colon cancers. Many of these diseases are problems that typically manifest in adults, but some of these conditions occur among children. For example, type II diabetes is considered an emerging pediatric epidemic.[27] Other conditions, such as the risk for coronary artery disease and stroke, begin in childhood.[28] Obese children might also suffer from social stigmatization, discrimination, and lowered self-esteem.

The prevalence of overweight children has more than doubled over the past 30 years.[6,29,30] Overweight is conservatively defined as a weight for height (2-4 year olds) or a body mass index (BMI) (5-18 year olds) greater than or equal to the 95th percentile. Obesity is defined as BMI greater than or equal to the 85th percentile. The most recent data from the

National Health and Nutrition Examination Survey III suggest that 22% of United States children and adolescents are overweight and that 11% are obese.[30]

Overweight and obesity are observed in all population groups, but they are particularly common among African American and Mexican American children.[29,31] African American children consume a diet higher in fat and, along with Mexican American children, were less active than white children of comparable ages.[31] Children of obese mothers, of low family incomes, and with lower cognitive stimulation have a significantly greater risk of becoming obese adults, compared with children who do not have these factors.[32] Research strongly suggests children who are obese are likely to become overweight adults.[6,29] Being poor is another risk factor for being overweight. The proportion of adolescents from poor households who are overweight is almost twice that of adolescents from middle- and high-income households.

North Carolina youth are two to three times more likely to be obese than other children in the nation. Risk factors for cardiovascular disease—particularly obesity and low exercise tolerance—are already present as early as the third grade in North Carolina children.[25]

The University of North Carolina School of Nursing Cardiovascular Health in Children study evaluated more than 2,200 children from randomly sampled North Carolina schools. The results show that school-age children are at risk for serious health problems. The study also found a surprising number of North Carolina children already have health problems. More than a 25% of North Carolina's fourth and fifth graders are overweight. Twelve percent of the students have high blood pressure, 3% have severe hypertension, and 12% have high cholesterol. Those levels are 99% higher than other kids in the United States their age.[25]

The children represented in the following data are those who receive services in a local health department clinic or school-based health center and might not be representative of the state as a whole. For these children, North Carolina has twice the expected number of overweight preschoolers, nearly three times the expected number of overweight school-age children, and more than four times the expected number of overweight teens.[33]

Table 9.2: Overweight Low-income Children in NC[33]

Age in years	Percent of overweight low-income children (1999)
2-4	9.9% Unchanged from 1997 Two times expected prevalence
5-11	15.8% Up from 14.5 in 1997 More than three times the expected prevalence
12-18	23.3% Up from 22.1 in 1997 Nearly five times the expected prevalence

Some studies have found that television watching is directly associated with obesity.[12,34,35] Youths in the United States spend, on average, more than 20 hours a week watching television—more time over the course of the year than they are in school.[35,36] Children spend more time watching television and videotapes and playing video games than doing anything else except sleeping.[37] Television viewing may contribute to obesity in several ways; by displacing physical activity, encouraging the consumption of high-calorie food while watching TV.[37]

In addition, a child's food choices are influenced by television advertisements for low-nutritive foods. Children see about one food advertisement for every five minutes of Saturday morning children's shows.[12,38] Most of the foods advertised during children's programming are high in fat, sugar, or sodium; practically no advertisements are for healthy foods such as fruits and vegetables.[12,38,39,40] Studies have indicated that, compared with those who watch little television, children and adolescents who watch more television are more likely to have unhealthy eating habits and unhealthy conceptions about food,[41] ask their parents to buy foods advertised on television,[42] and eat more fat.[12,43]

Body Image and Eating Disorders

Although most people regardless of age or background are dissatisfied with their appearance, body image problems are becoming more prevalent in children and adolescents. Dangerous weight loss practices have been reported among girls as young as 9 years old.[12] A growing number of children and adolescents in the United States practice dangerous weight-loss methods, such as deliberately restricting food intake, which over long periods can retard growth and delay sexual development.[12,44] Smoking is also linked to unsafe weight-loss

methods. One study found the rate of smoking initiation to be higher for adolescent girls who dieted than those who did not.[45] Another study found many white female high school students report smoking to control their appetite and weight.[12,46] Young persons involved in certain competitive sports and dancing are particularly at risk for dangerous weight-loss practices.[12,47]

The 1997 North Carolina YRBS provides a snapshot of body image for North Carolina adolescents. In 1997, more than one quarter of middle school (25.5%) and of high school (26.3%) students viewed themselves as overweight. Forty-three percent of the middle school students and 40.7% of the high school students had tried to lose weight. Of middle school and high school students, 38.4% and 29.0%, respectively, dieted in the past 30 days to lose or control weight; 8.9% and 5.8%, respectively, reported vomiting or taking laxatives in the last 30 days to lose or control weight, and 7.4% and 8.1%, respectively, reported taking diet pills in the past 30 days to lose or control weight. Nationally, girls are more likely to report problems with body image, and to have tried to diet or lose weight.[15]

Table 9.3: NC Adolescent Body Image[14,15]

1997 YRBS NC students	High school	Middle school	National (high school)
Viewed themselves as overweight	26.3%	25.5%	27.3
Tried to lose weight within 30 days before survey	40.7% females 58.1%	43%	39.7
Dieted either to lose weight or to keep from gaining weight within 30 days before survey.	29% females 42%	38.4%	30.4
Took laxatives or vomited to lose weight or keep from gaining weight	5.8% females 7.9%	8.9%	4.5
Reported taking diet pills within 30 days before survey to lose or control weight	8.1% females 10.7%	7.4%	4.9

Eating disorders (e.g., anorexia nervosa and bulimia nervosa) often start in adolescence, and between 85 and 95% of cases occur among females.[12,48] Anorexia nervosa and bulimia nervosa affect as many as 3% of adolescent and young adult females, and the incidence of anorexia nervosa appears to have increased in recent decades.[49] Compared with adolescents who have normal eating patterns, adolescents who have eating disorders tend to have lower self-esteem, a negative body image, and feelings of inadequacy, anxiety, social dysfunction, depression, and moodiness.[50] Eating disorders can cause many severe complications, and mortality rates for these disorders are among the highest for any psychiatric disorder.[51,48]

Tobacco use prevention

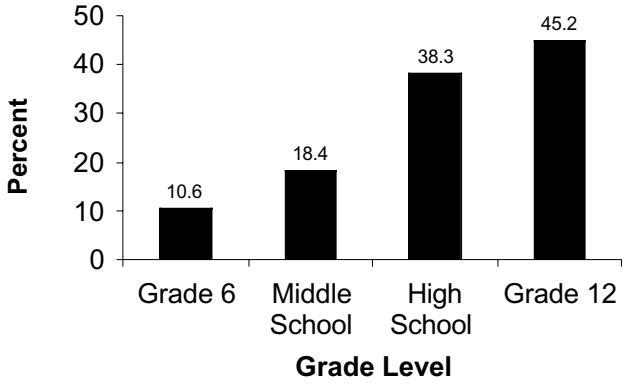
Cigarette smoking: Cigarette smoking is the single most preventable cause of disease and death in the United States. Smoking results in more deaths each year in the United States than AIDS, alcohol, cocaine, heroin, homicide, suicide, motor vehicle crashes, and fires combined.

The Surgeon General calls cigarette smoking, "The most important of the known modifiable risk factors for coronary heart disease in the United States."[52] As is slowly becoming accepted, cigarette smoking is the leading preventable cause of premature death in our state and our country. Tobacco-related deaths number more than 430,000 per year among United States adults, representing more than 5 million years of potential life lost. Direct medical costs attributable to smoking total at least $50 billion per year.[4]

Thirty-three North Carolinians die every day from smoking-related illnesses, about 12,000 a year, which represents one out of every five deaths in North Carolina. The economic consequence of tobacco-related illnesses and deaths in North Carolina totaled $2.1 billion in 1993 dollars.[53,54] In 1997, 26% of North Carolina adults were smokers, which gave North Carolina the 11th highest smoking prevalence in the nation. Not only that, but North Carolina was above the national median of 24% and much higher than the Healthy People 2000 goal of 15%.[55] Of all of these smokers, 90% began smoking before age 18.[56]

Tobacco use typically begins in adolescence. The North Carolina 1999 Youth Tobacco Survey found that 18.4% of North Carolina middle school students and 38.3% of high school students are current users of a tobacco product (cigarettes, spit tobacco, cigars, or pipes).[57] Current use is defined as using tobacco on one or more of the 30 days before the survey. The percentage of students reporting current tobacco use increases steadily with grade. Among sixth-grade students, 10.6% report current tobacco use, compared with 45.2% of 12th-grade students. White high school students are more likely to report current tobacco use than African-American or Hispanic/Latino high school students. There were no apparent racial/ethnic differences among middle school students. At both the middle and high school levels, males are more likely to report current use of all types of tobacco than females.[57]

Figure 9.1, NC Youth Tobacco Use, 1999



Six thousand young people in the US smoke their first cigarette each day. More than 3,000 of these young people become regular smokers (over one million a year).[58,4] The risk for most smoking-related cancers rises with the length of time that a person smokes.[59,4] In addition to cancer, smoking is known to cause heart disease and stroke in adults. Early signs of these diseases are also found in youth who smoke.[60,4] Teen smokers also suffer from shortness of breath nearly three times as often and produce phlegm more than twice as often as nonsmoking teens.[60,4]

Addiction: Young people underestimate the addictiveness of nicotine. A number of studies have found nicotine is as addictive as heroin, cocaine, and alcohol.[60,4] For example, adolescent smokers transition from experimentation to dependence just as frequently as cocaine and heroin users.[4,61] Not only that, but 75% of daily high school smokers who planned to stop smoking were still smoking five to six years later.[4,62]

Approximately half of all students who currently smoke report they would like to quit (53.4% of high school students and 51.2% of middle school students). About three-fifths of the students who smoke have tried to quit at least once (64.7% of high school and 58.8% of middle school students), but of these, more than half report being unable to quit for an entire week (52.7% of high school and 65.1% of middle-school students).[4]

Teen smoking has also been found to be an early warning sign of other problems. Teens who smoke are three times as likely as nonsmokers to use alcohol, eight times as likely to use marijuana, and 22 times as likely to use cocaine. Smoking is also associated with fighting and having unprotected sex.[63,4]

Smokeless tobacco: Smokeless tobacco use among young people is also a problem. Smokeless tobacco is as addictive as cigarette smoking, and can cause gum disease, tooth

loss, and cancer of the mouth, pharynx, esophagus, and pancreas.[4,64,65] It might also increase the risk of heart disease and stroke.[4,66] Surveys have indicated that parents are more tolerant of their children using smokeless tobacco than other health-threatening activities.[55] Use of smokeless tobacco is predominantly a white, male behavior.[24] National data from recent school-based surveys indicate that about one in every five male students in 9th through 12th grades uses smokeless tobacco.[4,67]

Secondhand smoke ("environmental tobacco smoke"): According to the Environmental Protection Agency (EPA), secondhand smoke is a Class A carcinogen, which means it causes cancer in humans. It is known to be the third most common cause of lung cancer. Not only that, it is also associated with low birth weight (9,700-18,600 cases of low birth weight per year in the United States), sudden infant death syndrome (SIDS) (1900-2700 SIDS deaths), respiratory problems (asthma, bronchitis, pneumonia, etc.), and middle ear infections in children.[68,69] Secondhand smoke is responsible for 150,000 to 300,000 serious respiratory ailments in young children each year.[55] It also has a negative impact on cognition and behavior, exacerbates cystic fibrosis, decreases pulmonary function, and is associated with spontaneous abortion.[69]

The CDC released a study in 1996 that reported nearly nine of every ten non-smoking Americans are exposed to secondhand smoke[52,70.] Almost half of NC middle (48.8%) and high school students (46.0%) live with someone who smokes.

Current Programs and Policies

Many programs and policies in North Carolina focus on health promotion and disease prevention activities for children and youth. Some of these programs focus on instilling healthy eating and exercise behaviors in the schools, and a large number of programs focus on educational efforts aimed at family or peers. Most of the programs are publicly funded, but a number are developed through private-public initiatives. This section describes North Carolina's current health promotion organizations and some of their programs and policies for children. North Carolina has hundreds of health promotion programs, all of which could not be adequately described in this section. Those that are described are not necessarily more important than those that are not listed. Likewise, unmentioned programs are no less effective or important. The section is roughly categorized into five areas: general health promotion activities, nutrition and food policies, physical activity, efforts aimed at reducing and preventing obesity, and tobacco use prevention and control.

General health promotion activities

The state operates several agencies that focus on health promotion and disease prevention activities, including the Health Promotion Branch, the Women's and Children's Health Section and the North Carolina Cooperative Extension Service.

Health Promotion Branch: The Health Promotion Branch is within the Chronic Disease and Control Section of the Division of Public Health, Department of Health and Human Services (DHHS). The goal of the Branch is to build healthy communities, promote healthful living, and reduce the risk of disease, with particular focus on physical activity and healthy diets. The Branch helps organizations and local communities understand that the decisions they make can affect the community's health, including the food they serve, whether to create bike paths, and whether to install or remove cigarette machines in work places. The Branch also provides health education consultation, technical assistance, and training services, and has a number of units focusing on physical activity, nutrition, and cardiovascular health.

One of the foci of the Cardiovascular Health (CVH) Unit of the Physical Activity and Nutrition (PAN) Unit is to enhance physical activity and improve nutrition in local communities. The six regions in the state correspond to the major media markets. Each region has a lead county, in charge of developing the CVH initiative and, over time, providing training and technical assistance to other counties. All of the lead counties have developed community-based educational initiatives and have elected to work for CVH promotion in schools.

Women's and Children's Health Section (WCH): The mission of the WCH is to assure, promote, and protect the health and development of families with emphasis on women, infants, children, and youth. The WCH programs place a major emphasis on the provision of preventive health services, beginning in the pre-pregnancy period and extending throughout childhood. The WCH also administers several programs serving developmentally disabled or chronically ill individuals. This section offers numerous programs addressing nutrition, obesity, and hunger, some of which are described later in this chapter.

North Carolina Cooperative Extension Service (NCCES): The NCCES, Department of Family and Consumer Sciences (FCS) has a 70+-year history of serving as the outreach arm for The Cooperative Extension Service of North Carolina State University (NCSU). The focus of the NCCES and FCS is to improve the health and quality of life for North Carolinians and their communities through education.

The infrastructure for FCS exists in all 100 counties and on the Cherokee Indian Reservation. It includes one or more Family and Consumer Educators (FCE), who are part of the county Extension Center. The FCEs interact with county residents to assess educational needs and issues. The staff provide training for child care providers and public school teachers,

conduct parent workshops, provide informal educational opportunities for families, and breast-feeding education. The Expanded Foods and Nutrition Education Program (EFNEP) teaches families with limited incomes how to improve their dietary practices and become more effective managers of available resources. Specialists from NCSU also help develop nutrition education materials for individuals and families.

Nutrition and food programs and policies

A number of programs are available to ensure that families with children obtain sufficient food. Many of the programs are publicly funded, such as the Food Stamp Program (FSP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Summer Food Service Program (SFSP), and the Child and Adult Care Food Program (CACFP); however, some are run by nonprofit organizations (including food banks and other emergency food systems). In addition to the programs aimed at reducing hunger, the state works in collaboration with or funds other private agencies to improve nutrition education, implement social marketing campaigns, or improve the nutrition of meals served in public schools.

Nutrition Assistance Programs

Food Stamp Program: The FSP is the primary, government-sponsored program designed to improve the nutrition of low-income individuals and families. The program provides a monthly food stamp allotment that may be used to purchase food for families with countable incomes at or below 100% of the federal poverty guidelines. The FSP is an entitlement program, so all eligible individuals and households can receive assistance. Processing an application normally takes 30 days, although emergency ("expedited") food stamps are available to some families within seven days.

Food stamps may be used to purchase most foods at participating stores. They may not be used to purchase tobacco, pet food, paper products, soap products, cooked foods, or alcoholic beverages. The maximum monthly food stamp allotment varies, depending on the size of the household and the household's other countable income. For a family of four with no other countable income, effective October 1999, the maximum monthly allotment was $426/month. Because of the relatively meager food stamp allotments, children might still need to receive breakfast or lunch at a school or childcare center.

The federal government determines virtually all of the program rules and provides a major portion of the funding. The federal government pays 100% of the FSP costs, and 50% of the administrative costs. The state or county (depending on whether the state or county incurs the costs) pays the remaining 50% of the administrative costs. In SFY 1999, the average number of North Carolinians receiving food stamps was 493,810. The federal government paid more than $384 million in food stamp costs that year.[71]

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC): This federal program is designed to provide food to low-income pregnant, postpartum, and breast-feeding women, infants, and children under the age of five. The WIC provides a combination of nutrition education, supplemental foods, breast-feeding promotion and support, and referrals to health care. Applicants receive medical evaluations to determine eligibility for nutrition education, breast-feeding support, referral for other health and social services, and specific foods, such as milk, juices rich in vitamin C, iron-fortified cereals, eggs, and peanut butter or dried beans/peas. Formula needs of high-risk children might also be accommodated.

Pregnant or lactating women, postpartum women up to six months, infants, and children under five years of age are eligible to receive special supplemental foods if the gross family income is below 185% of the federal poverty guidelines or if the family is participating in Medicaid, Food Stamps or Temporary Assistance for Needy Families (TANF); and professional staff of the participating local agency determines that they are at nutritional risk. In SFY 1999, the average monthly number of WIC participants served included: 50,984 pregnant, postpartum, or breast-feeding women; 53,511 infants; and 91,260 children under age five. The state estimated it was meeting the needs of approximately 75% of those eligible.[71]

Evidence suggests that women who participate in WIC have improved pregnancy outcomes, resulting in healthier babies and reduced newborn medical costs. For example, WIC dramatically lowered infant mortality by about 25% to 66% among Medicaid beneficiaries, and reduced low and very low birth weight among Medicaid beneficiaries who participated in WIC, compared with Medicaid beneficiaries who did not participate in WIC.[72] This benefits the infants and saves Medicaid millions of dollars in intensive neonatal care. Children who participate in WIC were more likely to receive regular preventive health services and were better immunized than children who did not participate in WIC.[73] North Carolina Medicaid costs dropped by an estimated $744 for the first 50 days of life.[74] In other words, for every dollar spent on prenatal WIC participation, North Carolina saved $3.90 in newborn Medicaid costs.[74]

Among children, WIC has produced equally positive results.[74] For example:

- The program lowers the rate of anemia among participating children ages six months to five years. The data show an average decrease in the anemia rate of more than 16% for each year from 1980 to 1992.
- The program significantly improves children's diets, particularly when it comes to vitamins and nutrients including iron, vitamin C, thiamin, protein, niacin, and vitamin B6.
- Four and five year olds who participate in WIC in early childhood have better vocabularies and digit memory scores than comparable children who do not participate in WIC.

Over the years, the focus of effective nutrition programming has been on reducing under-consumption of nutrients. Strategies in the FSP to improve diet have included brochures

on nutrition, food preparation methods, food safety, and stretching the food dollar.[75] A study on the contributions of the FSP and WIC found both programs contribute to maintaining and improving the diet quality of low-income households. Individuals on the FSP consumed more meats, added sugars, and total fats. [76,77] Children receiving WIC consumed more iron, folate, and vitamin B-6.[78] Both programs free up money to purchase more of all foods for the household, but the WIC program offers a more substantial nutrition education component than the FSP.

Free and reduced school lunch and breakfast: The National School Lunch Program (NSLP) was established in 1946 to ensure proper nutrition for children. In 1975, the School Breakfast Program (SBP) was implemented. Both programs provide cash subsidies for all reimbursable meals and donate commodity goods to sponsoring organizations. Based on family size and income, students either pay for their meal at "full" or reduced price or receive their meals free. To receive free breakfasts and lunches, the income of the children's family must be at or below 130% of the federal poverty level. Children with family incomes between 130% and 185% of poverty can purchase meals at a reduced price, not to exceed 40 cents for lunch and 30 cents for breakfast. These guidelines are revised annually.

All North Carolina Local Education Agencies (LEA) sponsor school lunch and breakfast programs. All schools except for one participate in the NSLP and 98.6% of schools participate in the SBP. In addition, just over half of the public schools have chosen to designate themselves as "Team Nutrition Schools." To be a Team Nutrition School, the Principal, Cafeteria Manager, and the teaching staff commit to providing sound nutritional education in both the cafeteria and the classroom.

In the 1998-99 school year, more than 740,000 North Carolina children participated in school lunch (approximately 61% of school students) and more than 262,000 (20%) participated in school breakfast each school day.[71] School lunch and breakfast has been shown to contribute 50% of the day's total intake of energy, including protein, cholesterol, carbohydrate, and sodium. In the same study, school lunch was shown to provide a third of the RDA for vitamins B-6 and D, niacin, thiamin, iron and zinc; and approximately half of the RDA for vitamins A and C and riboflavin.[79]

Much research has been devoted to examining the negative effects of missing breakfast on school performance. Since the initiation of the SBP, additional research has highlighted the benefits of breakfast consumption. Children who participate in the SBP have been shown to have significantly higher standardized achievement test scores than non-SBP participants.[80,81] More specifically, students who eat breakfast have been found to have a general increase in math grades, reading scores, verbal fluency, working memory, and overall appropriate behavior plus improved emotional adjustment and reduced nurse visits.[80,82] Children who receive school breakfast also have significantly reduced absence and tardiness

rates.[80,81] Conversely, poorly nourished and at-risk children who miss breakfast are more vulnerable to negative alterations in cognitive function, such as lower scores in tests designed to evaluate efficiency of problem solving.[83,84]

Recognizing that children who are hungry cannot learn, the 1999 North Carolina General Assembly enacted a law to expand participation in the SBP. Beginning January 1, 2000, all kindergarten students were eligible for free breakfast, regardless of the family's income. All LEAs sponsor school lunch and breakfast programs, although not every school participates. In 1998-99, approximately $420 million was spent on school lunch and breakfast programs.

Universal School Breakfast Pilot Project: The United States Department of Agriculture (USDA) is implementing a Universal School Breakfast Pilot Project, which will make free nutritious breakfasts available in a limited number of elementary schools, to all students regardless of family income. The evaluation of the results of the program will assess the effects of a universal-free school breakfast program on student participation and other student outcomes, including academic achievement, school attendance and tardiness, classroom behavior and attentiveness and dietary status. Several North Carolina schools have applied to be part of the pilot program.

Summer Food Service Program: The SFSP provides children with nutritious meals during months when school lunches are not available. The program reimburses sponsoring agencies for meals served to children in low-income areas. Seventy-five North Carolina counties participate in the SFSP; however, less than 12% of the eligible children participate in the program. To participate, a site must:

- Be located in an area where at least half of the households have incomes at or below 185% of the federal poverty level, *or*
- Be located in an area where at least half of the children are eligible for free or reduced price school meals, *or*
- Document that half of enrolled children are from families having incomes less than 185% of the federal poverty level.

Once a site is approved, any child 18 years of age or younger may eat a free meal. Children with disabilities enrolled in an educational plan may participate through age 21.

The DHHS implemented a program expansion plan to serve more of the target population. The plan includes:

- Partnering with the North Carolina Department of Public Instruction (DPI) to encourage local school food service authorities to promote the SFSP in their community.
- Holding exhibits and/or meetings with children's advocacy groups, community-based organizations, and the faith community to seek potential sponsors in counties that have no program.
- Distributing program flyer enclosures with the June Medicaid cards to families with children. The enclosure includes a toll-free number for program location and time information.
- Airing radio public service announcements and press releases in participating communities.

Child and Adult Care Food Programs: The CACFP provides financial assistance to child care providers to encourage them to provide nutritious foods to young children. To participate, childcare providers must be licensed, and be either nonprofit, public, or have at least 25% of their children receiving childcare subsidies. In addition, childcare providers must serve food that meets the federal CACFP meal requirements and must receive nutritional training. The CACFP is open to children age 12 or younger, children of migrant workers age 15 or younger, children ages 12-18 if enrolled in an "at-risk" program, and people with mental or physical disabilities served by programs where the majority of enrollees are age 18 or younger. There are no program participation fees for the families or child care providers. In 1999, approximately 930 childcare centers and 3,545 day care homes participated in the program serving, on average, approximately 103,000 meals per day.

Table 9.4: CACFP service[85]

Year	Average daily meals paid	# Child care centers	# Day care homes
1999	102,937	930	3,545
1998	97,511	882	3,340
1997	99,763	949	3,439
1996	98,358	902	3,154

In addition, programs that provide care after school hours are eligible for reimbursement for snacks served to children through age 12 (up to age 18 if the child is enrolled in an "at-risk" program or has mental or physical disabilities). At-risk programs might also be administered through the NSLP or the CACFP.

Emergency food systems: Despite an expanding economy and decreasing unemployment, a large number of people in North Carolina must rely on emergency food organizations such as food pantries, soup kitchens, and shelters. One of the main ways food banks maintain stock is through food recovery and gleaning.

Food recovery and gleaning is the collection of wholesome food for distribution to the poor and hungry. The terms "gleaning" and "food recovery" are often used interchangeably and cover a variety of different methods of food collection. The four most common methods are: field gleaning, perishable produce rescue or salvage, perishable and prepared food rescue, and nonperishable, processed food collection. Field gleaning is the collection of crops from farmers' fields that have already been mechanically harvested or on fields where it is not economically profitable to harvest. This term can also be used to describe the donation of agricultural products that have already been harvested and are being stored at a farm or packing house. Perishable produce rescue or salvage is the collection of perishable produce from wholesale and retail sources, including wholesale markets, supermarkets, and farmers' markets. Perishable and prepared food rescue is the collection of prepared foods from the food service industry, including restaurants, hospitals, caterers, and cafeterias. Nonperishable, processed food collection is the collection of processed foods, usually with long shelf lives, from sources such as manufacturers, supermarkets, distributors, grocery stores, and food drives.

With the help of several larger organizations such as: The Cooperative Extension Service, Foodchain, the USDA Farm Service Agency, Second Harvest, Society of St. Andrew, and From the Wholesaler to the Hungry, North Carolina supports the following organizations that provide emergency food to poor and hungry people.

Table 9.5: Emergency food agencies in North Carolina

• Society of St. Andrew, Western North Carolina	• Greensboro's Table, Greensboro Urban Ministry, Greensboro
• MANNA Food Bank, Asheville	• Cooperative Extension Service, North Carolina State University, Raleigh
• Second Harvest Food Bank of Metrolina, Charlotte	• Food Bank of North Carolina
• North Carolina Harvest, Charlotte	• Inter-Faith Food Shuttle
• Society of St. Andrew, Durham	• USDA - North Carolina State Office
• Albemarle Food Bank - Pantry, Inc., Elizabeth City	• Second Helpings of Winston-Salem Food Bank, Winston Salem
• Second Harvest of Southeast North Carolina Food Bank, Fayetteville	• Food Bank of Coastal Carolina

Food banks in North Carolina provide more than 20 million pounds of food each year to 1,650 nonprofit agencies. Nationally, 38% of food bank clients are children under age 18. Requests for emergency food assistance have risen by 14% in American cities, with nearly two-thirds of requests coming from families with children.[86]

Nutrition education or enhanced nutrition

Medicaid coverage of nutritional therapy: Medicaid covers individual medical nutrition therapy if a RD or LDN provides it in a local health department.

Nutrition Services Branch, Women's and Children's Health Section, DHHS: The Nutrition Services Branch promotes the nutritional well being of the maternal and child population in North Carolina. The goal of the Section is to provide services through county, state, and private agencies that promote sound nutrition habits to improve the overall health status of women in their child-bearing years and to infants and children. Nutrition services are tailored to reduce the incidence of nutritional risk factors, to improve pregnancy outcomes, and to hasten recovery from illness and injury through the provision of technical assistance, education, and supplemental foods.

North Carolina Nutrition Network: The North Carolina Nutrition Network is a network of public and private agencies and organizations that provide nutrition education to adults and children eligible for food stamps. Each year the North Carolina Nutrition Network compiles the Nutrition Education Plan for North Carolina. The Plan is made up of 15 nutrition education projects serving food stamp-eligible adults and children, covering the life cycle from breast-fed infants and their families to older adults. Activities were available in 79 counties and the Cherokee Reservation in 2000, with expansion to 95 counties expected in 2001. The Network's primary partners are the Division of Social Services (DSS), Economic Independence Services Branch, and Food and Nutrition Services (FNS) of USDA. Projects are funded through a reimbursable match: Fifty percent of funds are from the agency and 50% of funds are from FNS-USDA, via flow-though funds to DSS. Funding for FY 1998 was $4.5 million, FY 99 was $6.7 million, and FY 00 was $11.2 million. Funding is expected to reach $13 million in FY 01. Provider match is crucial to the continuation and expansion of these opportunities.

School Nutrition Action Committee (SNAC): SNAC is an interagency group of nutritionists working to facilitate coordination of nutrition services that promote behavior change and enable school-age children to establish and maintain healthful eating behaviors. The group is made up of staff members from the Children and Youth Branch, Nutrition Services Branch, and Health Promotion Branch, Division of Public Health, DHHS; from the Child Nutrition Services Section, DPI; and from the Department of Family and Consumer Sciences, North Carolina Cooperative Extension. In 1998-99 SNAC provided services in staff development and training, child nutrition, nutrition education and health promotion, and

resource development, management, and planning. In addition, SNAC members have been instrumental in raising the number of TEAM nutrition sites to 992, with 49 LEAs having 100% participation.

The Nutrition Education and Training Program (NET): The NET program operates a lending library that loans materials (videos, books, curricula) for children from infancy through high school as well as adults; the library is available to organizations across the state and is accessible through the program's Internet site. The site was designed to provide resources for Child Nutrition Program providers and teachers, and for parents of children with special feeding needs. Such children might require nutrition services and modifications to their diet and meals to support their health and growth. In addition, some children, such as those with lactose intolerance, diabetes, or inborn errors of metabolism such as phenylketonuria, might require special diets. Teachers, parents, and Child Nutrition Program staff must work together to plan meals that meet the special dietary needs of children with chronic illnesses and developmental problems. This Internet site is geared to assist in meeting this goal.

The NET program sponsors a mini-grant for organizations that wish to provide nutrition education to children. Schools, childcare centers, after-school programs, and community centers have received the mini-grants. Since April 1998, NET has allocated $129,000 for 35 mini-grants to Local Education Authorities (LEA) in North Carolina. Twenty-one projects were completed in October 1998, while the remaining 14 are ongoing through June 2000. The purpose of these mini-grants is to enable LEAs to develop innovative and fun nutrition education projects that reflect the goals of the School Meals Initiative and Team Nutrition. Applicants have been required to form partnerships between the cafeteria, classroom, and community to develop and implement projects. Community partners have included public health nutritionists, health educators, or school health nurses from local health departments or school-based health centers, county extension agents, PTA/PTO groups, voluntary organizations such as the American Cancer Society or the American Heart Association, community and four-year colleges, hospitals, and grocery stores. Involvement by the cafeteria, classroom, and community was required in the planning, implementation and evaluation of the project. Mini-grant activities have focused on *5 a Day*, the *1% or Less* milk campaign, breakfast promotion, and increased physical activity.

Local Fitness and Nutrition Councils (LFC): North Carolina has 23 counties with established LFCs and four with planned LFCs. The LFCs provide voluntary, grassroots support for promotion, initiation, and encouragement of physical activity and healthy eating at the community level.

Physical activity

North Carolina Governors Council on Physical Fitness and Health (GCPFH), Division of Public Health: The GCPFH, formed in 1979 by the North Carolina General Assembly, works to improve the quality of life for North Carolinians by promoting the benefits of regular physical activity. The Council is the lead sponsoring organizational partner, along with the North Carolina Health and Fitness Foundation, for *Be Active North Carolina*.

The North Carolina Health and Fitness Foundation was established in 1989 to provide financial support to the Governor's Council through corporate, foundation, and individual development and special events to improve physical fitness and thereby the health of all North Carolinians. The Foundation provides financial support to programs endorsed by *Be Active North Carolina.*

Be Active North Carolina: A Plan to Increase Physical Activity in North Carolina: 1999-2003: Be Active North Carolina is a public-private partnership. The partnership has developed comprehensive statewide initiatives to increase physical activity for all North Carolinians. The plan focuses interventions at the society, community and organizational levels. The administration of the *Be Active North Carolina* initiative lies within the Physical Activity and Nutrition Unit of the North Carolina Division of Public Health. An estimated $10 million is needed to fund the initiative through 2003. Funding is being sought from federal, state, and local public sources, as well as private and foundation sponsors.

Tobacco use prevention programs

A number of public and private organizations are focused on reducing the use of tobacco among North Carolina youth. In addition, the General Assembly has designated some of the tobacco settlement funds to be used to improve health, with a focus on reducing youth smoking. North Carolina also has a law to reduce youth access to tobacco products, and some schools prohibit the use of tobacco on school grounds and during all school events.

Project ASSIST: North Carolina received funding from the NCI and the American Cancer Society (1991-1999) to carry out Project ASSIST with a wide variety of partners and stakeholders. The project represented the first opportunity to utilize dedicated resources to plan and carry out tobacco prevention and control interventions statewide in North Carolina. Project ASSIST has been enormously successful in North Carolina. Since May of 1999, North Carolina Project ASSIST has made a transition from National Cancer Institute (NCI) funding to Centers for Disease Control (CDC) funding. In January 1999, a newly configured North Carolina Project ASSIST Board conducted a strategic planning session. The mission statement for the Project was revised to reflect the current priorities of the Board and the CDC framework. With CDC five-year funding secured, and as a part of reorganization in the Department of Health and Human

Services, North Carolina Project ASSIST was elevated to a branch level within the Division of Public Health and renamed the Tobacco Use Prevention and Control Branch.

Tobacco Use Prevention and Control Branch, Division of Public Health (NCTPCB): The state, through the NCTPCB of DHHS, has implemented a number of programs and services to reduce the incidence and prevalence of tobacco use among youth and adults. The NCTPCB works to improve the health of North Carolina residents by promoting smoke-free environments and tobacco-free lifestyles. Specific goals of the NCTPCB are:

- To prevent initiation of tobacco use among youth.
- To promote cessation among youth and adults.
- To eliminate exposure to environmental tobacco smoke.
- To eliminate disparities among populations.

The NCTPCB carries out policy, media, and program interventions through a statewide coalition (ten local coalitions representing 23 counties). A new "Too Cool to Smoke or Spit Program" will fund three to four youth centers promoting youth activism and involvement on tobacco use prevention issues.

Other groups working on tobacco prevention: There are many organizations both in and outside of state agencies that help to prevent smoking among North Carolina's children. Some of the organizations are affiliated with state or federal government, including the NCI, North Carolina Heart Disease and Stroke Prevention Task Force, and North Carolina DPI. Some of the organizations are private non-profit, including the American Cancer Society of North Carolina, the American Heart Association North Carolina Affiliate, the American Lung Association of North Carolina, North Carolina Group to Alleviate Smoke Pollution (GASP), North Carolina Medical Society, North Carolina Prevention Partners, and Survivors and Victims of Tobacco Empowerment (SAVE). The universities in North Carolina also have several organizations that focus on smoking prevention and cessation activities, including the Center for Health Promotion and Disease Prevention at UNC-Chapel Hill and the North Carolina Comprehensive School Health Training Center at Appalachian State University (ASU).

A number of these organizations have smoking prevention activities targeted at youth. For example, the North Carolina Comprehensive School Health Training Center at ASU provided training to North Carolina teachers to use tobacco use prevention materials. A teen cessation program called "NOT" (No On Tobacco) is offered through the American Lung Association. The American Cancer Society sponsors the Great American Smokeout every November, which has both youth and adult initiatives. Currently the North Carolina Medical Society's Tobacco Control Committee is providing training based on the Agency for Healthcare Research and Quality's guidelines to health care providers in clinical practices. The Tobacco Control Committee, the American Heart Association and The American Lung Association, and

the American Cancer Society have sponsored a tobacco use prevention policy conference and smoke-free classes. The mission of the Tobacco Control Committee is 1) to educate physicians and other health care providers on the importance of tobacco control, and 2) to develop, recommend, and support policies and activities designed to help make North Carolina a tobacco-free state.

The North Carolina Advisory Committee on Cancer Coordination and Control (North Carolina ACCCC), Division of Public Health, DHHS, is funding the NCTPCB's follow-up to the Governor's Summit to Prevent Teen Tobacco Use. The January 2000 Governor's Summit to Prevent Teen Tobacco Use was the largest public health training event in North Carolina, with more than 800 teens and adults, and delegations from 84 of 100 counties. North Carolina Prevention Partners is working with the Heart Disease and Stroke Prevention Task Force, Project ASSIST, and the NCTPCB to improve preventive health services, including establishing tobacco as a vital sign and improving access to smoking cessation programs.[52]

Tobacco settlement funds: North Carolina health advocates hope to further smoking prevention and cessation efforts with the recent tobacco settlement. North Carolina should receive $4.6 billion dollars over the next 25 years. The current suggestion is to invest one-fourth of this money in a health trust fund, which would distribute money to improve health care in North Carolina, with a priority on preventing smoking among youth. Endowing a health foundation would ensure that the monies were spent to improve the health of North Carolinians.

Youth access laws: North Carolina has also made efforts to reduce youth access to tobacco products. It is illegal in North Carolina to sell tobacco products to anyone under age 18 (NCGS § 14-313[b]). The Division of Alcohol Law Enforcement (ALE) in the North Carolina Department of Crime Control and Public Safety is primarily responsible for enforcing this law. The ALE works with local police and sheriff's departments along with DHHS (ASSIST and Substance Abuse Services Section) to provide model education programs and enforcement programs. The police department in Cary, North Carolina, developed the North Carolina model for community-based merchant education and enforcement operations. Using this model, Cary successfully reduced illegal sales to minors from 22% to less than 5% between the summer of 1996 and March of 1998.[52]

GAPS IN EXISTING PROGRAMS AND POLICIES

Because dietary and lifestyle patterns develop in childhood, intervening when the habits are being formed is important.[80,29,30,31,87,88] While many programs exist to ensure children have sufficient food, improve nutrition, promote exercise, and instill healthful behaviors among children, many gaps remain. Within the food and nutrition programs, there is a lack of a comprehensive nutrition plan for children, many of the existing programs are not fully utilized,

and there are inadequate resources to counter media and advertising messages. The major barriers most people face when trying to increase physical activity are lack of time, access to convenient facilities, and safe environments in which to be active. Schools do not offer sufficient physical education activities for children and youth or ensure qualified staff, and communities lack facilities for physical activity. For children and youth with weight or body image problems, there are few resources available. Many insurers exclude coverage for weight reduction therapies, and few resources exist to counter the mass media's focus on the perfect body. North Carolina smoking policies are hindered due to inadequate laws and lack of resources to enforce current laws, inadequate state funding for youth prevention efforts and to counter-tobacco advertising campaigns.

Nutrition and Food Programs

No state nutrition plan for children: North Carolina has many programs and services that address children and adolescents' nutritional issues, but does not have an integrated state plan for promoting and maintaining good nutrition among children.

Food Programs are not fully utilized

Participation in the Food Stamp Program (FSP): Participation in the National FSP is down significantly compared with previous years. According to the Food Research and Action Center (FRAC), when compared with 1998 and 1996, national participation was down by over one million persons and 6.5 million persons, respectively. North Carolina food stamp participation dropped by 3.3% between 1996 and 1999 (615,352 to 594,903).[89]

Part of this decline may be attributed to the change in the 1996 welfare law, which excludes sizeable groups (e.g., most legal immigrants and many jobless, childless adults) from food stamps. The growing economy and lower unemployment may also account for some of the decline, but most of the dropoff is due to states' failure to get food stamps to eligible families, including working families.

More than a third of those eligible for the FSP are not receiving benefits, according to USDA analysis of September 1997 caseload data. The General Accounting Office (GAO) July 2000 report found that "...food stamp participation has dropped faster than related economic indicators would predict."[90] Furthermore, GAO points out, "There is a growing gap between the number of children living in poverty–an important indicator of children's need for food assistance–and the number of children receiving food stamp assistance."[90] The Urban Institute's report, "Are the Steep Declines in Food Stamp Participation Linked to Falling Welfare Caseloads?" analyzes a survey of families with children under 18 that had received food stamps at some point between January 1995 and the interview period (February-October

1997). According to the survey, "About two-thirds of the families that left the FSP were still eligible for food stamps."[89]

Over the years, a number of studies have suggested that people who are eligible for food stamps are not participating. Usually, these studies focus on three causes: 1) failing to understand that they might be eligible for food stamps; 2) not wanting to receive food stamps because of the stigma, or 3) experiencing administrative red-tape in filling out food stamp applications. A July 1999 report prepared for USDA by Mathematica Policy Research, Inc. identified lack of client information as a barrier to participation: among non-participating persons eligible for food stamp benefits surveyed in late 1996, nearly three-quarters (72%) were not aware that they were eligible.[89]

Implementation of the new, separate TANF Program established by the 1996 welfare law appears have unintended, adverse affects on FSP. According to a March 1999 USDA analysis of caseload declines between summer 1994 and summer 1997, the number of legal immigrants fell by 54%, accounting for 14% of the total decline; the number of childless unemployed adults fell by 44%, accounting for 8% of the total decline; the number of food stamp households receiving welfare benefits fell by 28%, representing 61% of the decline.[89] With the expansion of North Carolina's welfare to work program (WorkFirst), more low-income families are leaving the welfare system and moving into paid employment. However, many of these jobs are entry level and might not be sufficient to move a family out of poverty. In this transition to the workforce, there might be confusion over continued food stamp eligibility. Efforts should be made to assess this possibility and ensure that families do not go hungry as they transition from welfare to work.

Coordination of food stamps, housing, and employment programs: Whether a household is moving off of welfare or recovering from a crisis such as loss of a job or a severe health problem, coordination of public programs can help to stabilize the household. When a family moves out of public housing, the budgeting required to meet the rent, utilities, and phone bills after having made a security deposit can be more than their resources can bear. If food stamps are discontinued as soon as one of the household members obtains a job, they might not have the resources to feed the family while they wait for the first paycheck. This is one reason keeping the household on the FSP for six months while they get stabilized is very important. Although the expenses of employment are often budgeted for in a training program, they might not be able to counterbalance the destabilization that comes when housing, food, and transportation support is disrupted. Further, the cost of housing is also a factor in hunger. One-third (33%) of households in central and eastern North Carolina receiving food assistance had to choose between buying food or paying their rent or mortgage.[1]

Limited student participation in the school breakfast program: While the school breakfast program serves primarily low-income children, it is also designed to meet the

morning nutritional needs of other children. Only 20% of all North Carolina students participate in the school breakfast program.[91] Less than half (49.1%) of the students who receive free and reduced price lunch also receive free and reduced price breakfast. Almost 92% of elementary children and 80% of middle and high school children who are eligible to receive full or reduced price meals participate in school lunch.[92] It is often more difficult for children to participate in the school breakfast program, because school buses might not arrive at the school until right before school starts—leaving children little time to eat breakfast. According to FRAC's 1999 survey of state agencies administering the SBP, the majority cited as barriers: transportation, interference with school schedules, and the attitude that "breakfast is not the school's responsibility."[93] School officials also cite concerns about the cost of adding new programs amidst other funding reductions. Given the growing body of evidence that school performance is improved by eating breakfast, barriers should be addressed and the breakfast program should be expanded.

Limited use of SFSP: In North Carolina, over 400,000 children from low-income households are eligible to receive free meals and snacks from the SFSP. Like many other states, North Carolina has not reached its full potential in serving children through the SFSP. In 1999, approximately 16% of eligible children participated and 16 counties did not offer SFSP. Participation ranged from serving 30% of the eligible population down to 1%.

Table 9.6: SFSP Participation[85]

Year	Number of counties participating	July average daily attendance	Number of Sponsors
1999	84	43,299	108
1998	81	43,717	108
1997	64	39,777	89

Not all child care centers provide nutritional meals and snacks: Adequate nutrition is particularly important for children attending child care centers, as these are the years brain and neurological development is vulnerable to nutrition deficits. Children in childcare often receive one half to two thirds of their daily nutrient intake at child care centers. Thus, the childcare setting provides an opportunity to model and reinforce lifelong food habits. Unfortunately, not all child care centers provide meals that are aligned with Dietary Guidelines. In a recent study of the dietary intake of children at child care centers and during activities that took them away from the centers, there was adequate intake of foods from the meat, poultry, fish, dry beans, and eggs group; and from the milk, yogurt, cheese, and fruit group. The dietary intake fell short in servings from bread, cereal, pasta, and rice group (particularly at the child care centers). Fewer vegetables were consumed than recommended, and more fats, oils, and sweets were consumed than recommended. The latter occurred primarily away from the centers.[94]

The CACFP provides reimbursement for nutritious food served at childcare centers. CACFP is also working to improve the nutritional integrity of their meals as well as including physical activity. Unfortunately, not all child care centers participate in CACFP. It is estimated that 24% of licensed child care centers and 66% of licensed family day care homes in North Carolina participate in CACFP. Many for-profit centers may not qualify and a large percentage of non-profit childcare centers do not apply.

Inadequate resources to counter media messages

Schools lack community support in fostering positive, coordinated nutritional messages: Today's children and adolescents frequently decide what to eat with little adult supervision, thus school-based nutrition education is particularly important.[12,95] With the increase in single-parent families, families with two working parents, and the abundance of convenient foods and fast-food restaurants, parents cannot fully monitor their children's eating habits.

Schools are a critical part of the social environment that shapes a young person's eating behaviors and can therefore play a large role in helping improve their diet. However, schools cannot achieve this goal on their own when the cultural milieu has a large influence on food-related beliefs, values, and practices.[12,80,96] Families, food stores, restaurants, the food industry, religious institutions, community centers, government programs, and the mass media often promote unhealthy foods to children and adults instead of supporting the Dietary Guidelines.[12]

No funding for NET mini-grants: The NET Program has not received USDA funding for the past two years. The program has managed to offer mini-grants using money from previous years; however, they no longer have money to fund the mini-grants.

Healthy alternatives in school vending machines: Many schools are being offered exclusive contracts by soft drink vendors. In North Carolina, the Burke County school system has an exclusive contract with Pepsi for more than $2 million for the next three years. Rowan-Salisbury Schools have entered a five-year arrangement with Coca-Cola for $3 million. While this is a good source of revenue for the schools, it is not necessarily in the best interest of child health.[97]

Most schools in North Carolina have vending machines that provide drinks and snacks for the students. Unfortunately, the vending machines are primarily stocked with either high-sugar or low-nutritive calorie drinks and high-fat or low-nutritive foods. School policies on when students can use the vending machines vary. Many schools keep the machines locked until lunch is over to reduce competition between vending machine and the school cafeteria.

Substituting soda or high-fat cookies or crackers for milk and other more nutritious lunch options puts children at a nutritional disadvantage.

Unfortunately, children often opt for sodas or other beverages that have little or no nutritional value. Consumption of soft drinks has risen steadily in the past 15 years, with children six to 11 consuming almost 21 gallons a year in 1998. *The Journal of the American Dietetic Association* indicates that children who drink more soft drinks consume less milk and more total calories than those with lower soft drink intakes. According to the USDA, teens in the late 1970s drank almost twice as much milk as soda. By the late 1990s those figures had reversed: 12-to-19-year-olds were drinking 40% less milk and twice as many soft drinks. One of the most alarming effects of this trend has been a declining intake of calcium—obtained by consuming milk—during the crucial years for building strong bones. According to the latest government studies, many children and adolescents fall short of meeting their daily calcium recommendations, including six out of 10 boys and seven out of 10 girls.[98,116]

Physical Activity

Lack of physical activity facilities and safe and adequate access to school facilities that encourage physical activity: In North Carolina there is a lack of low-cost or no-cost physical activity facilities for group and individual physical activity. Many schools do not have sidewalks, walking trails, bike lanes, and bike paths or other places for adequate and safe physical activity.

There are also few schools with policies that allow local youth, families, and youth groups to use their facilities after-hours for physical activity: Use of school facilities is determined on a local level. Generally, the use is conditional. The facilities might be made available to the public if there is adequate supervision and a budget to support potentially incurred expenses. However, security issues often become a barrier to the use of school facilities after school hours.

Participation in regular physical activity depends, in part, on the availability and proximity of community facilities and on environments conducive to physical activity. Studies of adult participation in physical activity have found that use generally decreases as facility distance from a person's residence increases.[4,99] People are unlikely to use community resources located more than a few miles away by car or more than a few minutes away by biking or walking.[4]

Inadequate PE requirements in schools

Insufficient PE and activity requirements: Schools are an efficient vehicle for providing physical activity and fitness instruction because they reach most children and adolescents.

Children spend most of their time in school, thus, the type and amount of physical activity encouraged in schools are important components. The North Carolina DPI requires health and PE in kindergarten through the eighth grade as part of the Healthful Living curriculum. These students are required to have PE and health each year, but the time spent in each activity is not specified. North Carolina 9th-12th graders are only required to have one unit of health and PE (one year combined) for their collective high school years, which is inadequate to ensure that adolescents receive appropriate physical activity during high school. Again, the frequency and duration of activity are not specified. The physical education component of the Healthful Living curriculum should be reviewed and modified.

Enrollment and attendance in high school PE courses are affected by these policies. Attendance rates are consistently lower than enrollment. United States high school (9th-12th grade) student enrollment in PE has averaged 53% from 1991 through 1997. However, daily attendance at PE classes decreased from 42% in 1991 to 25% in 1995, and increased slightly to 27% in 1997. The average attendance rate has been approximately 32% for the seven-year period.[24] According to the 1997 North Carolina YRBS, 85.9% of students attended PE at least one day per week. While this attendance rate is much better than the national average, only 40.4% of the students exercised or played sports for more than 20 minutes during an average PE class.[15]

Increasing the number of schools that require daily physical activity for all students is one of the nation's Healthy People 2010 goals. In 1994, 17% of United States middle schools and 2% of high schools had this requirement. Participation in school PE ensures a minimum amount of physical activity and provides a forum to teach physical activity strategies and activities that can be continued into adulthood. Findings suggest that the quantity and, in particular, the quality of school PE programs have a significant positive effect on the health-related fitness of children and adolescents by increasing their participation in moderate-to vigorous-activities.[4,100,101] Studies have also shown that spending 50% of PE class time on physical activity is an ambitious but feasible target. Being active for at least half of PE class on at least half of the school days would provide a substantial portion of the physical activity time recommended for adolescents.[102]

To achieve the benefits of school-based PE equitably for all children, daily adaptive PE programs should be available for children with special needs. School PE requirements also are recommended for students in preschool and post-secondary programs.[22] A well-designed health and PE curriculum can help students develop the knowledge, attitudes, behavioral skills, and confidence needed to adopt and maintain physically active lifestyles.[22]

Lack of certified physical activity instructors in schools: Less than 40% of North Carolina schools employ a full-time certified PE specialist.[91] Planning, implementing, and evaluating physical activity instruction and programs require specially trained personnel.[18,103,12]

Physical education specialists teach longer lessons, spend more time on developing skills, impart more knowledge, and provide more moderate and vigorous physical activity than do classroom teachers.[12,100,101] The CDC recommends that schools have policies requiring PE specialists teach PE in kindergarten through grade 12, and qualified people direct and coach school and community physical activity, sports, and recreation programs.[12,103,104,105]

Most other states have established minimum standards for PE teachers. For example, 84% of states require PE certification for secondary school PE teachers, and 16% require such certification for elementary school PE teachers.[20] North Carolina requires all of the K-12 PE teachers to be certified in PE. However, this does not mean that physical activity is always taught or coordinated by a teacher certified to teach PE. While all PE teachers must be certified, most elementary classroom teachers schedule a daily physical activity period. The period might be called "PE," but normally it is just an opportunity for free play. In some school districts PE is taught daily by certified PE teachers, and in other districts PE teachers might see children once a week, while classroom teachers are responsible for PE the rest of the week. On average, elementary students have PE twice a week with a certified PE teacher. The State Board of Education does not have a minimum time requirement for PE or any other subjects.

Some states have established minimum standards for athletic coaches. The CDC also recommends that both schools and communities should have policies that require employing people who have the coaching competency appropriate to participants' developmental and skill levels.[12] (See also Chapter 8).

Programs focusing on obesity or body image

Insurers do not cover weight management therapies: While effective weight reduction and management treatments do exist (some costing $300-600 per month), few health insurers cover such treatment. As a result, few obese children receive effective care. Most children are denied this care because of economic factors.

Table 9.7: HMO obesity coverage in North Carolina

HMO	Covers	Excludes
Aetna US Healthcare	Weight reduction programs provided by HMO.	Dietary supplements, surgical operations, or procedures for treatment of obesity.
Blue Cross Blue Shield Personal Care Plan	Surgical treatment of life-threatening obesity.	Any other treatment or regimen, medical or surgical, for the purpose of reducing or controlling weight.
CIGNA / Healthsource		Any care that is primarily for weight loss, or for any surgical treatment of obesity. Excludes drugs & therapies used for weight loss, nutritional supplements, irrigation solutions & supplies.
Doctors Health Plan	Appetite suppressants for a pathological condition such as Narcolepsy or Attention Deficit Disorder. Other services might be covered if medically necessary.	Appetite suppressants for other conditions, liposuction or any surgical procedure designed to remove excess fatty tissue unless medically necessary.
Generations	Weight loss only if aggravating medical conditions determined by physician & with prior approval.	Weight loss services in the absence of aggravating medical conditions.
Optimum Choice	Services & treatments in standard medical practice policies & medically necessary.	Services or supplies for weight reduction or morbid obesity treatment, including surgical procedures.
PARTNERS	Nutritional counseling for obesity when ordered by a PCP & approved in advance. Limited	All other weight loss services.
Principal Health Care of the Carolinas		Weight reduction services such as therapy, surgery, hospitalization, or diet programs. Excludes tests, exams, or services for diet programs, such as Optifast, Nutri-system & other similar diet programs. Excludes surgical procedures for the treatment of obesity, & care for complications.

Prudential Health Care Plan	Life-threatening obesity or clinically proven to adversely effect on illness.	Services & supplies furnished in connection with any weight loss program. Excludes food supplements used to lose weight.
QualChoice		Any surgery, medical services or supplies meant to control obesity. Excludes dietary control, counseling, or weight maintenance programs.
The Wellness Plan		All surgical procedures, services, and supplies for the purpose of weight control, weight management, & commercial weight loss reduction or gain programs.
United HealthCare		Food supplements, vitamins, any diet or exercise program, or any other form of weight control by surgery, including complications of surgery.
WellPath		Services intended primarily for weight reduction, such as diet programs and surgical procedures. Excludes nutritional counseling and diet planning unless approved in advance.

Further, both Medicaid and NC Health Choice exclude coverage of group weight management therapy. Medicaid covers individual weight reduction therapy but NC Health Choice does not. Group therapy is a highly effective weight reduction strategy[133] because family and peer support are used to help shift children's thinking and behavior patterns.

Core benefits of NC Health Choice do not include nutrition therapies. NC Health Choice does not cover nutritionist and dietitians as providers under either the core benefits or the special needs program extended benefits. Claims under the extended benefits plan are handled on case-by-case basis. While nutritionists and dieticians are not covered providers, nutrition services might be covered if a registered nurse or physician delivers the service. Nutritional preventive care is not covered unless it is included in certain bundled services.

Body image and eating disorders

North Carolina has no coordinated state-supported initiative to address the growing problems with body image and eating disorders. There are a number of local treatment programs across the state, but awareness of and referral to these programs is a problem. North Carolina needs a coordinated program or plan that provides clear and coordinated interdisciplinary treatment, and a systemized referral process.

Gaps in smoking policies

Inadequate laws: Federal law prohibits smoking in federally funded schools, libraries, and health care facilities nationwide. However, North Carolina laws are more lenient. They require 20% of state controlled buildings to be set aside for smoking. The state law preempted local government (counties, cities, and boards of public health) from passing more restrictive smoking ordinances after October 15, 1993. Because of this state preemption law (NC GS 143-595-601), only three counties have an enforceable smoking ordinance in public places.[106]

Inadequate enforcement of youth access to tobacco law: Although it is illegal to sell tobacco products to anyone under age 18, children can still buy tobacco products in one out of every four stores in North Carolina. Enforcing this law has been difficult due to limited resources. State and local law enforcement agencies cite gaps in manpower, funding and the lack of a comprehensive statewide list of retailers who sell tobacco products as the top three barriers to enforcing the prohibition of tobacco sales to minors. North Carolina has 87 Alcohol Law Enforcement (ALE) officers who are responsible for enforcing the prevention of tobacco sales to minors in all 100 counties. Compounding the problem of insufficient manpower, ALE policy prevents officers from enforcing these laws during regular work hours. Last year the FDA gave $600,000 to increase ALE officers salary for off duty time spent enforcing this law. They were able to reduce the rate of tobacco sales from 44.9% in 1998 to 25% in 1999.

Among middle school students under age 18 who currently smoke, 5.8% report they usually buy cigarettes in a store. Among those who have tried to buy cigarettes in a store, 70.6% report they were not asked for an ID the last time they attempted to buy. An additional 7.1% report they showed an underage ID, but were sold cigarettes anyway, and only 11.8% report they were refused the sale. Among high school students under age 18 who currently smoke, 19.1% report they usually buy cigarettes in a store. Among those who have ever tried to buy cigarettes in a store, 63.8% report that they were not asked for an ID the last time they attempted to buy. An additional 12.7% report they showed an underage ID, but were sold cigarettes anyway, and only 14.8% report they were refused the sale.[57]

Inadequate state funding for tobacco prevention efforts and to counter tobacco advertising campaigns: To date, no state funding has been provided for tobacco prevention efforts. The prevention projects in North Carolina have all been federally or privately funded. Lack of funding is the primary reason prevention efforts have not been expanded. Seventy-seven North Carolina counties have no tobacco prevention program.

Every day, children are exposed to a broad spectrum of pervasive, influential advertisements encouraging them to use tobacco. Cigarettes are among the most heavily advertised and promoted products in the United States. Tobacco companies spend at least $5 billion a year (more than $13 million a day) advertising and promoting cigarettes.[107] Of this $5

billion, about $145 million is spent marketing tobacco products in North Carolina annually. Tobacco companies spend this much in an effort to maintain a profitable amount of tobacco use as their consumers stop smoking and/or die. On a daily basis, about 3,500 people in the United States quit smoking and 1,200 tobacco consumers and former consumers die of smoking-related illness. Therefore, to maintain current levels of revenue, tobacco companies need to recruit approximately 5,000 new smokers a day or about 2 million a year. Children and youth are the most likely source of new smokers.[108]

Published research studies have found that adolescents are three times more sensitive to tobacco advertising than adults, that they are more likely to be influenced by cigarette marketing than by peer pressure, and that one-third of underage experimentation with smoking is attributable to tobacco company advertising.[108] In North Carolina, more than 40% of middle and high school students who currently use tobacco (41.6% of middle school and 44.8% of high school students) reported owning something on which a tobacco company name or logo was displayed.[57]

Limited tobacco use prevention policies in schools: Currently, only eight of North Carolina's 117 school districts prohibit tobacco use by students, staff, and visitors on all school grounds, at all school facilities and school events at all times.[109] Only 16.5% of middle school students and 23.9% of high school students who have been caught violating their school tobacco policy said that they were offered help in quitting the last time they were caught.[57]

RECOMMENDATIONS

The recommendations regarding health promotion and disease prevention are broken into six sections: 1) general health promotion activities; 2) childhood nutrition; 3) programs to reduce hunger and improve nutrition among low income children; 4) physical activity among youth; 5) programs to improve children's body images and provide appropriate weight reduction therapies; and 6) tobacco use reduction strategies for children.

General health promotion activities

1. ***DPI, DHHS, Be Active North Carolina, and other groups should continue to work together to develop a coordinated school health program.***

Health and physical education are two of the eight components that make up coordinated school health programs. With the implementation of this model, ensuring the following can expand North Carolina school health promotion and disease prevention efforts:

- Increasing the physical activity levels and/or PE requirement in schools. Healthy People 2010 and *Be Active North Carolina* recommend increasing the proportion of: the Nation's

public and private schools that require daily PE for all students, adolescents who participate in daily school PE, and adolescents who spend at least 50% of school PE class time being physically active.

- Hiring qualified personnel to teach PE and health education in kindergarten through grade 12. Elementary school teachers should be trained to teach health education, health education specialists should be hired to teach health education in middle and senior high schools, and qualified personnel should be hired to direct school and community physical activity programs.

- Ensuring adequate resources, including budget and facilities, are committed for physical activity instruction, health education, extracurricular physical activities, and community sports and recreation programs.[12] Teacher-to-student ratios in PE should be comparable to those in other subjects.[12]

- Physical activity instruction, health education, extracurricular physical activity programs, and community sports and recreation programs meeting the needs and interests of all students, regardless of their sex, race/ethnicity, health status, or physical and cognitive ability or disability, should be available.[12] Physical activity programs that overemphasize competitive sports and under-emphasize noncompetitive, lifetime physical activity and recreational activities (e.g., walking or bicycling) could exclude or be unattractive to many students.[12]

- Physical activity and health should be integrated into other subject matter. To maximize classroom time, instruction on physical activity can be integrated into the lesson plans of other school subjects, such as mathematics, biology, and language arts. Programs that have integrated physical activity instruction with other subject matter have been effective in enhancing students' physical activity-related knowledge,[110] attitudes,[111] behavior,[112] and fitness.[4,113]

2. Use social marketing strategies to raise awareness and motivation for healthy behaviors among audiences that include children, parents, communities, and media.

There are many opportunities for children to be physically active and to choose foods for their health, but there is tremendous competition for their attention; their selections will be influenced by whatever catches their attention. Through a social marketing strategy, physical activity and healthy eating can be promoted in the daily activities of a young person's life so that the option for health is apparent and is shown to be possible. Seeing role models eating healthy foods and making the choice to walk or ride a bike, will give young people healthy examples. Evidence supports the successful use of mass media to encourage healthy behavior changes.[114] In one West Virginia community, The Center for Science in the Public Interest ran a

low-fat milk campaign entitled "1% or Less." The sales of low-fat milk doubled from 18% to 41% in seven weeks. The cost of the campaign was $0.02 per person.[114] This strategy will be collaborative with other social marketing programs to make the messages consistent and to use proven effective campaigns such as the 1% or Less (milk fat) campaign in West Virginia.[114]

An effort should also be made to include parents in nutritional education programs. Parents and caretakers have a direct influence on children's and adolescents' food choices.[22,115] Thus, changing parents' eating behaviors might be one of the most effective ways to change their children's eating behaviors.

Improve childhood nutrition

The Task Force reviewed the nutrition situation in North Carolina and concludes that while there are many nutrition programs for children, the state still faces some serious problems with regard to food insecurity and overweight and obesity. The Task Force recommends creating a comprehensive child nutrition plan, and further increasing utilization nutritional assistance programs to help improve the nutrition aspects of these problems.

3. ***Establish a statewide task force to develop a state plan to promote and maintain nutrition among North Carolina's children.***

The task force should develop a comprehensive child nutrition plan for the state. In so doing, the task force should examine the following issues:

- Promote healthy eating through a comprehensive school health program.
- Promote the 1% or Less Milk Campaign in all North Carolina child nutrition programs.
- Encourage communities to develop SNAC committees that would bring together the major players in the school—principal, students, nutrition program, teachers, parents, and community resources (extension services, health departments, women's clubs, men's clubs, and boys and girls clubs). These problem-solving community groups will include role models, mentors, and health providers, and will address issues about recess, PE in the schools, recreation programs in the community, and after school programs.

- Continue to improve school meals through student, parent, caregiver, and teacher input, and through flexible scheduling, new recipe testing, and media literacy. Those involved will deal with menus, food items and new recipes, timing of school breakfast, bus schedules, and so on. Discuss the role school food committees have played in schools to improve the food in the school meal programs.

- Fund nutrition education mini-grants to the schools through North Carolina DHHS. With limited funding, the LEAs have been successful at developing and sustaining nutrition education projects that have targeted more than 172,000 students. Mini-grants are an effective means of providing nutrition education activities that target specific behaviors rather than offering general nutrition and physical activity information. These projects provide experiential opportunities that focus on skill-building and increase students' self confidence to make healthful choices by giving them hands-on opportunities to select and taste healthful foods and participate in fun physical activities.

4. Provide healthy alternatives in vending machines for soft drinks and unhealthy snacks.

Childhood soft drink consumption is displacing milk and growth-required calcium consumption.[116] Increased intake of soft drinks also contributes to decreased intake of magnesium, riboflavin, vitamin A, and ascorbic acid.[116] Children and adults are influenced in food and beverage choices by foods and beverages that surround them, and/or those being promoted by credible sources such as schools.[30,31] Unfortunately, easy access to foods with high sugar, fat and salt content, creates an eating environment that fosters unhealthy food preferences.[117] Ways should be sought to help schools decrease their financial dependence on vending machines.

Programs to reduce hunger and improve nutrition among low-income children

5. *Establish the universal school breakfast in all elementary schools and increase student participation in established school breakfast programs.*

School Food Service Administrations report they can serve breakfast to all of the children in a school for the same cost as documenting the eligibility of a portion of the children being served.[118] In 1998, Massachusetts General Hospital and Harvard Medical School released results of a study confirming the benefits of breakfast: higher academic success, improved behavior, and improved overall physical health. These benefits are experienced significantly more in children who eat breakfast than those who do not.[119]

6. *Assure the availability of food stamps to low-income families with children.*

Limited financial resources constrain food choices. Low-income households spend 82% of the national average on food and this holds true for all major food groups. According to Tufts University researchers, the FSP makes a significant difference in the dietary well being of low-income children in our nation. Tufts reports that food stamp participation reduces dietary deficiencies among low-income youngsters by 30-50% for certain nutrients, and over 70% for others. Half of all food stamp recipients are children.[120] The state should conduct more outreach efforts to make sure that eligible families with children are enrolled in the FSP, and should examine enrollment policies to ensure that the system is as accessible to families as possible. This might require out-stationing of workers at locations convenient to low-income families, or expanding DSS hours of operation to include more evening and weekend hours (to make services accessible to working families).

7. Support DHHS SFSP expansion program.

Incentives are needed for schools, community agencies, and non-profits to participate in the SFSP program. Most schools are not serving meals during summer school and small numbers of children are attending school classes; therefore, few children receive the meals they depend on during the year. Producing food for a small program and taking the food to recreation program sites off school grounds costs more than the program will reimburse. Technical assistance to potential program contractors is needed to help them submit a cost-effective plan.

Developing community support for the SFSP is particularly critical in school districts where more than 40% of the children are receiving free or reduced lunch. DPI should work in collaboration with DHHS to develop an expansion plan for SFSP. DPI should provide analyses of schools who serve a large percentage of free and reduced lunches and yet do not participate in SFSP.

8. *Establish a nutrition assistance program that will supplement emergency donated food with nutrient-dense food (protein foods, fruit, and vegetables)*.

The emergency food systems in North Carolina receive donations from corporations, food drives, and small businesses to redistribute to community organizations such as churches, children's programs, and community centers. Depending solely on donations results in less than nutritious meals, because some of the most nutritious foods are hard to donate. Having funds available to purchase food that will make the food packages nutritionally complete helps the program support health rather than lean in the direction of empty calorie foods with little or no vitamins and minerals. Protein foods such as tuna, cheese, peanut butter, or meat, and fruits and vegetables can make a difference.

9. *Expand the use of CACFP (with improved menu guidelines).*

Our eating habits are shaped largely by early childhood eating experiences.[121] For this reason it is very important that the food served to children in childcare centers is nutritionally sound. The foods served to children at childcare centers are demonstrations to children, parents, and care providers of nutritious meals to serve and eat. Providing menus (weekly or monthly) to parents will give them ideas of what they can serve at home. To be a model, CACFP should establish menu guidelines that decrease fat, salt, and sugar, and emphasize more fruit and vegetables (but less juice), fresh produce, and low-fat milk. Besides improving the nutritional integrity of the meals, we must make efforts to increase outreach to childcare centers that do not participate in CACFP, encouraging them to apply for CACFP or to improve the nutritional value of the foods they serve. Reaching more childcare centers will ensure that more of North Carolina's hungry children receive nutritious meals at least once a day.

Increasing physical activity among youth

The Task Force recommendations are based on recommendations made *by Be Active North Carolina*, the Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People, and Healthy People 2010.

10. Promote and facilitate the development of a coordinated school health program. (See Chapter 6 for more complete description).

Promoting physical activity in schools should be part of a coordinated, comprehensive school health program, which is "an integrated set of planned, sequential, and school-affiliated strategies, activities, and services designed to promote the optimal physical, emotional, social, and educational development of students."[122,12] Coordinated programs should include health education; PE; health services; nutrition services; staff health promotion; counseling and psychological services; a healthy school environment; and parent/community involvement.[12,122] A coordinated school health effort would improve both the health and the educational prospects of students.[12,123,124]

11. Require comprehensive health education for students in kindergarten through grade 12.

The School Health Education Study[125] conducted during the 1960s identified 10 conceptual areas that have traditionally served as the basis of health education curricula. Subsequently, six categories of behaviors have been identified as responsible for more than 70% of illness, disability, and death among adolescents and young adults.[4] These categories, which should be the primary focus of school health education, are injuries (unintentional and intentional); tobacco use; alcohol and illicit drug use; sexual behaviors that cause unintended

pregnancies and sexually transmitted diseases; dietary patterns that cause disease; and inadequate physical activity.[4] Mental and emotional health, personal health, and consumer health should also be included.

Health education improves students' health knowledge, attitudes, and behaviors.[12] Many educational organizations recommend students receive planned and sequential health education from kindergarten through 12th grade,[12,126,127,128,129] and such education is a national health objective for the year 2010.[4] Although many states and school districts require that schools offer health education, fewer school districts require that a separate course be devoted to health topics.[12,130] Administrators of public schools and parents of adolescents in public schools believe these students should be taught more health information and skills.[12,131] North Carolina requires its schools to teach health education, but there is no minimum time requirement and no monitoring or enforcement of this requirement.

12. Increase the number of sidewalks, walking trails, bike lanes, and bike paths linking residential neighborhoods to schools, parks, community recreation facilities, civic and cultural organizations, and commercial districts so that North Carolina youth might safely walk and bike to their activities.

One of the major barriers to youth participation in physical activity is lack of physical activity facilities.[38] Therefore, increasing access to community physical activity facilities would help increase physical activity among youth. Healthy People 2010 national health objective 1.11 calls for increased availability of facilities for physical activity (e.g., hiking, bicycling, and fitness trails; public swimming pools; and parks and open spaces for recreation).[12,4] Some communities may need to construct new facilities, while others may only need to coordinate existing community spaces and facilities. Care should be taken to incorporate the needs of all children and adolescents, particularly those who have disabilities, into the development of new or existing facilities.

13. Increase the number of schools with policies that allow local youth, families, and youth groups to use their facilities after-hours for physical activity.

Healthy People 2010 and *Be Active North Carolina* recommend that we increase the proportion of the nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours. The availability of school facilities for physical activity programs also might be beneficial for crime and violence prevention and other social programs,[132] because most juvenile crime is committed between 3 and 8 p.m. Schools need to work with community coalitions and community-based physical activity programs to take maximum advantage of school facilities for the benefit of children and adolescents and the community as a whole. The needs of all community members, including senior citizens and persons with disabilities, need to be considered.[4]

14. Increase the number of schools and communities offering adequate and safe physical activity facilities for group and individual physical activity; offer "walk to school" and "bike to school" programs from local residential neighborhoods.

Schools and communities should ensure that spaces and facilities are available and meet or exceed recommended safety standards.[12] Playgrounds, for example, should have water and adequate shade.[12] Physical activity spaces and facilities also should be safe from violence and free of any exposure to environmental hazards (e.g., tobacco smoke, automobile exhaust). Areas designated for physical activity should also be regularly inspected and maintained.[12] Offering supervised programs would also help ensure the safety of children as they increase their physical activity.

Programs to improve children's body images and provide appropriate weight management therapies

Because dietary and lifestyle patterns develop in childhood, intervening when the habits are being formed is important.[80,29,30,31,28,79] Recent estimates suggest that obesity-related morbidity might account for 6.8% of United States health care costs.[4]

The most gripping medical consequence of obesity in children and adolescents is the 70% risk of its continuance into their adult years.[133] Obesity will continue to increase health care costs as these children reach adulthood and experience increased rates of diabetes, cardiovascular disease, stroke, pulmonary problems, orthopedic problems, cancer, and other conditions. To gain control of this epidemic, it is important to make child weight management services widely available to children from all economic levels. The American Dietetic Association (ADA) recognizes medical nutrition therapy (MNT) and comprehensive (programs addressing diet and physical activity, and psychosocial and family system issues) licensed group/family-centered programs as cost-effective ways to treat and prevent disease.[134] This evidence, along with the evidence supporting cost-effectiveness,[134] supports including coverage for licensed group/family-centered programs that address diet and physical activity, and the psychosocial and family system issues that frequently underlie weight or eating problems.

Currently, only Registered Dietitians or Licensed Dietitians/Nutritionists that work in local health departments or Developmental Evaluation Centers can bill Medicaid for MNT. DECs use this reimbursement system effectively; however, many local health departments do not. The reasons many local health departments do not pursue this reimbursement system are unclear. One possibility is that they do not have the capacity (staff) to handle the anticipated workload were they to offer the service to the community.

15. ***Include medical nutrition therapy as a covered service in the basic plan for NC Health Choice as it is in Medicaid.***

16. ***Establish weight management (group and individual) programs as a covered service in health care payment plans.***

17. ***Develop a coordinated state-supported initiative that provides clear and coordinated interdisciplinary treatment and a systemized referral process for children and adolescents with eating disorders. This plan should also include ways to address prevention of distorted body image and eating disorders.***

Eating disorders affect approximately five million Americans each year. Although effective treatments are available, substantial delays between onset of symptoms and diagnosis are the norm. People with eating disorders often try to conceal their symptoms because: they may be unaware of the severe negative health consequences and/or are unaware of available treatment, feel shame, or are unwilling to change their behavior.[48] Further, 50% of eating disorders cases go undiagnosed in clinical settings.

North Carolina has no coordinated state-supported initiative to address the growing problems with body image and eating disorders. There are a number of local treatment programs across the state, but awareness of and referral to these programs is a problem. North Carolina needs a coordinated program or plan that provides clear and coordinated interdisciplinary treatment and a systemized referral process.

North Carolina should teach its children and adolescents about the dangers of unsafe weight-loss methods and about safe ways to maintain a healthy weight. Our society's emphasis on thinness should be challenged, and more efforts should be made to help young people develop a healthy body image.[135]

18. ***Support pediatric obesity prevention and treatment training for health professionals as part of pre-service, training programs, and continuing education.***

Child obesity care providers work with an interdisciplinary team, but need basic competencies in a range of areas pertinent to child obesity, including assessing family functioning, identifying sexual and physical abuse, and providing nutritional counseling. Providers require specialized child obesity training to develop these skills. Comprehensive child obesity training is largely unavailable.[133] The shortage of trained child obesity specialists is a well-recognized barrier to addressing the problem of childhood obesity. Support for a broad range of training activities in child obesity, from university fellowships to courses for undergraduate students to professional continuing education courses, is needed.

Tobacco use reduction strategies for youth

While youth smoking rates have increased in many states during recent years, a few states have developed strategies that have reduced the rates of underage smoking. These well-funded, comprehensive programs serve as models for the nation. During the past decade, the CDC has extensively monitored public health programs nationwide that prevent and reduce tobacco use. Based on these scientific findings, the CDC provided the State of North Carolina with guidelines for expenditures necessary to establish effective statewide tobacco use prevention and control program.

Based on the CDC model, the critical elements of an effective North Carolina TPCP include community-based programs, school programs, enforcement of existing laws, public education programs, statewide partnership grants, cessation/addiction treatment programs, surveillance, and evaluation. These efforts will require new funding and an increased statewide infrastructure to administer programs, provide training and technical assistance.

Funding and State Infrastructure

19. The tobacco settlement monies slated for the health fund should be used for the advancement of tobacco use prevention efforts.

20. Enhance the statewide infrastructure needed to conduct a successful tobacco use prevention strategy for North Carolina's youth.

Part of the tobacco settlement monies should be used to expand the state infrastructure within the NCTPCB to develop and implement a comprehensive plan with state and local partners. The statewide infrastructure should administer, oversee, and assist local programs by providing adequate training resources and opportunities. For example, adequate training should be offered to local programs and grant recipients on such topics as building strong coalitions/partnerships, media relations, merchant education, teacher training, cessation programs, public education campaigns, and local evaluation. State, regional, and local staff should collaborate with different organizations throughout the state to participate in planning and implementing the training.

Programs to increase tobacco control in other states have been successful, such as those in Massachusetts and California. Evidence has shown that different intensities of tobacco control, as measured by funding levels and "aggressiveness," led to greater decreases in tobacco use compared to states that were part of the ASSIST Program.[136] From 1989 to 1993, when the Massachusetts program first began, California reduced cigarette consumption over 50% faster than the national average.[137] A more recent evaluation of the Massachusetts tobacco control program found that the number of smokers was reduced by 153,000 (15%),

which greatly surpasses the national reduction.[138] As a result, states that were part of the ASSIST program, began allocating more resources to tobacco control than before. This increased effort yielded, in these states, a 7% reduction in tobacco consumption per capita from 1993 to 1996 compared to non-ASSIST states.[138,139] "Such a "dose-response" effect is strong evidence that state programs can have an impact; that more tobacco control correlates with less tobacco use, and that the reduction coincides with the intensification of tobacco control efforts."[4]

Community-based Programs

21. Create comprehensive local tobacco use prevention and control programs in each of North Carolina's 100 counties.

Thus far, only 23 counties have access to tobacco prevention/cessation programs and services. Currently, community-based programs are built upon partnerships of the local health departments, local chapters of the American Cancer Society, and other critical stakeholders, such as the American Lung Association, American Heart Association, state and local medical and dental societies, schools, work sites, and community groups. There is an increasing programmatic demand within these communities and in the remaining counties that have yet to receive funding for tobacco use prevention and control. County programs should be charged with creating their own local tobacco use prevention coalition/partnerships and implementing their own comprehensive tobacco use prevention and cessation plan to coordinate and ensure success in their respective jurisdictions.

School programs

Effective means to prevent tobacco use and encourage cessation include school-based prevention programs that identify the social influences that promote tobacco use among youth and teach skills to resist such influences.[140] The CDC has developed *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction* to achieve national health and education goals. These guidelines state that school programs will be most effective in preventing tobacco use and addiction if they:

22. *Develop and enforce school policies on tobacco use to prohibit students, staff, and visitors from using tobacco on school premises, in school vehicles, and at school functions.*

Currently, only 37% of North Carolina school systems are smoke-free for everyone on school grounds and at official functions.

23. Encourage and help students and staff to quit using tobacco.

24. Provide developmentally appropriate instruction in grades K-12 that addresses the health aspects, along with the social, psychological, and physiological causes of tobacco use and addiction.

25. Create a coordinated school health program through which teachers, students, families, administrators, and community leaders model and deliver consistent messages about tobacco use.

Enforcement

Funding is needed to support state and local law enforcement in their efforts to prevent and reduce the illegal sales of tobacco products to minors. State and local authorities also need financial support to protect the health of the public by enforcing existing regulations that prohibit or restrict smoking in public places and work sites. Enforcement of laws and ordinances that restrict access to tobacco products and reduce exposure to environmental tobacco smoke can discourage youth from initiating tobacco use and protect the health of nonsmokers.

26. Provide funding to enforce the Youth Access Law.

Funds should be provided to:

a) Strengthen the manpower and resources of ALE to plan and implement enforcement activities in conjunction with local law enforcement.
b) Strengthen the role of the ALE and the area Mental Health Centers to work with community partners in educating community leaders, parents, merchants, and youth about youth access to tobacco laws.

c) Conduct frequent retailer compliance checks to identify violations of laws and ordinances that prohibit retailers from selling tobacco products to youth. Section 1926 of the Public Health Service Act, commonly known as the Synar Amendment, requires the North Carolina Department of Health and Human Services, Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, to significantly reduce the rate that underage youth are able to buy tobacco products in over-the-counter retail outlets and vending machines. In 1997 there was a 50% buy-rate in retail outlets. In 1999 the buy-rate was 23%. The goal is to reach 20% by 2001. Failure to comply with the requirements of the Synar Amendment could result in a 40% or approximately $12 million reduction in the State's Substance Abuse Prevention and Treatment Block Grant.

d) Investigate complaints received through telephone hotlines and other sources regarding violations of the youth access to tobacco law.

27. Promote adoption of smoke-free public places through the promotion of private policies.

The state and local coalitions should work to educate businesses about the benefits of a smoke-free work site or establishment. Businesses need to understand their potential legal liability if smoke-free workplaces are not available. For example, SAVE of North Carolina GASP has successfully used the Americans with Disabilities Act (ADA) to educate a few of the facilities who violate the ADA statutes by being inaccessible to individuals with respiratory disabilities.

Public education program

28. Fund a public education program (counter marketing).

Historical experience shows that a well-coordinated public education program by the American Cancer Society and American Lung Association helps reduce tobacco use. Recent experiences from other states demonstrate that strong tobacco use prevention messages directed at youth, and sustained through public education initiatives, increase the awareness of youths to the dangers of tobacco use, prevent youth from starting, and encourage underage tobacco users to quit. Public education can also be a powerful influence on support for prevention and control policy changes and can create a supportive climate for school and community efforts. It is critical that public education be coordinated with and support local programs.

Partnership grants

29. Fund statewide and local partnership grants.

Statewide and local partnership grants are a vital element of an effective tobacco use prevention and control plan. In fact, all of the most effective state tobacco use prevention and control programs have established substantial partnership grant initiatives. Statewide and community partnership grants are a productive way to broaden the base of support within the state for tobacco use prevention and control efforts. Examples of partnership activities could include:

- Funding proactive help lines for smokers who want to quit; providing training for health plans, physicians, and other health care providers to help their smoking patients; developing and delivering culturally appropriate programs for minority health organizations and workers, and providing general technical assistance for evaluation and legal issues (e.g., worksite policies).

- Building statewide organizations' resources so they might better serve communities and addressing the needs of special populations (e.g., minority groups, youth, and victims and survivors of tobacco use).

- Partnering with school and community-based youth organizations to promote non-tobacco use as a social norm.

Statewide partners can use their organizational assets to build community resources. A grant program not only allows the flexibility to tailor progress to community needs, but also has the effect of multiplying grant dollars with in-kind contributions from state and local agencies.

Cessation/addiction treatment programs

The Surgeon General's 1994 report shows that nicotine is addictive and that it is difficult for users to quit. In addition to the health risks and problem with addiction, research shows that young people who smoke are more likely than nonsmokers to use illegal drugs, alcohol, and marijuana.[4] Therefore, a primary goal of any comprehensive tobacco control plan must be to encourage and assist youth and adult tobacco users to quit. Although it is difficult, quitting smoking at any age vastly improves a person's health outlook. For example, five years after quitting smoking, the risk of dying from lung cancer is nearly cut in half.[140]

30. Pilot statewide the youth cessation program developed by the American Lung Association entitled No on Tobacco (NOT).

31. Support further research, development, and funding of cessation programs for youth.

The private and public sectors must work together to undertake a comprehensive, integrated approach toward tobacco cessation that is effective statewide. Smoking cessation services should ensure full implementation of the Agency for Healthcare Research and Quality (AHQR) guidelines in all clinical settings. Coordination between agencies and organizations is essential.

There has been little research on what the types of cessation programs that are effective with youth.[108] Therefore, research, development, and distribution of new materials are essential. Effective cessation programs for youth should be disseminated as they are identified or developed.

Surveillance and evaluation

An evaluation component provides feedback to the state program and furnishes data that can demonstrate the program's impact and effectiveness. Surveillance and evaluation provide outcomes data on prevalence of tobacco use, prevalence of tobacco-related diseases, per-capita consumption, and exposure to environmental tobacco smoke. Evaluation surveys provide in-depth information about intermediate outcomes such as attitudes, beliefs, and behaviors. Surveillance and evaluation, together, help target resources and demonstrate progress toward goals.

32. Expand research and evaluation systems to ensure continuous monitoring and feedback of the performance of all the tobacco-use prevention strategies at the state and local levels.

Evaluation information should be provided to the public, and used to modify and improve program performance. Some of the systems that might be used include the YRBS, Annual Synar Inspections, and the Pregnancy Risk Monitoring Survey. Information might also be gathered by expanding the cancer registry to monitor tobacco-related illnesses specifically, expanding the statewide data units such as the Cardiovascular Disease Data Unit, and conducting surveys of youth, adults, school administrators, opinion leaders, or monitoring local media.

Many states work in conjunction with universities to implement and coordinate these activities. For example, the North Carolina Division of Public Health worked with the UNC-Chapel Hill School of Medicine to conduct and publish research that has advanced efforts regarding youth access to tobacco products and restaurant policies on secondhand smoke.

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Chapter 10

Summary and Recommendations

The North Carolina Institute of Medicine Comprehensive Child Health Task Force has conducted a thorough examination of a broad spectrum of issues affecting the health status and health care available to North Carolina's infants, young children and adolescents. The chapters of this report summarize the problems that currently exist, the range of current programs addressing these issues and the gaps that exist in terms of coverage and the effectiveness of existing programs. In addition, the Task Force identified additional efforts that are needed to ensure that all children reach their maximum health and developmental potential.

The Task Force recognizes that North Carolina already has many effective programs to protect and improve child health. The fact that these programs are not highlighted in these recommendations is not intended to undercut the continuing need for support of these efforts. The Task Force identified a series of policy options to help North Carolina children reach their maximum health potential. These options were prioritized based on: (1) the severity of the problem or issue being addressed; (2) the number of children affected by the problem; and (3) the availability of cost-effective interventions or programs to address the problem or issue in question. The Task Force developed a five-year plan to implement these child health priority recommendations. The Task Force urges that its top ten recommendations be implemented immediately. The other priority recommendations were grouped into those that should be implemented within three years, and those that should be implemented within five years. Some of these recommendations require the initiation of new efforts or programs, others require the expansion of existing programs, while others require some effort to develop new systems or plans.

The recommendations are organized around three cross-cutting areas that impact children's health and the ability of the state to measure and monitor children's health: (1) Health education for children and families; (2) Access to a comprehensive system of care; and (3) Comprehensive data systems to inform decision making.

It is our hope that the organization and summarization of the key findings from the Task Force in this way will make the report a more useful blueprint for policy deliberations and positive action on behalf of child health in our state.

Highest priorities that should be implemented immediately

The following list includes the top ten recommendations of the Task Force. Each of these recommendations has equal weight, that is to say, the 10th recommendation is of equal importance to the first recommendation.

Health education for children and families

North Carolina should take a proactive approach to improving child health. To the extent possible, the Task Force recommended steps to prevent disease and disability among the state's children. Health promotion and disease prevention efforts, including health education targeted at children, their parents and the general public, became one of the cornerstones of the Task Force's recommendations.

1. **The North Carolina State Board of Education and Department of Public Instruction should expand the mandatory school-health curriculum to increase the time students actively participate in physical education, and enhance the health education curriculum to include more comprehensive education in injury and violence prevention, personal safety, nutrition education, tobacco and drug use prevention, behavioral risk management, media literacy and parenting skills. The State Board of Education should monitor each school system to ensure that the curriculum is being taught and that children in the school understand and adopt these healthful living behaviors.**

The Task Force recognized the importance of teaching children healthful living behaviors while still in their formative years. It is for this reason that the Task Force emphasized the need to improve the existing mandatory school-health curriculum. The State Board of Education already mandates that schools teach the "Healthful Living" curriculum. This curriculum includes physical education, classroom time devoted to nutrition, injury prevention, drug education, and sex education, as well as training in areas such as conflict resolution, stress management, media literacy and personal safety. The curriculum is supposed to be taught in elementary and middle school, with some additional training at the high school level. However, implementation of this curriculum is not monitored at the state level, and schools are not currently held accountable to ensure that students understand or implement healthful living skills.

The Task Force recommended that the State Board of Education enhance the "Healthful Living" curriculum to include additional training on injury prevention, nutrition education, tobacco and drug-use prevention, personal safety and parenting skills. The State Board of Education should monitor each school system to ensure that the curriculum is being taught and that children in the school understand and adopt healthful living behaviors. The

Task Force maintains that children stand a better chance of internalizing healthful living behaviors if these skills are taught throughout the child's school years, are modeled by school staff, and emphasized through general public education efforts.

Implementing a comprehensive school health curriculum is part of the overall goal of implementing "coordinated school health programs" in North Carolina schools. Coordinated school health programs represent a more coordinated, multi-component approach to enhance the well-being of children in school settings. Coordinated school health programs include eight components: health education, physical education, health services, nutrition services, health promotion for school staff, counseling and psychological services, a healthy school environment, and parent/community involvement. The Task Force considers coordinated school health programs to be the best and most appropriate approach to help schools achieve these health enhancement goals for the children of North Carolina.

2. **The North Carolina General Assembly should appropriate funds to the North Carolina Department of Health and Human Services for a general public awareness campaign to increase understanding of the benefits of healthful living. The public awareness campaign should be targeted to children, parents and communities.**

Educational efforts targeted at children and their parents stand a better chance of success if coupled with mass media campaigns that promote healthful living behaviors and counter negative advertising and media messages. Mass media should be used to promote public awareness of good nutrition, the importance of physical activity, reduction of tobacco and drug use, preventing injuries, reducing sexual behaviors that result in STD, HIV and unintended pregnancies, and to otherwise raise individual, family and community motivation for healthful living. Mass media campaigns should also be developed to promote help-seeking behaviors and improve children's self-image and esteem. Evidence shows that these mass media campaigns can be successful in improving healthy behaviors—for example, in reducing smoking, increasing the consumption of nutritious foods, and increasing seat belt use.

3. **The North Carolina General Assembly should appropriate additional funds to expand the intensive home visiting program statewide. This is a primary prevention program aimed at improving parents' life course development, parenting skills, child health and development, and parents' use of human services, among low-income, first-time mothers.**

The intensive home visiting program is a highly effective preventive health program that provides parenting education and services to first-time mothers living in poverty. Currently, there are 23 programs in operation using one of three models, and seven communities have these programs in the planning stages of implementation. Past longitudinal evaluations of similar programs show that they help reduce the incidence of child abuse and neglect, injuries

and poison ingestion. The program has also been effective in helping mothers defer subsequent pregnancies and move into the workforce.

Access to a comprehensive system of care

Children should be able to access a comprehensive system of care to identify potential health problems and address ongoing health concerns. This is in keeping with the Task Force's overall goals of preventing the development of adverse health conditions (primary prevention) or mitigating the effects of existing health concerns (secondary and tertiary prevention).

4. The North Carolina General Assembly should ensure that all uninsured children have access to health insurance coverage. To accomplish the goal of ensuring that all children have access to health insurance coverage requires three steps:

- **The North Carolina Department of Health and Human Services should expand outreach efforts to ensure that children who are currently eligible are enrolled in Medicaid or NC Health Choice.**

In the first year, NC Health Choice enrolled almost 57,000 uninsured children. However, there are still more than 119,000 uninsured children with incomes below 200% of the federal poverty guidelines that could qualify for either Medicaid or NC Health Choice. The state should expand its outreach efforts to ensure that all families know about the eligibility requirements for these programs. In addition, parents need to understand the importance of establishing an ongoing relationship with a health care provider and of seeking well-child as well as acute care services.

- **The North Carolina General Assembly should eliminate the two-month waiting period to enroll in NC Health Choice for children with special health needs.**

One barrier that prevents some eligible children from enrolling in NC Health Choice is the two-month waiting period. Under existing law, children must be uninsured for at least two months before becoming eligible for NC Health Choice. Families and advocates report that this requirement impedes the access of children with special health needs to the program. Many families of these children have some kind of insurance (usually catastrophic insurance that is expensive, but with limited benefits) and are naturally reluctant to drop coverage for any period of time given their child's special health needs. While the concept of a waiting period to prevent "crowd out" of private insurance is acceptable in theory, it is clearly harming families with children with special needs. Since these are the most vulnerable children, every effort should be made to ensure that they have access to NC Health Choice. DHHS and the General Assembly should eliminate the two-month waiting period for these children.

- **The North Carolina General Assembly should expand NC Health Choice to cover uninsured children with incomes up to 300% of the Federal Poverty Guidelines on a sliding-scale premium basis. Uninsured children with incomes in excess of this amount should be allowed to buy-in to the program at full cost.**

In addition to the uninsured children of low- or moderate-income families, there are approximately 64,000 uninsured children with family incomes between 200-300% of the federal poverty guidelines, and 43,000 uninsured children with higher family incomes. Indeed, one of the most common reasons for the denial of a NC Health Choice application is the fact that the family's income is somewhat above the 200% requirement. To enhance access to needed health services, eligibility for NC Health Choice should be extended to children in families with incomes up to 300% of the federal poverty guidelines with sliding scale premiums. Uninsured children with higher family incomes should be allowed to buy-in to the program at the full premium cost.

5. **The North Carolina General Assembly should appropriate additional funds to expand the number of school health nurses to assure the presence of at least one school nurse for every 750 students in North Carolina. The state should hire at least 150 additional school nurses each year until this goal is reached.**

Approximately nine percent of all public school children and adolescents receive some kind of medication during school hours. Further, schools are confronted by the necessity of offering increasingly complex health services for a greater range of students with special health care needs (including tube feeding or tracheal suctioning). However, North Carolina has too few school nurses to meet the ongoing health needs of students in the public school system. North Carolina currently has an average ratio of 2,451 students per nurse, although the American School Health Association and the National Association of School Nurses recommend a ratio of 750 students per nurse. Eight of the state's 100 counties currently have ratios of 5,000 or more students per nurse; and another 23 counties have ratios between 3,001 and 4,999. Twelve counties have either no school nurses, a nurse working only "on-call," or less than half-time, for the county as a whole.

The availability of school nurses is a key component of the recommended coordinated school health program. North Carolina needs to hire an additional 1,100 school nurses to bring North Carolina to an adequate level of school nurse personnel. The state should hire an additional 150 school nurses per year until it reaches the optimal goal of one school nurse for every 750 students.

6. **The North Carolina Department of Health and Human Services should work with the North Carolina Area Health Education Centers Program (AHEC), the four medical schools in North Carolina, the North Carolina Pediatric Society, the North Carolina Academy of Family Physicians, the North Carolina Primary Care Association, and other appropriate health professional associations to develop a plan to assure every child has access to a regular source of health care. The care should be family-centered, coordinated, comprehensive and culturally-competent. The child's health care provider should help the child access preventive, primary and specialized care.**

The Task Force recommends that every child should have access to a familiar, reliable and regular source of health care. To meet this requirement, the provider should be accessible, family-centered, comprehensive, coordinated, compassionate and culturally-competent. This provider should be the child's first point of entry through which the child can access preventive, primary, and specialized care. The clinician can be a pediatrician, family physician, nurse practitioner or physician assistant, and may be located in private practice, a public health department, a rural or migrant health center, or other organization offering continuous primary care for children. Of special importance is the effort to assure a regular source of health care for adolescents or children with special health need, who may not have their health needs met by traditional primary care providers.

7. **The North Carolina Department of Health and Human Services should expand early identification, referral and treatment of children ages birth-to-five. The expansion should focus on, but not be limited to, identification, referral and treatment of young children needing mental health services or who have parents with substance abuse problems.**

Although early intervention services for infants and toddlers are available and required in all 100 counties, the statewide penetration of services to this population is below expectations. Some experts suggest that 8-13% of birth-through-two-year olds would be eligible for the Infant-Toddler program, but the state only serves 2.1% of children in this age group. Similarly, for three-to-five year olds, the state serves 5.24%, while the expected penetration rate is 5-8%. A particular problem identified by the Task Force was identification and treatment of children with mental health problems or those impacted by parental substance abuse problems. More concerted efforts are needed to identify children in need of these services through hospitals, community well-child visits, child service coordination, DSS, day care and preschool settings.

8. **The Division of Medical Assistance should work with the Division of Mental Health, Developmental Disabilities and Substance Abuse Services and other appropriate agencies and professional organizations to develop and implement Medicaid policies aimed at expanding the availability of mental health and substance abuse services for children. The policy review should examine service definitions, payment rates, consumer choice, a review of local penetration rates and the implementation of a consistent service model across the state.**

Current state Medicaid policy limits choice of mental health providers favoring staff in area mental health, developmental disability or substance abuse programs to that of similarly qualified staff in private practice. In addition, Medicaid's cost-finding process, which establishes reimbursement rates, has created a financial crisis for some of the area mental health programs, which limits their ability to provide services to other, non-insured or inadequately insured children. The Division of Medical Assistance with the Division of MH/DD/SAS should review their policies to expand mental health and substance abuse services for children.

9. **The North Carolina Department of Health and Human Services should establish mandatory case load limits for child protective service, foster care and adoption workers. The caseload maximums should not be exceeded even if cases increase. The state should share with the counties the cost of hiring additional social workers as caseloads increase.**

One of the most pressing issues facing North Carolina children is the growing number of children who are victims of child abuse and neglect. In SFY 1999, there were 37,326 children who were substantiated to have been victims of abuse and neglect, which is a 25% increase in the last four years. The state Child Protective Services system was set up to protect abused and neglected children. However, for the system to work, there must be adequate staff to promptly investigate allegations of abuse and neglect, and to work with families recovering from abusive situations. The state currently has a *recommended* caseload standard of one worker for 12 families for Child Protective Services investigators and case managers. These standards are appropriate, but should be changed from recommended to mandatory maximum caseload ratios. In addition, the foster care and adoptive standard of one social worker to 15 families should be changed to one social worker to 12 families. Children presently in the Foster Care system and moving to permanency with adoption or living with relatives need intensive help dealing with their own difficulties associated with separation from their biological families, adjustment to foster or adoptive placements and their own future well being.

New workers are needed to keep pace with the growing number of reports and substantiated cases of abuse and neglect. To ensure that counties can afford to hire the necessary workers, the state should share in the costs of hiring additional workers as caseloads increase.

Comprehensive data system to inform decision making

Health policy decisions should be made with the best information available to identify need, develop policy alternatives, and evaluate the effectiveness of the policy options in improving child health. Yet too often, the state is faced with addressing unmet needs without adequate information about either the nature of the problem or solutions that work.

10. **The North Carolina Department of Health and Human Services should create a state-level task force to develop a comprehensive child health data system. The goals will be to create a data system that includes assessments of the health status of North Carolina children, measures of health outcomes and disparities, and informs policy makers about the effectiveness of publicly-funded programs in improving the health status of children. Data should be compiled at a population-level, and safeguards should be established to protect the privacy of individual children and their families.**

The health data system should:

- Establish an ongoing monitoring system to measure population-based changes in health status and involvement in high-risk behaviors. Such monitoring systems should include, but not be limited to, uniform, statewide participation by school districts and individual schools in the Youth Risk Behavior Survey every two years.
- Collect demographic data, including racial, ethnic and socioeconomic data, to monitor and develop policies addressing racial, ethnic and socioeconomic disparities.
- Include mechanisms to compile and analyze universal health assessments collected at birth and kindergarten to analyze changes in population health.
- Collect data at the state level on children who have been "screened-out" of the Child Protective Services system but who may be at high-risk of abuse, neglect or dependency.

Important recommendations that should be implemented within three years

Access to a comprehensive system of care

- **The North Carolina General Assembly should establish a funding source to pay for the health care of immigrant children.**

Low- and moderate-income Hispanic/Latino children often face financial access barriers not experienced by other children. Some Hispanic/Latino children are ineligible for Medicaid and NC Health Choice because of the lack of citizenship. Children born in the United States are automatically citizens; yet, parents of these children who are themselves undocumented aliens might refuse to bring their children to public agencies for care out of fear of their own deportment.

Lack of health insurance coverage and the commensurate inability to afford health care services has adverse consequences both for the Hispanic/Latino children as well as other individuals living in the community. The recent outbreak of rubella among Hispanic/Latino populations is a prime example—it affects both the Hispanic/Latino community as well as other non-immigrant populations who come into contact with these children. To ensure that these children reach their maximum health potential, the state should establish a funding source to help pay for the health care needs of immigrant children.

- **The North Carolina Department of Health and Human Services should provide technical assistance to local communities to develop school-based and school-linked health centers, and the General Assembly should appropriate additional funds for this purpose.**

The state presently provides $1.5 million to support school-based or -linked health centers, but these programs exist in only 29 North Carolina counties. These approximately 50 school-based/school-linked health centers provide an accessible and user-friendly service especially to adolescents who are often without any other source of primary medical care. Many of these centers offer comprehensive services, including preventive health, primary care, and mental health services. Providing comprehensive health services in the school setting is another key component of the coordinated school health program.

The North Carolina Department of Health and Human Services should provide technical assistance to local communities wishing to establish school-based or school-linked centers. Further, the General Assembly should expand its appropriations to support the establishment of 10 new centers, and should provide funds to hire a clinical services coordinator and provide multidisciplinary training for school health providers.

- **The North Carolina General Assembly should increase funding to hire additional school-based support workers, including social workers, mental health and substance abuse professionals, and guidance counselors.**

Many children who need mental health services are identified through the school system. In some communities, most children who receive mental health services obtain the services from school personnel. Yet, schools lack sufficient numbers of trained personnel to properly identify or provide services to all children in need of mental health or substance abuse services. Ensuring that schools have appropriate support personnel to meet the health needs of children is another component of the coordinated school health program.

The State Board of Education should establish minimum staffing levels for school-based support personnel (including social workers, psychologists, and counselors). The General Assembly should increase funding to hire more staff with expertise in child mental health and

substance abuse to ensure that children with emotional, behavioral, mental health, substance abuse or other health needs are identified and provided appropriate services or referred to appropriate community resources.

- **The North Carolina General Assembly should appropriate additional funds to expand Child Service Coordination to cover children under age 18 with special health needs.**

Currently, service coordination functions are carried out by different providers under differing circumstances. For example, some private providers offer care coordination, but not all providers. Some public agencies provide care coordination (including health departments and area mental health, developmental disability and substance abuse programs), but these services do not always reach every child in need. Hospitals may also offer care coordination, but these services are generally limited to children who are inpatients. The Child Service Coordination Program is the closest approximation of a comprehensive system of such services, but this program focuses only on children less than five years of age. Other service coordination activities focus on single disease entities or a limited range of services. The lack of a true system leads to duplication of services for some children, while many (particularly older children) receive no service coordination at all. The North Carolina General Assembly should appropriate additional funds to expand Child Service Coordination to cover children under age 18 with special health needs.

- **The North Carolina General Assembly should require private insurers to cover mental health or substance abuse services in parity with other medical services.**

Barriers should be removed which might prevent children from obtaining needed mental health or substance abuse services. Currently, most insurers provide less extensive coverage of mental health or substance abuse services than for other medical services. This makes it difficult for children to access needed mental health services and shifts the treatment of these children to an already overburdened public mental health system. The General Assembly should mandate coverage of mental health and substance abuse services in parity with other medical services.

Children in need of mental health or substance abuse treatment should be encouraged to obtain care. Treatment may reduce the incidence of youth suicides, school violence, behavioral problems in school, or the accidental injuries that are more common among youth who use alcohol or drugs. Our children, as well as society at large, can only benefit by increasing access to mental health and substance abuse services. In addition, the experience of the State Employees Health Plan suggest that providing managed mental health and substance abuse services in parity with other medical services is no more expensive than, and may actually lower the overall costs of, primary health care.

- **The North Carolina Department of Health and Human Services should convene a group of experts to develop a comprehensive child nutrition plan. Ensuring that children develop healthy eating behaviors in childhood can help prevent cardiovascular disease, obesity, Type II diabetes, osteoporosis, and hypertension in children and in adulthood.**

North Carolina currently has multiple child nutrition plans, but these plans are generally targeted to a population of children served by a specific program. The Task Force recommended that the North Carolina Department of Health and Human Services convene a group of experts to develop a comprehensive child nutrition plan. The plan should promote healthful nutrition habits, and should ensure that the foods provided in child care, school and summer feeding programs are nutritious and promote the same eating habits that the state is trying to encourage all youth to adopt.

- **The North Carolina General Assembly should expand Medicaid to cover uninsured parents of children birth through 18 with incomes below 200% FPG.**

There are currently 137,000 uninsured working parents with incomes below 200% of the federal poverty guidelines. Providing health insurance coverage to uninsured parents will also benefit children. Studies suggest that parents are more likely to obtain health insurance coverage for their uninsured children if they also have coverage. In addition, one way to improve birth outcomes is to improve the overall health of the mother before she becomes pregnant. Providing uninsured women health insurance would enable the woman to seek necessary medical care before she conceives.

- **The North Carolina General Assembly should increase payment for dentists serving Medicaid recipients up to 80% of usual, customary and reasonable costs (UCR) for all dental procedures.**

Obtaining access to dental services for low-income children is very difficult in many communities. Statewide, only 20% of Medicaid recipients visited the dentist in SFY 1998. Young children were less likely to visit a dentist—only 12.2% of children ages 1-5 visited a dentist that year. One of the primary reasons for the low utilization of dental services is the difficulty Medicaid recipients face in finding a dentist willing to accept Medicaid. Because of low reimbursement rates, very few private dentists are willing to actively participate in the Medicaid program.

North Carolina is not likely to improve access to dental services without the active involvement of private dentists. However, dentists are reluctant to accept more Medicaid patients when the reimbursement rate is lower than their overhead. Therefore, to recruit more dentists to treat low-income children on Medicaid, the state should increase the dental reimbursement rate to 80% of usual, customary and reasonable charges (UCR).

- **The North Carolina Department of Health and Human Services should work with AHEC, the four medical schools in North Carolina, and appropriate organizations to expand cultural sensitivity training for health care professionals and staff to address the needs of North Carolina's increasingly diverse population. The North Carolina Department of Health and Human Services should also have a system to ensure the availability of specially trained professionals who can assist individuals with limited English proficiency, when needed. The North Carolina General Assembly should provide funds to increase the number, frequency and variety of such efforts statewide.**

The US Census Bureau estimates that the number of Hispanic/Latinos in North Carolina has grown by more than 100% between 1990 and 1998, although some experts suggest that the growth has been much greater. Given that the Hispanic/Latino population of our state is increasing rapidly, and that there are social, cultural and language barriers that prevent Hispanic/Latinos as well as other population groups from benefiting from available health care, it is recommended that the state provide the support necessary for expanding the programs offering language and cultural diversity training for health care professionals in both public and private practice.

- **The North Carolina Department of Health and Human Services should work with the four medical schools in North Carolina, the North Carolina Chapter of the American College of Obstetricians and Gynecologists and other appropriate health professional associations and organizations to develop a universal health inventory to screen for risk factors for women of childbearing years.**

Prenatal care has enhanced pregnancy outcomes in many ways. However, it has not been shown to have a beneficial effect on the incidence of premature birth, a major cause of infant mortality. Prematurity is more directly related to a woman's general health and social, environmental, and emotional circumstances than the prenatal care she received. In order to reduce the incidence of prematurity, North Carolina should address a woman's health *before* as well as during pregnancy.

The North Carolina Department of Health and Human Services should work with the four medical schools, the North Carolina Chapter of the American College of Obstetricians and Gynecologists, and other appropriate health professional associations and organizations to develop a universal health inventory for women of reproductive age. The inventory should be used to identify traditional health problems, as well as a variety of social, environmental and emotional needs. Inventory assessments would begin in early adolescence and continue annually until menopause. Results of these inventories could be used to identify needed health services as well as link women to available resources in their communities. If properly used, women could begin their pregnancies with their health and social needs addressed. Prenatal

care would be less complex for the healthy women and fewer visits for care would be needed. For women with complicated medical or social problems, prenatal care would be a part of a continuum of care that had been initiated well before conception. Under these circumstances, prenatal care would likely become more effective.

Comprehensive data system to inform decision making

- **The North Carolina General Assembly should provide funding to the North Carolina Department of Health and Human Services for system development, implementation and continuing maintenance of a statewide child immunization registry.**

With a very mobile society and frequent changes in health care coverage, parents often take their children to different providers over the course of the child's primary vaccination series. Nationally, as many as 25% of children visit at least two providers for immunizations before their third birthdays. Fragmented health care translates into fragmented immunization records. Without a complete immunization record, it is difficult for a provider to determine the immunization status of a two-year-old child who presents for an acute illness or well-child visit. Hence, opportunities for immunizing this child might be lost, or the child could be over-immunized, unless the parent maintains and carries a complete and up-to-date immunization record for the child, which few do. Overall, 21% of children are over-immunized for at least one vaccine, while 31% are under-immunized for at least one vaccine.

One of the strategies for assuring that every child from birth to age 19 years is protected from infectious diseases involves the establishment and maintenance of a comprehensive childhood immunization registry. Though North Carolina has implemented such a registry in all local public health departments throughout the state, this system has not been expanded to include all private sector providers of childhood immunizations. Inclusion of private providers in this system is vital to the effectiveness of the strategy because approximately 70% of immunizations are now given in the private sector.

- **The North Carolina General Assembly should expand the scope of the Child Fatality Task Force to examine non-fatal injuries, including injuries occurring at home, in sports activities, on playgrounds, in motor vehicles, and in the workplace.**

The state has a multi-tiered system to investigate the causes of child fatalities, and to identify gaps in systems, policies, and laws that may have contributed to child deaths. However, the state lacks a similar system to investigate the causes of child injuries, and make recommendations on how to reduce the incidence of child injuries or minimize the severity of the injuries. The state should expand the focus of the Child Fatality Task Force to focus on the underlying causes of child injuries, and to "identify gaps in systems, policies, and laws that

contribute to child injuries." In addition, this task force should monitor, study the causes and develop policies to address racial and socioeconomic disparities in fatal and non-fatal injuries.

- **The North Carolina Department of Health and Human Services should convene a group of experts and stakeholders to develop a consensus on an operational definition of "children with special health care needs" that can be used both for planning and epidemiological purposes and to identify individual children in need of specialized health care services. In addition, this group should develop a consensus on a system to measure accessibility, quality of care, and outcomes for children with special health needs. The system should focus on health status and on the progress children make with their care plans.**

Currently, there is no standardized definition of children with special health needs. Depending on the definition used, between 2% and 20% of North Carolina children meet the criteria. The lack of a clear definition of children with special health needs makes it difficult to identify children in need of specialized services and to plan programmatic initiatives. The federal Maternal and Child Health Bureau recently adopted a definition of children with special health needs, which may be appropriate for use in North Carolina. The North Carolina Department of Health and Human Services should convene a group of experts and stakeholders to review this definition for use in this state. Once a consensus is reached, the new definition can be used to identify children in need of specialized services in the NC Health Choice as well as other publicly-funded child health programs. This same group of experts and stakeholders should develop methods to monitor the quality of health care services, as well as the health outcomes for children with special health needs.

Other important recommendations that should be implemented within five years

- **The State Board of Education should ensure that, within five years, every NC school system has a coordinated school health program.**

One of the Task Force's top priorities was to ensure that every school has a coordinated school health program. By the end of the five years, the state should have all of the key components in place for every school that are necessary for a coordinated school health program: health education, physical education, health services, nutrition services, health promotion for school staff, counseling and psychological services, a healthy school environment, and parent/community involvement. Implementing coordinated school health programs are the best method to improve children's health status and lifelong healthful living behaviors.

- **The North Carolina General Assembly and local county commissioners should appropriate additional funds to assure a continuum of mental health and substance abuse services. The continuum of mental health and substance abuse services should be coordinated and should involve children and their families, local medical providers, human service and juvenile justice agencies, schools and other community resources, and should include partnerships with medical centers and universities (using a "system of care" model).**

Currently, families who need services must negotiate through a complex and fragmented care delivery system. Families don't know where to obtain services and the services provided by multiple agencies or providers are not often coordinated. For the children with the most serious emotional disturbances, this leads to overuse of restrictive and costly residential care and out-of-home placements. Other children may be unable to access needed mental health or substance abuse services. However, in some communities, a new model of care is emerging—one that is coordinated and involves children and their families, local medical providers, human service and juvenile justice agencies, schools, and other community resources, and includes partnerships with medical centers and universities. Such a model can impact the outcomes of those children who are assaultive and violent, sexually aggressive and other special populations. The model is also useful for children with the full range of mental health or substance abuse problems. This "System of Care" model should be expanded statewide.

- **The North Carolina Division of Medical Assistance should study whether Medicaid provider payments are sufficient to provide adequate compensation to providers who offer comprehensive care for children with special health needs.**

In the course of our study, many providers of services for children with special physical and behavioral needs reported that reimbursement rates do not adequately reflect the additional time and effort it takes to respond to the needs of these children. Thus, there is a fiscal disincentive to serve these children appropriately. DMA should convene providers of both primary and specialized services to study this issue to determine what changes in the reimbursement system might best enhance the number of providers willing to offer efficient and effective services to children with special health care needs.

- **The North Carolina General Assembly should appropriate funds to expand the child care health consultation program to provide health and safety education to child care providers, children and their families statewide.**

Since 70% of preschoolers spend some time in child care, it is critical not only that child care providers be trained in health and safety, but also that the child care setting be used as a venue to provide health/safety education to children and families. The introduction of child

care health consultants (primarily specially-trained nurses) who can work directly in such settings has begun to meet both objectives. These professionals provide training and consultation to child care providers to enhance the safety of the child care environment. In addition, they offer ways for these providers to both model and teach good health care behaviors to children and their families. Approximately half the state currently has this consultation service (largely through Smart Start funding). The General Assembly should appropriate sufficient funds to ensure statewide implementation of the child care health consultation program.

In addition to these priority recommendations, the full Task Force report includes many other recommendations that are worthy of consideration. These recommendations are included in the chapters that address specific child health issues.

- **The North Carolina Department of Health and Human Services should develop methods to promote access to programs and services through shared or uniform portals of entry.**

North Carolina offers multiple publicly-funded programs to meet the health, social, nutritional and educational needs of children and their families. These programs are often administered by different agencies (such as health departments, area mental health, developmental disability and substance abuse programs, departments of social services, local schools or other non-profit community agencies), and generally have different eligibility criteria. Services are not always accessible to families or offered during non-work hours. In addition, families may not know what services are available, or how to access them. The North Carolina Department of Health and Human Services has already begun an effort to reengineer publicly-funded social services to make them more accessible to families (the BPR project). This effort should be supported, and expanded to include other publicly-funded health programs offered through the North Carolina Department of Health and Human Services.

A Plan for Implementation of Task Force Recommendations

To facilitate consideration of the Task Force's recommendations, the Task Force developed a schematic to show those recommendations that should be implemented immediately, those that need to be implemented within three years, and those that should be implemented within five years. In this way, the Task Force has visualized a sequential series of policy and action steps that together will extend the benefits of effective health promotion and health care programs to children of all ages in North Carolina. It is our hope that this schematic can serve as the template for a comprehensive child health plan through which the health of our children can be assured. The Task Force is committed to ensure that these recommendations are implemented, and thus, plans to develop annual updates to report on the state's progress in implementing these recommendations.

	Five Year Plan to Improve Child Health		
Dimension of Child Health	Immediate Action	Implement within three years	Implement within five years
Health Education for Children and Families	1. The State Board of Education should expand the mandatory school health curriculum, ensure the curriculum is being taught and that children understand and adopt healthful living behaviors (as part of the coordinated school health program). *(Expand)* 2. DHHS should initiate a broad-based public awareness campaign to increase understanding of the benefits of healthful living. *(Initiate)* 3. NC General Assembly should expand the "intensive home visiting" program statewide. *(Expand)*		The State Board of Education should ensure that by the end of five years, every NC school system has a coordinated school health program. *(Expand)*
Access to a Comprehensive System of Care	4. NC General Assembly should assure access to health insurance for all children by: a) expanding outreach efforts; b) eliminating the 2-month waiting period for NC Health Choice for children with special needs; and c) expanding NC Health Choice to cover uninsured children with family incomes up to 300% FPG with sliding scale premiums and allowing children with higher family incomes to buy-in at full cost. *(Expand)*	NC General Assembly should establish a funding source to pay for health care for immigrant children. *(Initiate)*	NC General Assembly and county commissioners should appropriate funds to assure a continuum of mental health and substance abuse services. *(Expand)*

	Five Year Plan to Improve Child Health		
Dimension of Child Health	Immediate Action	Implement within three years	Implement within five years
Access to a Comprehensive System of Care	**5. NC General Assembly should appropriate funds to assure one school nurse for every 750 students in NC schools, hiring 150 school nurses per year until this goal is reached (as part of the coordinated school health program).** ***(Expand)***	DHHS should provide technical assistance to local communities to develop school-based/linked health centers. NC General Assembly should appropriate funds for additional centers (as part of the coordinated school health program). *(Expand)*	DMA should determine whether Medicaid provider payments are sufficient to provide adequate compensation to providers offering comprehensive care for children with special needs. *(Develop)*
	6. DHHS should develop a plan, in partnership with other agencies and organizations, to assure every child has access to a regular source of health care. ***(Develop)***	NC General Assembly should appropriate funds for additional school-based support workers, including social workers, mental health and substance abuse professionals, and guidance counselors (as part of the coordinated school health program). *(Expand)*	NC General Assembly should expand child care health consultation program statewide. *(Expand)*
	7. DHHS should expand early identification, referral and treatment of children ages birth-to-five, with a focus on those needing mental health services or who have parents with substance abuse problems. ***(Expand)***	NC General Assembly should expand Child Service Coordination to cover children under age 18 with special health needs. (*Expand)*	DHHS should develop methods to promote access to services through shared or uniform portals of entry. *(Develop)*
	8. DMA should work with DMHDDSAS and other agencies to develop and implement Medicaid policies aimed at expanding the availability of mental health and substance abuse services for children. ***(Develop)***	NC General Assembly should require private insurers to cover mental health and substance abuse services in parity with other medical services. *(Initiate)*	

	Five Year Plan to Improve Child Health		
Dimension of Child Health	**Immediate Action**	**Implement within three years**	**Implement within five years**
Access to Comprehensive System of Care	**9. DHHS should establish mandatory case load limits for child protective services, foster care and adoption workers. *(Initiate)***	DHHS should convene a group of experts to develop a comprehensive child nutrition plan for the state. *(Develop)* NC General Assembly should expand Medicaid to cover uninsured parents of children ages birth-to-18 with incomes below 200% FPG. *(Expand)*	
		NC General Assembly should increase payments to dentists serving Medicaid recipients up to 80% UCR for all dental procedures. *(Expand)* DHHS should work with other appropriate groups to expand cultural sensitivity training for health care professionals and staff. *(Expand)*	
Comprehensive Child Health Data System	**10. DHHS should create a statewide task force to develop a comprehensive child health data system. *(Develop)***	DHHS should work with other appropriate groups to develop a universal health inventory to screen for risk factors for women of child bearing ages. (*Develop)* NC General Assembly should provide funding for system development, implementation and continuing maintenance of a statewide child immunization registry. *(Expand)*	
		NC General Assembly should expand the scope of the Child Fatality Task Force to examine non-fatal injuries*(Expand)*	

	Five Year Plan to Improve Child Health		
Dimension of Child Health	**Immediate Action**	**Implement within three years**	**Implement within five years**
Comprehensive Child Health Data System		DHHS should convene a group of experts and stakeholders to develop a consensus operational definition of "children with special health needs" and systems to measure outcomes and quality. *(Develop)*	