



Healthy Foundations for Healthy Youth:

A Report of the
NCIOM Task Force
on Adolescent
Health

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North Carolina
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The North Carolina Institute of Medicine's (NCIOM) Adolescent Health Task Force is a collaborative effort of the NCIOM and the North Carolina Metamorphosis Project (NCMP) to examine adolescent health. NCMP is a collaborative effort of the University of North Carolina at Chapel Hill (UNC-CH) School of Medicine and Gillings School of Global Public Health, the North Carolina Multisite Adolescent Research Consortium and Coalition for Health (NC MARCH), the NCIOM, the North Carolina Division of Public Health, and Action for Children North Carolina. Generous support for this project is provided by The Duke Endowment. The work of the Task Force was led by three co-chairs, including J. Steven Cline, DDS, MPH, Deputy State Health Director, Division of Public Health, North Carolina Department of Health and Human Services (NC DHHS); Carol A. Ford, MD, Director, Adolescent Medicine, Program Director, NCMP and NC MARCH, Associate Professor, School of Medicine and Gillings School of Global Public Health, UNC-CH; and Howard Lee, Executive Director, North Carolina Education Cabinet. There were 38 additional Task Force members, including legislators, state and local agency officials, educators, health care professionals, consumers, and other interested people, who dedicated approximately one day a month between May 2008 and September 2009. In addition, there were 15 people who participated in the Task Force's work as Steering Committee members. The Steering Committee members helped shape meeting agendas, identify speakers, and gave important input into the report and recommendations. The accomplishments of this Task Force would have not been possible without the combined effort of the Task Force and Steering Committee members. For a complete list of Task Force and Steering Committee members, please see pages 9-12 of this report.

The NCIOM Task Force on Adolescent Health heard presentations from state and national experts on health and safety issues facing adolescents and young adults in North Carolina and on evidence-based and promising practices and interventions to improve the health of young people between ages 10 and 20. Their presentations helped to inform the work of the Task Force, and we want to thank the following people for sharing their expertise: Alice Ammerman, DrPH, RD, Center for Health Promotion and Disease Prevention, Professor, Department of Nutrition, Gillings School of Global Public Health, UNC-CH; Donna Breitenstein, EdD, Director, North Carolina Comprehensive School Health Training Center, Professor and Coordinator of Health Education with Teacher Licensure, Appalachian State University; Jane D. Brown, PhD, Professor, School of Journalism and Mass Communication, UNC-CH; Paula Hudson Collins, MHD, RHEd, Senior Policy Advisor, Healthy Responsible Students, North Carolina State Board of Education; Tamera Coyne-Beasley, MD, MPH, Associate Professor, School of Medicine and Gillings School of Global Public Health, UNC-CH; Kelly Crowley, LCSW, System of Care Coordinator, Community Policy Management, North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, NC DHHS; Regina

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Executive Summary

Adolescents are in a period of great transition. Children are in the process of becoming young adults during adolescence, and this has profound implications for physical, cognitive, emotional, and social development. During this metamorphosis, new health behaviors emerge, and many health habits that affect life outcomes are established.¹ This is a time of great opportunity because adolescent behavior, health, and educational achievement can positively influence the rest of their lives. Unfortunately, data show that far too many youth engage in behaviors that compromise their health; between the ages of 10 and 20, rates of death and serious health problems double—primarily because of problematic adolescent behaviors.

Fortunately, behaviors are modifiable, which provides tremendous potential for prevention. Parents and other adults influence adolescents' choices and behaviors. Research shows that even as teenagers become older and spend less time with their parents, parents continue to be the most influential people in their teenagers' lives. This is particularly true when it comes to important decision making.² In addition to influencing individual adolescents, adults shape the context within which all adolescents live and develop. The environments created by parents, health professionals, schools, communities, and policymakers clearly shape the health and well-being of youth. Adults need to ensure that there are opportunities for adolescents to develop the skills and knowledge needed to be healthy adolescents, healthy adults, and productive members of society in the future.

In order to help ensure that our more than 1.4 million North Carolina adolescents have the greatest chance of success in life, The Duke Endowment generously funded the North Carolina Multidisciplinary Adolescent Research Consortium and Coalition for Health (NC MARCH) More Between 10 and 20 Adolescent Health Initiative, now known as the North Carolina Metamorphosis Project (NCMP), to study ways to improve adolescent health in our state. NCMP is a collaborative effort of the University of North Carolina at Chapel Hill (UNC-CH) School of Medicine and Gillings School of Global Public Health, NC MARCH, the North Carolina Institute of Medicine (NCIOM), the North Carolina Division of Public Health, and Action for Children North Carolina. NCMP consists of three distinct projects: an Adolescent Health Portrait, a survey of parents, and a Task Force on Adolescent Health.^a NCMP asked the North Carolina Institute of Medicine to convene the Task Force. This report, released at the North Carolina Adolescent Health Summit in December 2009, is the culmination of the Task Force's work.

The Task Force was co-chaired by J. Steven Cline, DDS, MPH, Deputy State Health Director, Division of Public Health, North Carolina Department of Health and Human Services (NC DHHS); Carol A. Ford, MD, Director, Adolescent



Adolescents are in a period of great transition.

^a The Adolescent Health Portrait and parent survey are available online at <http://www.med.unc.edu/ncmp>.

The CDC identified 21 Critical Health Objectives for adolescents and young adults. The Task Force focused most of its work on examining the health areas identified by the CDC, including unintentional injury, prevention of chronic illnesses, substance use and abuse, mental health, sexual health, and violence.

Medicine, Program Director, NCMP and NC MARCH, Associate Professor, School of Medicine and Gillings School of Global Public Health, UNC-CH; and Howard Lee, Executive Director, North Carolina Education Cabinet. There were 38 other members of the Task Force, which met 12 times from May 2008 to September 2009. The Task Force made 32 total recommendations; ten were deemed especially important and were designated as priority.

The Task Force used the work of the Centers for Disease Control and Prevention (CDC) to help narrow its focus. In setting the Healthy People 2010 goals, the CDC identified 21 Critical Health Objectives for adolescents and young adults.³ The Task Force focused most of its work on examining the health areas identified by the CDC, including unintentional injury, prevention of chronic illnesses, substance use and abuse, mental health, sexual health, and violence. In examining these issues, the Task Force organized itself around the premise of youth development. Instead of focusing solely on *preventing* certain adolescent health issues, the Task Force also looked at ways to *invest* in youth so they can *develop* the skills and attributes needed to become productive adults. Reframing the way we think about and how we address adolescent health issues is key to developing a successful approach. Right now, many of us look at adolescents and think about what can be done to prevent unhealthy outcomes; instead the Task Force tried also to think about what we can do to help them to meet the goals and dreams we share for their future. Everyday hundreds of thousands of North Carolina adolescents are trying to make the right choices; the Task Force identified strategies to support adolescents in making choices to support their best aspirations.

The following provides a summary of the Task Force on Adolescent Health recommendations. The summary recommendations are numbered to correspond to the chapter in which they are discussed in more detail. Priority recommendations are also noted.

Strengthening Adolescent Health Leadership and Infrastructure, and Improving the Quality of Youth Policies, Programs, and Services: Families, schools, communities, health care providers, and public policies all influence adolescent health and well-being. One of the important public health lessons we learned from the decline in adolescent smoking rates in North Carolina is the importance of implementing multifaceted strategies that work together synergistically to support positive behavioral change. To maximize effectiveness, public health interventions must be offered within schools, communities, and clinical settings. Further, these interventions should be reinforced through social marketing campaigns and supportive public policies.

The Task Force recognized that these efforts would be stronger if there were more visible adolescent health leadership and a stronger infrastructure to provide support and coordination. Furthermore, the Task Force recognized that we are more likely to experience positive results if we implement evidence-based

strategies to influence specific health outcomes *and* strategies to enhance youth development. Evidence-based youth development approaches often have a positive impact on a wide range of adolescent health behaviors. With strong leadership, a solid infrastructure, and the strategic use of evidence-based programs, services, and policies, the unique needs of adolescents can be successfully addressed.

Recommendation 3.1: Establish an Adolescent Health Resource Center

An Adolescent Health Resource Center should be established within the Women and Children's Health Section of the Division of Public Health. The Center should support adolescent health around the state by coordinating health initiatives; expanding the use of evidence-based programs, practices, and policies; and providing adolescent health resources for youth, parents, and service providers. The North Carolina General Assembly should appropriate \$300,000 in recurring funds beginning in SFY 2011 to support this effort.

Recommendation 3.2: Fund Evidence-Based Programs that Meet the Needs of the Population Being Served (PRIORITY RECOMMENDATION)

Public and private funders supporting adolescent initiatives in North Carolina should place priority on funding evidence-based programs, including validation of the program's fidelity to the proven model, to address adolescent health behaviors across multiple protective and risk factors. Program selection should take into account the racial/ethnic, cultural, geographic, and economic diversity of the population being served.

Recommendation 3.3: Support Multifaceted Adolescent Health Demonstration Projects

The North Carolina General Assembly should provide \$1.5 million annually for five years beginning in 2011 to the Division of Public Health to support four multi-component, locally-implemented adolescent health demonstration projects aimed at improving health outcomes for at-risk adolescents. To qualify for funding, the demonstration project should have evidence-based components and involve families, adolescents, health care providers (which may include school-based health centers), schools, Juvenile Crime Prevention Councils, and local community organizations. DPH should contract for an independent evaluation of the demonstration projects.

Improving Adolescent Health Care: Adolescents as a group are generally healthy. However, the majority of youth will, at some time, engage in behaviors that can lead to serious negative health consequences. Regular

preventive check-ups and counseling can help ensure that adolescents develop patterns of behavior that will favorably influence life-long trajectories of health, and provide opportunities for early diagnosis and intervention when problems emerge.

All adolescents need access to high-quality preventive services, screenings, and anticipatory guidance. In addition, children who are ill, or those with special health conditions, need health services that address their specific health needs. To improve the quality of health services provided to adolescents, expectations for the content of a standard routine adolescent health care visit need to be explicitly clear to providers, and services need to be covered by insurers. A major barrier to this type of care is lack of adequate health insurance. Expanding health insurance coverage to more adolescents would allow more youth to access the kind of high-quality preventive services they need. Supporting and expanding health services in schools is another strategy for ensuring that more adolescents have access to health care. North Carolina's school-based and school-linked health centers, school nurses, and Child and Family Support Teams provide critical physical and mental health support services in schools.

Recommendation 4.1: Cover and Improve Annual High-Quality Well Visits for Adolescents up to Age 20

All public and private health insurers should cover annual well visits for adolescents that meet the quality of care guidelines of the US Preventive Services Task Force, Centers for Disease Control and Prevention, American Academy of Pediatrics/Bright Futures, and Advisory Committee on Immunization Practices. Community Care of North Carolina (CCNC), Area Health Education Centers (AHEC) Program, and the Division of Public Health should develop and pilot tools and strategies to help primary care providers deliver high quality adolescent health checks. North Carolina's foundations should provide \$500,000 over three years to support and evaluate this effort.

Recommendation 4.2: Expand Health Insurance Coverage to More People

In the absence of everyone having access to high-quality, affordable health insurance, the North Carolina General Assembly (NCGA) should begin expanding coverage to groups that have the largest risk of being uninsured, including children and adolescents, ages 0-20, with family incomes up to 300% of the federal poverty guidelines. Additionally the NCGA should require insurance companies to offer parents the option to continue dependent coverage until the child reaches age 26, regardless of student status.

Recommendation 4.3: Fund School-Based Health Services in Middle and High Schools (PRIORITY RECOMMENDATION)

The Department of Public Instruction and the Division of Public Health should work together to improve school-based health services in middle and high schools. The North Carolina General Assembly should appropriate \$7.8 million in recurring funds in SFY 2011, \$13.1 million in recurring funds in SFY 2012, and additional funding in future years to support school-based health services, including school based- and school-linked health centers, school nurses, and Child and Family Support Teams in middle and high schools. North Carolina foundations should fund evaluations of the effectiveness of these initiatives.

Recommendation 4.4: Develop a Sixth Grade School Health Assessment

The Women and Children's Health Section of the Division of Public Health should convene a working group to develop a plan to operationalize a sixth grade health assessment for all students.

Improving Adolescent Health through Education: The guiding mission of the North Carolina State Board of Education (SBE) is to prepare students to graduate from high school and be successful in the 21st century. To meet this mission, schools must do more than teach students academic subjects, schools must also help provide students with the knowledge and skills needed to become healthy and responsible adolescents and future adults.⁴ There is mounting empirical evidence that education and health outcomes are tightly intertwined. Students with lower grades are more likely to participate in behaviors linked to negative health outcomes.⁵ Success in school and the number of years of schooling impact health across the lifespan.⁶ People who have completed more years of schooling generally have longer life expectancies and fewer chronic illnesses than those with fewer years of education.⁷ Education is also linked to a range of risk behaviors; those with more years of schooling are less likely to smoke, drink excessively, be overweight or obese, or use illegal drugs as adults. Policies and programs that support improved educational outcomes for adolescents also have the potential to improve their immediate and long-term health.

The North Carolina Healthy Schools Partnership (NCHSP), a partnership between the Department of Public Instruction and the Department of Health and Human Services, promotes the union of health and learning within public schools using a coordinated school health approach.⁸ The CDC has identified eight critical elements that should be included in a coordinated school health approach: health education, physical education, health services, nutrition

services, mental and behavioral health services, healthy school environment, health promotion for staff, and family/community involvement.⁹ The Task Force mainly focused on the health education and physical education components of the coordinated school health approach.

Schools should implement evidence-based health education and physical education curricula that have a proven track record of positive behavioral changes among adolescents. Although challenging, implementing evidence-based health and physical education in the classroom, and evidence-based programs in schools, provide critically important opportunities to improve adolescent health. At least one study in North Carolina has shown that dedicated staff to facilitate the adoption of evidence-based curricula and programs in schools increases successful use and implementation.¹⁰ Local healthy schools coordinators in Local Education Agencies (LEAs) could be the staff members dedicated to providing leadership on health issues to local schools, identifying funding opportunities, selecting evidence-based curricula, providing technical assistance for implementation, and monitoring for compliance.¹¹

Recommendation 5.1: Increase the High School Graduation Rate (PRIORITY RECOMMENDATION)

The North Carolina State Board of Education and the North Carolina Department of Public Instruction should expand efforts to support and further the academic achievement of middle and high school students with the goal of increasing the high school graduation rate. The SBE and DPI should work with others to examine the experiences of other states and develop cost estimates to implement initiatives to increase the high school graduation rates and present this information to the North Carolina General Assembly by April 2010.

Recommendation 5.2: Enhance North Carolina Healthy Schools (PRIORITY RECOMMENDATION)

The North Carolina School Health Forum should be reconvened and expanded to ensure implementation of the coordinated school health approach and expansion of the North Carolina Healthy Schools Partnership (NCHSP). The Department of Public Instruction (DPI) should expand the NCHSP to include a local healthy schools coordinator in each local education agency (LEA). The North Carolina General Assembly should appropriate \$1.64 million in recurring funds beginning in SFY 2011, increased by an additional \$1.64 in recurring funds in each of the following six years (SFY 2012-2017), for a total of \$11.5 million recurring funds to support these positions. The NCGA should appropriate \$225,000 in recurring funds to NCHSP to provide monitoring, evaluation, and technical assistance to the LEAs through the local healthy schools coordinators.

Recommendation 5.3: Actively Support the Youth Risk Behavior Survey and School Health Profiles Survey

The North Carolina State Board of Education should support and promote the participation of Local Education Agencies in the Youth Risk Behavior Survey and the School Health Profiles Survey.

Recommendation 5.4: Revise the Healthful Living Standard Course of Study

The North Carolina General Assembly (NCGA) should require the State Board of Education (SBE) to require schools to use evidence-based curricula when available to teach the objectives of the Healthful Living Standard Course of Study and to phase in over five years an increase in the Healthful Living requirements so that students would receive 225 minutes per week of Healthful Living instruction in middle schools and 2 units for high schools. The NCGA should appropriate \$1.15 million in recurring funding beginning in SFY 2011 to the North Carolina Department of Public Instruction (DPI) to provide grants to Local Education Agencies (LEAs) to implement evidence-based curricula. The SBE should encourage DPI to develop healthful living electives beyond the required courses.

Preventing Unintentional Injuries: Unintentional injuries^b are the leading cause of death in North Carolina for people ages 10-20.¹² Motor vehicle crashes are the most common cause of unintentional injuries and death for adolescents in North Carolina.¹³ Many evidence-based strategies have been shown to reduce the number of motor vehicle crashes among adolescents (e.g., graduated driver's licensing systems, requiring all passengers to wear seat belts, a zero blood alcohol concentration limit for underage drivers). North Carolina has already adopted evidence-based strategies and is regarded as a national leader in this area.¹⁴ However, further work could be done to ensure existing policies are implemented with fidelity and enforced.

In addition to motor vehicle crashes, a large number of adolescents are injured as a result of being cut, struck, or falling, and a significant number of these injuries are the result of participation in athletic programs.¹⁵ Participation in sports and recreational activities is an important part of a healthy lifestyle for adolescents but is also a potential source of injury. Although it is impossible to prevent all accidents from occurring, many sports- and recreation-related injuries are preventable. There are many evidence-based strategies for reducing specific sports-related injuries, but there is not currently a way to ensure youth coaches are educated about these strategies and how to implement them.

^b Unintentional injuries are defined as injuries judged to have occurred without anyone intending that harm be done.

Recommendation 6.1: Improve Driver's Education (PRIORITY RECOMMENDATION)

The North Carolina General Assembly should continue funding driver education through the North Carolina Department of Transportation (DOT). The DOT should work to improve the comprehensive training program for young drivers. Pilot programs to improve driver education should be developed, implemented, evaluated, and, if shown to be successful, expanded.

Recommendation 6.2: Strengthen Driving While Intoxicated (DWI) Prevention Efforts

All North Carolina state and local law enforcement agencies with traffic responsibilities should actively enforce DWI laws throughout the year. The North Carolina General Assembly (NCGA) should increase the reinstatement fee for DWI offenders by \$25. Funds from the increased DWI fees should be used to support DWI programs. The NCGA should appropriate \$750,000 in recurring funding in SFY 2011 to the North Carolina Division of Public Health to develop and implement an evidence-based dissemination plan for the existing *Booze It & Lose It* campaign. The plan should focus on reaching adolescents and young adults.

Recommendation 6.3: Fund Injury Prevention Educators

The North Carolina General Assembly should appropriate \$300,000 in recurring funds to the University of North Carolina Injury Prevention Research Center for the dissemination of evidence-based injury prevention programs and policies to schools and youth sports clubs across the state.

Reducing Substance Use and Abuse and Improving Mental Health for Adolescents and Young Adults: While most youth successfully navigate adolescence without significant psychological, social, or health problems, adolescence is a period when threats to mental and physical health increase and lifelong mental health problems begin or emerge.¹⁶ The use, and misuse, of drugs and alcohol during adolescence can have serious, short- and long-term consequences including abuse and addiction, violence, high-risk sexual activity, injury, and criminal activity. Not only does the misuse and dependence on alcohol and other drugs have negative consequences for the individual and his or her family, but there are also much broader societal implications.

Mental and emotional well-being are important indicators of success for adolescents both during their teenage years and as young adults. Youth with better mental health are physically healthier; they exhibit more pro-social behavior, and improved academic achievement in school, and engage in fewer behaviors that put their health at risk. The majority of mental illness in

adolescents goes unrecognized or untreated, leaving youth vulnerable to diminished school success and to social and behavioral impairments during this critical phase of development.¹⁷

In North Carolina the Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) is the lead agency responsible for coordinating substance abuse prevention, treatment, and recovery supports as well as ensuring that the mental health needs of children and adolescents are being met. More needs to be done at the state and local level to ensure that all youth receive prevention and early intervention services for substance use and mental health problems.

Recommendation 7.1: Review Substance Abuse and Mental Health Prevention and Services in Educational Settings

The North Carolina General Assembly should direct the State Board of Education, Office of Non-Public Education, North Carolina Community College System, and University of North Carolina System to review their existing substance abuse and mental health prevention plans, programs, and policies, and the availability of substance abuse and mental health screening and treatment services and to report a description of their prevention plans to the North Carolina General Assembly biennially beginning in 2011.

Recommendation 7.2: Support the North Carolina Youth Suicide Prevention Plan

The North Carolina Youth Suicide Prevention Task Force along with the Division of Public Health's Injury and Violence Prevention Branch should implement the recommendations in North Carolina's Plan to Prevent Youth Suicide. The North Carolina General Assembly should appropriate \$112,500 in recurring funds in SFY 2011 to support this effort.

Recommendation 7.3: Develop and Implement a Comprehensive Substance Abuse Prevention Plan

The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should develop a comprehensive substance abuse prevention plan for use at the state and local levels. The plan should increase the capacity at the state level and within local communities to implement a comprehensive substance abuse prevention system, prioritizing efforts to reach children, adolescents, young adults, and their parents. Priority should be given to evidence-based prevention programs that have shown to have positive impacts on multiple outcomes, including but not limited to preventing or reducing substance use, improving emotional well-

being, reducing youth violence, and/or reducing teen pregnancy. The North Carolina General Assembly should appropriate \$1.95 million in SFY 2011 and \$3.72 million in SFY 2012 in recurring funds to DMHDDSAS to pilot these prevention plans in six counties or multi-county efforts and to evaluate these efforts. If successful, the comprehensive prevention plans should be implemented statewide.

Recommendation 7.4: Increase Alcohol Taxes

The North Carolina General Assembly should index the excise taxes on malt beverages and wine to the consumer price index so they can keep pace with inflation. The increased fees should be used to fund effective prevention and treatment efforts for alcohol, tobacco, and other drugs.

Recommendation 7.5: Drinking Age Remain 21

The North Carolina General Assembly should not lower the drinking age to less than age 21.

Recommendation 7.6: Integrate Behavioral Health into Health Care Settings

The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should work with the Office of Rural Health and Community Care (ORHCC), Governors Institute on Alcohol and Substance Abuse, and Area Health Education Centers (AHEC) to expand the use of Screening, Brief Intervention and Referral into Treatment (SBIRT) to increase the early identification and referral into treatment of patients with problematic substance use. A similar evidence-based model for screening, brief intervention, and referral to treatment should be identified and expanded to increase the early identification and referral of patients with mental health concerns. ORHCC should lead efforts to support and expand co-location in primary care practices of licensed health professionals trained in providing mental health and substance abuse services. The North Carolina General Assembly should appropriate \$2.25 million in recurring funds in SFY 2011 to support these efforts.

Recommendation 7.7: Ensure the Availability of Substance Abuse and Mental Health Services for Adolescents (PRIORITY RECOMMENDATION)

North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should develop a plan for a comprehensive system that is available and accessible across the state to address adolescent' substance abuse treatment needs.

Preventing Youth Violence: Youth violence is “the intentional use of physical force or power, threatened or actual, exerted by or against children, adolescents, or young adults, ages 10–29, which results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation.”¹⁸ The social costs of youth violence include imprisonment, isolation, loss of income, and diminished “social capital” (the level of “connectedness” in a community) and are borne not just by the victim but also by the perpetrator, their families, North Carolina communities, and society at large. There are many types of youth violence, therefore, the Task Force decided to limit its discussion to types of youth violence for which there are evidence-based prevention strategies, including school violence, bullying, dating violence, and gang violence.

Reducing youth violence requires a community-wide effort that involves individuals, families, schools, and government agencies in both in- and out-of-school strategies. There are several evidence-based programs to reduce risk behaviors that contribute to violence and to reduce violence. While it is important to implement such programs for all youth in schools and communities (see **Recommendations 5.4** and **3.2**, respectively), community programs targeting at-risk youth need to ensure the best possible outcomes by using evidence-based programs and services. Furthermore, North Carolina is one of only two states that adjudicates all 16 and 17 year olds in the adult offender system. This policy leads to worse outcomes in the future; research shows that adolescents who are managed in an adult criminal system are 34% more likely to become repeat offenders when compared to adolescents managed in the juvenile system.^{19,20}

Recommendation 8.1: Enhance Injury and Violence Surveillance

The North Carolina General Assembly should amend the Public Health Act § 130A-1.1 to include injury and violence prevention as an essential public health service and appropriate \$175,000 in recurring funds in SFY 2011 to the Division of Public Health to develop an enhanced intentional and unintentional injury surveillance system with linkages between data systems. The Department of Juvenile Justice and Delinquency Prevention should collect gang activity data each year.

Recommendation 8.2: Support Evidence-Based Prevention Programs in the Community (PRIORITY RECOMMENDATION)

The Department of Juvenile Justice and Delinquency Prevention should strongly encourage Juvenile Crime Prevention Councils to fund evidence-based juvenile justice prevention and treatment programs, including prevention of youth violence and substance use, and community-based alternatives to incarceration.

Recommendation 8.3: Raise the Age of Juvenile Court Jurisdiction

The North Carolina General Assembly should enact legislation to raise the age of juvenile court jurisdiction from 16 to 18.

Reducing Teenage Sexual Activity and Preventing Sexually Transmitted Diseases and Teenage Pregnancies: During childhood, young people spend most of their time with same-sex peer groups. This habit begins to change in the mid- to late-adolescent years. During this adolescent period, young people spend more time with mixed-gender peer groups and close relationships with romantic partners become increasingly important.²¹ The majority of youth initiate sexual behavior within the context of romantic relationships. In 2007, 69% of 12th graders reported having engaged in sexual intercourse.²² Engaging in sexual activity exposes adolescents to the risks of unwanted pregnancy and sexually transmitted diseases (STDs), including HIV.²³

To reduce unwanted pregnancies, STDs, and HIV among youth, the Centers for Disease Control and Prevention recommends communities use a multifaceted strategy that promotes abstinence, helps youth who have been sexually active to return to abstinence, and educates youth who are sexually active in the correct and consistent use of condoms and other forms of contraception.²⁴ This approach recognizes that most teenagers initiate sex during middle and late adolescence and there is a need to reduce the risk of pregnancy and STDs among this large group of young people. Clinicians can help reduce teenage sexual activity, STDs, and unwanted pregnancy by providing screening, testing, and counseling for youth engaged in sexual activity (see **Recommendation 4.1**) and providing and promoting vaccines for STDs; schools can help by providing comprehensive reproductive health and safety education to all students; and communities can help by ensuring adequate funding for STD and pregnancy prevention, education, and awareness activities. In addition, public policies can help prevent STDs by promoting and supporting vaccination for vaccine-preventable STDs [i.e. hepatitis B and genital human papillomaviruses (HPV) vaccines].

Recommendation 9.1: Increase Immunization Rates for Vaccine-Preventable Diseases

The North Carolina Division of Public Health (DPH) should aggressively seek to increase immunization rates for all vaccines recommended by the Centers for Disease Control (CDC) and Prevention Advisory Committee on Immunization Practices, including but not limited to the human papillomavirus (HPV) vaccine which is not currently covered through the state's universal childhood vaccine distribution program. The North Carolina General Assembly should appropriate \$1.5 million in recurring funds in SFY 2011 to support this effort. All public and private insurers should provide first dollar coverage for all CDC recommended vaccines that the state does not provide through the Universal Child Vaccine Distribution Program.

Recommendation 9.2: Ensure Comprehensive Reproductive Health and Safety Education for More Young People in North Carolina

Local school boards should adopt an opt-out consent process to automatically enroll students in the comprehensive reproductive health and safety education program unless a parent or legal guardian specifically requests that their child not receive any or all of this education.

Recommendation 9.3: Expand Teen Pregnancy and STD Prevention Programs and Social Marketing Campaigns (PRIORITY RECOMMENDATION)

The North Carolina General Assembly should appropriate \$5.9 million in recurring funds to the North Carolina Division of Public Health to develop and disseminate an unintended pregnancy prevention campaign, expand the Teen Pregnancy Prevention Initiative, and expand the *Get Real. Get Tested.* Campaign for HIV prevention to include other STDs and reach more adolescents.

Preventing Adult-Onset Diseases: Currently, roughly half of US adults have at least one chronic disease. Although most adolescents do not have a chronic condition, behaviors developed in adolescence can lead to chronic disease in adulthood. To demonstrate the potential impact of improved adolescent health on life span health outcomes, the Task Force reviewed adolescent-focused strategies to reduce rates of adult cardiovascular disease, which is the second most common cause of death in North Carolina (cancer is the most common). Risk of cardiovascular disease can be reduced by addressing major modifiable risk factors such as tobacco use and obesity, which are risk factors that are often developed in adolescence. Most adults who use tobacco began smoking before the age of 18, with the

average age of initiation between ages 12 and 14 years.²⁵ Smokers typically become addicted to nicotine before they reached the age of 20.²⁶ Furthermore, reducing overweight and obesity among young people in North Carolina will, in turn, lead to reduced risk of high blood pressure, high cholesterol, diabetes, and adult cardiovascular disease. Changing social norms to encourage healthy eating among adolescents may be accomplished at least in part by providing healthy lunches in the school setting. Improving the nutritional value of school lunches increases the cost to the school. Thus, to improve school nutrition, schools will need more resources—or innovative models—to be effective. Finally, adolescents who have risk factors for adult cardiovascular disease (including high blood pressure, diabetes, and high cholesterol) need to be identified and receive high-quality health care and regular check-ups. (See **Recommendation 4.1.**)

Recommendation 10.1: Support the Implementation of North Carolina's Tobacco Control Program (PRIORITY RECOMMENDATION)

The North Carolina General Assembly (NCGA) should adopt measures to prevent and decrease adolescent smoking. As part of this effort, the NCGA should increase tobacco taxes to the national average; support the state's Comprehensive Tobacco Control Program; amend current smoke-free laws to mandate that all worksites and public places are smoke-free; and ensure comprehensive evidence-based tobacco cessation services are available for all youth. The increase in revenue from new taxes should be used to support the Comprehensive Tobacco Control program. The NCGA should appropriate \$26.7 million in recurring funds in 2011 to support implementation of the Comprehensive Tobacco Control program. The NCGA should appropriate other funds as necessary until we reach the Center for Disease Control and Prevention recommended level of funding.

Recommendation 10.2: Improve School Nutrition in Middle and High Schools (PRIORITY RECOMMENDATION)

North Carolina funders should develop a competitive request for proposal to fund a collaborative effort between North Carolina Department of Public Instruction and other partners to test and evaluate innovative strategies to deliver healthy meals in middle and high schools while protecting/maintaining revenue for the child nutrition program.

Recommendation 10.3: Establish Joint-Use Agreements for School and Community Recreational Facilities

Local governmental agencies, including schools, parks and recreation, health departments, county commissioners and municipalities, and other relevant organizations should work together to develop joint-use agreements that would expand the use of school facilities for after-hours community physical activity and make community facilities available to schools.

Recommendation 10.4: Fund Demonstration Projects in Promoting Physical Activity, Nutrition, and Healthy Weight

The North Carolina Division of Public Health (DPH) along with its partner organizations should fully implement the *Eat Smart, Move More North Carolina Obesity Plan* for combating obesity in selected local communities and, if shown to be effective, should expand efforts statewide. As part of this project, the North Carolina General Assembly should appropriate \$500,000 in nonrecurring funds for six years beginning in SFY 2011 to DPH for pilot programs of up to \$100,000 per year to reduce overweight and obesity among adolescents.

Recommendation 10.5: Expand the CCNC Childhood Obesity Prevention Initiative

If shown to be successful through program evaluations, Community Care of North Carolina (CCNC) should continue expansion of the Childhood Obesity Prevention Initiative including the dissemination and use of already developed clinical initiatives aimed at obesity reduction for Medicaid-enrolled and other children and their families. The North Carolina General Assembly should appropriate \$174,000 in nonrecurring funds in SFY 2011 to the North Carolina Office of Rural Health and Community Care to support this effort.

Conclusion

Although North Carolina's youth are generally quite healthy, at some point the majority will engage in risky health behaviors. Intervening during adolescence provides a unique opportunity to improve not only adolescents' immediate health, but also their long-term health and well-being.¹ All youth face choices about how and with whom they spend their free time and whether they will engage in risky health behaviors. The decisions they make can impact both their short- and long-term health and well-being. Therefore it is critical that adolescents develop the skills and knowledge needed to make decisions that lead them to engagement in health-promoting, rather than health-compromising, behaviors. The environment created by parents, health professionals, schools,

communities, and policymakers contributes to the health and well-being of youth. In this role, it is important that adults ensure that there are opportunities for adolescents to develop and exercise their autonomy while minimizing the risks of negative consequences.

The most important finding of the Task Force is that coordinated, multifaceted, evidence-based interventions can improve adolescent health. For example, implementation of multifaceted evidence-based interventions led to dramatic decreases in smoking rates in children. From 2003 to 2007, the high school use rate declined from 27.3% to 19.0%, while the middle school use rate dropped from 9.3% to 4.5%.²⁷ The implication of this decline in tobacco use is that broad-based, systematic investments in multifaceted interventions can be effective in addressing seemingly “intractable” adolescent health problems. The path demonstrated by our success with tobacco should be replicated to address other adolescent health issues discussed in this report.

Executive Summary

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In 2008, nearly one-sixth (16%) of North Carolina’s population—or 1.4 million of our residents—were between the ages of 10 and 20.¹ These youth are in a period of great transition. During the developmental stage known as adolescence, children are in the process of becoming young adults and this has profound implications for physical, cognitive, emotional, and social development. Adolescents experience dramatic changes in nearly every key aspect of their lives, including from school to work, from dependence on family to independence more characteristic of adulthood, and for many, from a child health care provider to an adult health care provider. During this decade of life, youth are developing the skills and knowledge needed for productive careers and relationships, so that they are more likely to be healthy successful adults. Investing in the health and well-being of North Carolina’s youth will help ensure the state’s future prosperity.

Adolescence is physically a healthy period of life; youth are beyond the risk of most health problems seen in early childhood and have not yet begun to experience declines in health that arise later as adults. During this time, adolescents’ physical capabilities and cognitive skills dramatically increase as their bodies and brains mature. Ideally, this increase in physical and mental abilities would lead to improved health outcomes. However, death and disability rates double between leaving elementary school and entering the workforce. This increase in death and disability is due primarily to greater risk-taking behaviors, including substance use and risky sexual behavior, and other actions leading to accidents, violence, or suicide.²

During adolescence, many of the behaviors and health habits that affect lifelong health trajectories are established. Adolescents increasingly make their own decisions about how and with whom they spend their free time and whether they will engage in risky health behaviors such as substance use and sexual activity. Depending on their decision, many of these choices could have both short- and long-term health consequences. For example, adolescents who start smoking regularly may experience shortness of breath during sports activities and are at increased risk for heart disease and cancer. Youth who drink alcohol or who experiment with drugs are at increased risk of acute injury and may develop patterns of chronic substance abuse or addiction. Risky sexual behavior may lead to pregnancy and/or sexually transmitted diseases, including HIV infection. Intervening during adolescence provides a unique opportunity to improve not only adolescents’ immediate health, but also their long-term health and well-being.³

Interventions to improve adolescent health must take into account the unique features of adolescent development. Adolescents need support—at home, at school, in clinics, in the community—to help them develop the skills and knowledge needed to be healthy adolescents, healthy adults, and productive members of society in the future.



In 2008, nearly one-sixth (16%) of North Carolina’s population—or 1.4 million of our residents—were between the ages of 10 and 20.

The environment created by parents, health professionals, schools, communities, and policymakers contributes to the health and well-being of youth.

The Time to Invest in Multiple Strategies to Improve Adolescent Health

Parents and families influence adolescent health: During adolescence youth are exploring their emerging autonomy, testing boundaries, trying new things, and developing their identities. Often the social and developmental changes that youth experience during adolescence make parents and other adults feel like they are less influential in the lives of adolescents. Although adolescents need to establish their identities and assert their independence as part of the transition to adulthood, parents and other adults still have a tremendous influence on adolescents' choices and decisions.

Schools influence adolescent health: North Carolina is a national leader in and has a history of investing strongly in early childhood and post-secondary education. We are recognized as a leader in the field of early education and have one of the best public university systems in the country. However, focusing solely on early education and on those select students who attend one of North Carolina's public universities is not sufficient to ensure that we produce adults ready to compete in the 21st century. To maximize the benefits of our early education program and to reap the rewards of a strong university system, North Carolina must not ignore the needs of children entering our middle and high schools. These youth need similar investments to ensure that they have the strong, vibrant futures they were promised in kindergarten. Health and well-being during adolescence affect educational outcomes. Poor health can lead to poor academic performance. Engaging in risky health behaviors can lead to inconsistent school attendance, inability to pay attention during class, and poor academic performance. In contrast, academic success is an indicator of good overall health and well-being, in addition to being a predictor and determinant of positive adult health outcomes.^{4,5}

Communities influence adolescent health: In addition to influencing individual adolescents, adults shape the context within which all adolescents make decisions. The environment created by parents, health professionals, schools, communities, and policymakers contributes to the health and well-being of youth. In this role, it is important that adults ensure that there are opportunities for adolescents to develop and exercise their autonomy while minimizing the risks of negative consequences.

Framework for Investing in Adolescent Health

The Adolescent Health Task Force used a socioecologic model of health to discuss ways to improve the health and well-being of adolescents. Socioecologic models are conceptual models that show how the health of an individual is influenced not only by that individual, but also their relationships with others and the broader community and environment in which they live.⁶

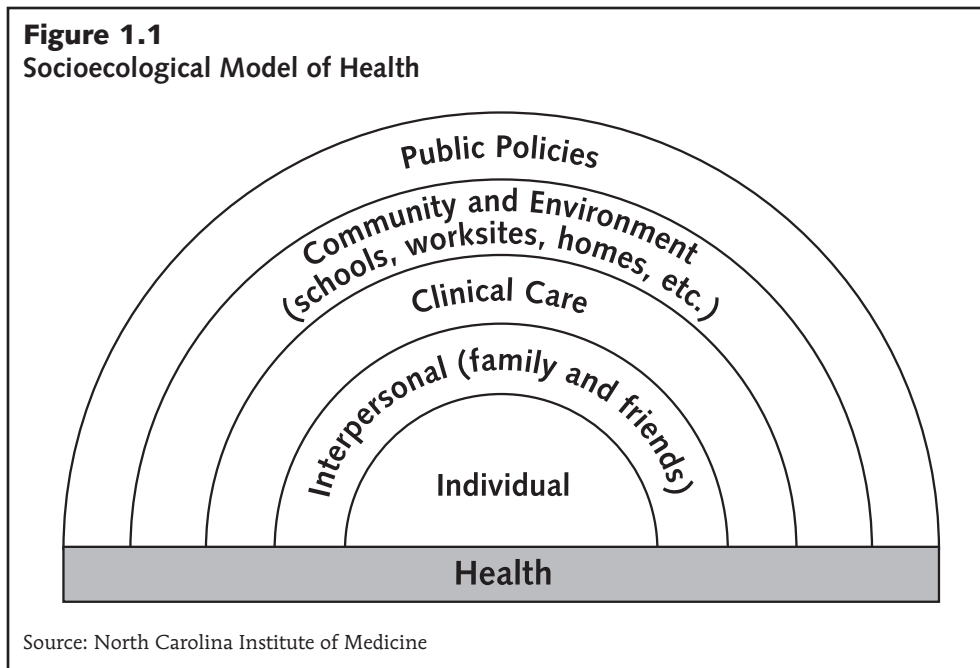


Figure 1.1 presents the socioecologic model used by the Adolescent Health Task Force.^a This model identifies five levels (or systems) of influence on health and health behavior:

- **Individual:** behaviors, attitudes, characteristics, and practices
- **Interpersonal:** family, friends, peers and others who influence behaviors and experiences
- **Clinical Care:** health professionals whose care influences health and well-being
- **Community and Environment:** a person's school, neighborhood, church/synagogue/mosque, where social interactions occur as well as the built environment and community design, which may influence health
- **Public Policies:** policies at the local, state, and national level that influence health

The socioecologic model recognizes that adolescents do not act in a vacuum. Their actions are influenced not only by personal preferences, but by family, friends and peers; the advice they receive from their health providers; the broader community in which they live, attend school, or work; and public policies. Each of the layers of the socioecologic model influences other levels. For example,

The socioecologic model recognizes that adolescents do not act in a vacuum. Their actions are influenced not only by personal preferences, but by family, friends and peers; the advice they receive from their health providers; the broader community in which they live, attend school, or work; and public policies.

^a Typically the socioecological model has the following levels of influence: individual, interpersonal, organizational, community, and public policy. This model was modified to collapse organizational and community into one level and draw clinical care out as its own level to better fit the approach of this Task Force.

The goal of the North Carolina Metamorphosis Project is to increase awareness of unmet health needs of North Carolinians between 10 and 20 years of age and to produce and implement evidence-based recommendations to ... address the high-priority health needs of this age group.

an adolescent can influence his friends or family just as friends and families can influence the adolescent's behavior. Many individuals, working together, can influence public policies. And public policies can have a strong influence on the community and environment. As a result of this interconnectedness, interventions and strategies that address multiple levels are generally the most effective.⁷

Task Force on Adolescent Health

Recognizing the current gap in coordinated efforts aimed at improving the health of North Carolina adolescents, The Duke Endowment awarded funding to the North Carolina Multidisciplinary Adolescent Research Consortium and Coalition for Health (NC MARCH) More Between 10 and 20 Adolescent Health Initiative, now known as the North Carolina Metamorphosis Project (NCMP). NCMP is a collaborative effort of the University of North Carolina at Chapel Hill (UNC-CH) School of Medicine and Gillings School of Global Public Health, NC MARCH, the North Carolina Institute of Medicine (NCIOM), the North Carolina Division of Public Health, and Action for Children North Carolina. The goal of the NCMP is to increase awareness of unmet health needs of North Carolinians between 10 and 20 years of age and to produce and implement evidence-based recommendations to improve services, programs, and policies to address the high-priority health needs of this age group over the next decade.

As a component of the broader NCMP effort, the NCIOM convened the Task Force on Adolescent Health to develop a 10-year plan to improve the health and well-being of North Carolina's adolescents. The Task Force on Adolescent Health was charged with three tasks:

1. Examine the most serious health and safety issues facing adolescents and young adults in North Carolina.
2. Review evidence-based and promising interventions to improve adolescent and young adult health.
3. Recommend strategies to address the high-priority needs of adolescents and young adults.

The report developed by the Task Force includes 32 recommendations, 10 of which were designated as priority recommendations. The Task Force operated under the specter of one of the most severe economic recessions in the past 70 years. Although the Task Force was cognizant of this context, the 10-year strategic horizon guided the Task Force to identify those strategies that would be most successful in improving adolescent health in the state, even if the cost made their immediate adoption unlikely. In other words, meaningful improvement in the health of our young people will take multiple interventions, some of which will require investment by public dollars that may not accrue savings immediately. However, during periods of tight budgets, there are low-cost strategies that can be implemented while the economy recovers and we are in a better position to make those needed investments.

The Task Force was co-chaired by J. Steven Cline, DDS, MPH, Deputy State Health Director, Division of Public Health, North Carolina Department of Health and Human Services (NC DHHS); Carol A. Ford, MD, Director, Adolescent Medicine, Program Director, NCMP and NC MARCH, Associate Professor, School of Medicine and Gillings School of Global Public Health, UNC-CH; and Howard Lee, Executive Director, North Carolina Education Cabinet. The Task Force had 38 additional members including legislators, state policymakers, primary care physicians, child advocates, and service providers (a complete listing of Task Force members is on pages 9-12). The Task Force met 12 times over a 17-month period to study adolescent health and develop a plan to address the high-priority needs of adolescents and youth adults.

The Task Force used the work of the Centers for Disease Control and Prevention (CDC) to help narrow their focus. In setting the Healthy People 2010 goals, the CDC identified 21 Critical Health Objectives for adolescents and young adults crossing six areas: mortality, unintentional injury, violence, substance abuse and mental health, reproductive health, and the prevention of chronic diseases during adulthood.⁸ These have been the focus of the National Initiative to Improve Adolescent Health. The Task Force focused most of its work examining similar health areas, including unintentional injury, substance use and abuse, mental health, violence, sexual health, and prevention of chronic illnesses. The Task Force included an examination of the causes of adolescent death within the context of these content areas.

The Task Force examined both risk and protective factors—that is, those factors which contribute to the leading causes of death and disability (risk factors), as well as the protective factors that help keep adolescents healthy (protective factors). For example, youth who have strong family bonds, those who are connected to their schools or other community organizations, or those who have positive relationships with other adults can be “protected” from the negative influences of other peers or community. Thus, rather than solely focusing on *problems*, the Adolescent Health Task Force also examined *opportunities* to build on the strengths and positive qualities of youth to achieve the outcomes that we wish for our youth.

Research has shown that people often live up to expectations—whether negative or positive. Currently, many adults view adolescents in terms of thinking about what can be done to prevent them from making mistakes—they expect teenagers to be troublesome. Instead the Adolescent Health Task Force considered what can be done to help adolescents achieve their goals and dreams for their future. Every day hundreds of thousands of North Carolina’s adolescents are trying to make the right choices; the Task Force hopes to make it easier for them to make good decisions. Therefore the Task Force recommendations address both the critical health needs of adolescents as well as the services and supports teenagers need to ensure they have the opportunity to become productive adults.

The Task Force examined both risk and protective factors—that is, those factors which contribute to the leading causes of death and disability (risk factors), as well as the protective factors that help keep adolescents healthy (protective factors).

The Adolescent Health Task Force considered what can be done to help adolescents achieve their goals and dreams for their future.

This report culminates the work of the Task Force. The report has 11 chapters, the first being this brief introduction. Chapter 2 includes background information on adolescent development and health risk behaviors. Chapters 3-5 look at policies, practices, and programs that can positively impact multiple health risk behaviors. Chapters 6-10 look at specific topics (unintentional injury, substance use and mental health, violence, sexual health, and prevention of chronic illness during adulthood) and describe their importance and incidence as well as the findings and recommendations that address some of the main health concerns for adolescents within each topic. Chapter 11 summarizes the findings and recommendations of the Task Force and includes a chart of all the recommendations along with organizations and/or professionals with responsibility for implementing the recommendations of the Task Force.

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Adolescence is the transition period between childhood and adulthood during which youth become physically, cognitively, and sexually mature, while also developing social and intellectual skills in preparation for taking on adult roles. In the United States today, adolescence is often thought of as the “teenage years,” but in fact many children begin puberty before the age of 10. Adolescence typically has been seen as ending when adolescents take on adult responsibilities such as supporting themselves and starting their own families, which currently in the United States may not occur until young people reach their mid-late 20s or later. Because adolescence represents a period of development that does not begin or end at the same age for everyone, we have elected in this report to focus on the period of time between the ages of 10-20 unless otherwise specified. However, since data on adolescent health is collected using a variety of age ranges, we sometimes present data using slightly differing ages.

Adolescence is defined by both biological and social factors. There is a wide variation in the onset, timing, and pace of puberty. For girls, puberty usually begins between the ages of 8-13; for boys, puberty usually begins between the ages of 9-14. In most youth, puberty lasts for five to seven years.¹ There is no biological marker to signify the end of adolescence. In addition to biological sexual maturation, there is tremendous cognitive growth during adolescence as the brain develops and reaches full maturity. Socially, adolescence is marked by increasing autonomy within family and school and time spent with peers. One of the most obvious social changes in adolescence is the transition from elementary to secondary education. This transition often brings with it more autonomy in school, as students transition from spending most of their day with one teacher and the same set of peers to being responsible for themselves as they move among classes and teachers.

In the United States, adolescence is often separated into three distinct stages: early, middle, and late adolescence. Generally, early adolescence covers ages 10-13, middle adolescence ages 14-16, and late adolescence ages 17-21.¹ Early adolescence begins the transition from childhood into adolescence and is dominated by pubertal changes. Middle adolescence is dominated by social and intellectual maturation. Late adolescence represents the final steps in the transition to adulthood, and historically has been marked by completing school, leaving home, beginning one’s career, marrying, and becoming a parent. However, in the United States today, many young people delay leaving home, marrying, and becoming parents until the third or even fourth decade of life, thus making the “end of adolescence,” or beginning of adulthood not as well-defined as it was for most of the 20th century.²



Adolescence is the transition period between childhood and adulthood during which youth become physically, cognitively, and sexually mature, while also developing social and intellectual skills in preparation for taking on adult roles.

Research over the past 20 years has shown that the brain experiences dramatic changes during early adolescence and continues to develop and mature until the mid-20s.

Individual Development During Adolescence

Although the following sections discuss developmental changes as independent issues, it is important to recognize that these systems and changes are interrelated. Adolescent development is the result of a large network of interacting systems—hormones, neurotransmitters, biological/age-driven growth, and social influences. These systems affect one another as individuals enter and progress through adolescence.³

Physical Development

Puberty begins with increases in hormone levels which lead to physical changes that will eventually result in a mature physical appearance and reproductive capability. Physical changes are the most obvious and dramatic transitions that adolescents experience. During pubertal growth spurts, both girls and boys gain approximately 50% of their adult weight and 20% of their height. In the year of most rapid growth, boys grow approximately four inches and girls three and a half inches. Further during adolescence, muscle mass increases by 100% in boys and 50% in girls, and 60% of bone density is acquired. In addition, there are cardiovascular, pulmonary, and immune system changes.⁴

In addition to physical growth and the development of secondary sex characteristics, such as breast development in girls, studies have also shown that puberty affects emotion processing.^{5,6} Although the research in this area is still developing, there are a number of domains that have been linked to puberty-specific maturation, rather than age-specific maturation. Romantic motivation, sexual interest, emotional intensity, and increases in risk-taking and sensation-seeking have all been linked to puberty.⁷ It is unclear if these changes are directly related to puberty or have just evolved to occur at the same time as puberty.

Cognitive Development

Research over the past 20 years has shown that the brain experiences dramatic changes during early adolescence and continues to develop and mature until the mid-20s. Unlike in early childhood when the brain is building mass and learning basic skills such as language, the changes during puberty are primarily focused on improving and refining existing capacities. These changes are in large part driven by age maturation, as opposed to puberty, but are influenced by both environmental and personal experiences.

Changes in the brain do not occur at the same time; rather, areas that are associated with more basic functions (e.g. motor and sensory areas) mature earlier than those associated with more complex functions (e.g. executive function, attention, and risk assessment).⁸

The last area of the brain to fully mature is the prefrontal cortex which involves impulse control, decision making, planning behavior, and envisioning the consequences of actions. This process begins in childhood, progresses rapidly during adolescence, and slowly tapers off as the brain reaches adult maturity

by the mid-20s.⁹ As the prefrontal cortex matures and becomes integrated into decision making, adolescents and young adults are able to handle increasingly difficult cognitive and emotional challenges.

During the teenage years, as the neural circuitry of their brains is still maturing, adolescents may be more vulnerable to poor decision making. Decision making and complex reasoning require that individuals be able to process a large amount of information simultaneously, hold information in working memory, and use the information to guide plans and behavior. Exercising these skills requires using cognitive processes that are not fully mature during adolescence because the prefrontal cortex is still maturing. An immature prefrontal cortex makes it more difficult for adolescents to control impulsive behavior, inhibit inappropriate behavior, stay focused, make sound judgments about possible outcomes, and plan for the future. Adolescents can do all these things, but because the brain functions associated with these actions are not fully developed, they have more difficulty doing them than adults.⁹

Emotional Regulation

An important task on the road to becoming an adult involves developing self-control over behavior and emotions. During adolescence, while their bodies and brains are developing, adolescents appear to be more prone to make decisions that disregard risks and consequences. Current research in this area indicates that this is due to a combination of biological and social factors. As discussed, puberty is linked to increases in emotional intensity, risk taking, and sensation seeking. Furthermore, adolescence is a critical period for the maturation of brain functions that underlie decision making and emotion and behavior control. Research indicates that during this time when adolescents are biologically at-risk for poor decision making, social and cultural factors that impact decision making are particularly influential.^{9,10}

Studies have shown that adolescents' reasoning and decision making capabilities are similar to those of adults. Indeed, studies find that the logical reasoning and decision making of 16-year-olds are comparable to those of adults when assessed in laboratory settings. By mid-adolescence, youth and adults perform similarly when asked to assess risks and vulnerability to risk, the consequences of actions, and the relative costs and benefits of various choices.⁷ However, in spite of the fact that teenagers can make logical, knowledgeable, accurate assessments of risky behaviors, they are more likely to engage in them.

This inconsistency points to the importance of emotions and social context in decision making. Adolescent and adult reasoning capabilities are quite similar when in a laboratory setting thinking under conditions of calm emotions, or "cool cognition" settings.⁷ In the real world, however, people often need to make decisions under conditions of strong emotions, or "hot cognition." Adolescents appear to have difficulty making decisions in "hot cognition" settings when the emotional (i.e. affective) centers of the brain are highly activated.¹¹

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Although researchers do not conclusively understand why teenagers have problems making rational decisions in such situations, studies suggest that coordination of affective and cognitive responses is required. Such coordination requires a high level of integration between various parts of the brain, which does not occur until relatively late in the maturation process.^{7,12} Because the prefrontal cortex is not fully developed, the affective systems exert greater influence in decision making.¹³ The ability to appropriately inhibit or modify behavior despite strong feelings is a critical developmental goal of adolescence.

Social and Emotional Development

During adolescence youth begin to explore and examine their own psychological characteristics as part of discovering who they are and how they fit in the world around them. Developing a healthy, stable self-image is the major psychological goal of adolescence. Current research indicates that during early adolescence, youth focus less on developing their individual identity and more on group formation and cohesion. Priority is placed on being a part of a group and the identity of that group (including social status and group norms and values). During later adolescence, youth focus more on developing their own unique sense of identity and less on being a part of a well-defined social group.¹⁴

As part of trying to establish their identities, older adolescents typically seek more autonomy and independence. At the same time, maintaining close familial ties is important to self-identity and well-being. Successfully negotiating some level of independence, while maintaining strong attachments to family and friends, is a central goal of identity formation.¹⁵

Experimentation and risk taking also play an important role in identity formation. Opportunities for *healthy* risk taking allow youth to challenge themselves and, in the process, learn more about themselves. *Healthy* risk-taking opportunities allow youth to engage in new activities that may push their comfort levels in safe, supportive ways (e.g. participating in sports, volunteering, developing creative abilities, learning a new skill). Risk taking becomes *unhealthy* when the potential risks outweigh the benefits (e.g. using alcohol and other drugs, running away, or engaging in unprotected sexual activity). Adults can help youth avoid unhealthy risk behaviors during this time by setting limits on unsafe behaviors, encouraging adolescents to experiment in safer ways, and ensuring that there are ample opportunities for healthy risk taking.¹⁴

Social and Environmental Influences on Adolescent Development

Adolescent development must be considered a process that occurs within a network of social and cultural systems. In addition to being influenced by a complex set of systems within the body, adolescent development is influenced by social and environmental factors. The individual is at the center of this network, but is influenced by interpersonal networks (e.g. family, friends), communities and environments (e.g. schools, churches, YMCAs, neighborhoods, towns), and public policies (e.g. national, state, and local laws). These relationships are

reciprocal: interactions between an individual and other people and systems influence one another. Similarly, the systems described do not function in isolation, rather, they are influenced by one another.

Interpersonal Influences

Parents

During adolescence, relationships with parents slowly evolve from the parent-child relationship model towards a less hierarchical relationship in adulthood. During childhood, parents typically control almost everything in their children's world including how and with whom they spend their time, what they wear, and what they eat. Adolescence is a time of renegotiation of roles, rules, and expectations between parents and adolescents. As adolescents mature, the parent-child relationship changes as parents cede some control and adolescents seek more autonomy and independence. Doing so allows adolescents to slowly take on more adult-like responsibilities in preparation for adulthood. Developmentally it is important for adolescents to have the opportunity to practice decision making, try things on their own, and develop competence and self-efficacy within the kind of safe, supportive environment that a family can provide.

Research shows that parents remain highly influential in the lives of their teenagers, contrary to the widespread perception that parent-child relationships decline in quality and influence during the teenage years. Although the amount of time adolescents and their parents spend together declines, as do self-reported levels of closeness, research shows that parents continue to be the most influential people in their teenagers' lives. This is particularly true when it comes to important decision making.¹⁶ Adolescents care deeply about the values expressed by close role models, especially parents. Therefore it is important that parents discuss values and model behaviors they want their children to learn and/or exhibit.¹⁴ Additionally, parent-adolescent relationships further contribute to adolescent development by modifying the impact of other sources of influence.¹⁶

Peers

Peer relationships become much more important and influential in the lives of youth during adolescence. Changes occur in the structure and size of peer groups as well as in the types of friendship youth have. As they enter adolescence, youth spend more and more time with their peers, often with less supervision from adults. Youth begin to place more importance on intimacy—the sharing of private thoughts and feelings—as the basis for friendship. This change contributes to the shift from neighborhood-based friendships in childhood to friendships characterized more by similarities in background, tastes, values, and interests.¹⁷

Although adolescents increasingly choose to surround themselves with similar peers, this does not make peer relationships simple. Instead, during adolescence complex friendship networks and cliques develop, and romantic relationships

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emerge. Adding to the complexity, individuals' friendship networks are relatively unstable during adolescence. These changes in peer relationships can dramatically influence adolescents' attitudes, activities, and emotional well-being; youth who have good social skills and youth who are socially accepted by their peers are better adjusted.^{18,19}

During adolescence youth begin to place more importance on the opinions and expectations of their peers. Peer influence can be positive or negative and can influence both prosocial and antisocial behaviors. Peer influence is reciprocal, that is, youth influence their peers and their peers influence them.^{18,19}

Clinical Health Care

The nature of health concerns facing adolescents is very different from that of younger children. Adolescent death and disability are primarily caused by personal behaviors. Because behaviors can change, many adolescent health problems are preventable. These risk-related behaviors (i.e. tobacco use, poor nutrition and lack of physical activity, risky sexual behaviors, alcohol and other drug use, and behaviors that increase risk of injury and violence) become the focus of adolescent clinical care. Accordingly, as children age, visits with health care providers often change both in structure and content. Providers shift away from spending the visit primarily telling parents what to expect and instead begin spending increasing amounts of time interacting directly with their adolescent patients. Health care providers provide preventive health services during adolescence by focusing on understanding where an individual patient is in the developmental process followed by tailored anticipatory guidance on how to keep an adolescent on track in their lives and avoid behaviors that may cause harm to their health. Visits typically expand to include screening for specific health risk behaviors and, when necessary, counseling and referral to specialty services. Overall, visits with youth and young adults place more emphasis on supporting healthy lifestyle behaviors and providing interventions for unhealthy behaviors.²⁰⁻²² The content of adolescent health care visits is discussed in more detail in Chapter 4.

Additionally, it is important that youth begin developing skills to have effective relationships with health care providers and begin to take on some responsibilities for their own health and well-being. Although parents typically continue to arrange health care visits, they typically do not join the adolescent and health care provider during the entire visit. This allows health care providers to discuss sensitive topics with adolescents, while also allowing adolescents to begin building relationships with a provider independent of their parent. All adolescents, and particularly those with chronic health conditions, need to establish independent relationships with providers as they grow older and develop an understanding of the health care system so that they can manage their health effectively as they transition into adulthood.²²

It is important that youth begin developing skills to have effective relationships with health care providers and begin to take on some responsibilities for their own health and well-being.

Community and Environment School

Adolescence is typically accompanied by a dramatic change in school environment. Most elementary aged children spend the majority of their day with one teacher and one set of peers in small, nurturing environments. In contrast, students in secondary school find themselves in larger schools, with multiple teachers, and larger, and often more diverse, student bodies.²³ Although the primary mission of schools is to prepare students academically, schools also fill a broader role in the development of youth into young adults.

Schools are tremendously influential as both a context for and as direct influences on adolescent development. This is not surprising as children and adolescents spend more time in school than they spend in any place outside their homes. Because of the amount of time youth spend in school, schools provide the context, or environment, in which adolescents develop. Schools, and the policies and practices that are a part of them, also shape adolescents' development through the experiences students have while in school. The various levels of school organization—classrooms, school buildings, school districts, and schools as part of the larger community—all impact adolescent development by interacting to shape the experiences of adolescents.

The classroom impact on youth is most obvious; interactions with teachers and peers in classrooms on a day-to-day basis clearly have a strong impact on development. What is less obvious, but equally important, are school-level factors such as school climate and size, academic tracking, and extracurricular opportunities. School district factors such as school assignment and transition policies are also important. These factors influence the composition of adolescent peer groups and the opportunities adolescents have for academic and extracurricular enrichment. For example, although academic tracking has been shown to have some educational benefits for students in high track classes, students in lower level classes have shown slowed academic growth, perceive school as less valuable, and feel less connected to school.²⁴ Additionally, tracking impacts student peer groups, with students of similar levels of achievement and engagement in school grouped together. While this may benefit those in high tracks, for those in lower tracks, tracking facilitates friendships among students who are less engaged in school and more likely to engage in risky behaviors. Finally, evidence shows that youth are often incorrectly assigned to tracks, with poor, minority, and students with limited English proficiency being more likely to be assigned incorrectly to lower tracks. Further removed from individual students, but just as influential, are factors related to schools as part of the larger community such as school resource levels and state and national school policies.²⁴

Schools, and the policies and practices that are a part of them, shape adolescents' development through the experiences students have while in school.

Other than the first few years of life, at no other period do individuals experience so much change in such a short time.

Public Policy

American society promotes adolescence as a distinct stage of life through a variety of mechanisms, including laws and regulations that gradually grant adolescents adult rights and duties. At the same time, these laws and regulations convey uncertainty about adolescent capabilities and present a mixed message to youth in terms of when they are considered adults in the eyes of society and the law.

Adolescence—this “in-between” period of transition from childhood to adulthood—is not recognized in the legal system; an offender is classified as either a child or an adult according to age and the issue. Lawmakers generally see children as being dependent, unable to make competent decisions, and thus not legally allowed to participate in many adult behaviors. Nor are they held legally accountable for their behavior in the same way that adults are. In contrast, adults are seen as fully competent to make decisions and thus are held accountable for their behaviors. Adolescents developmentally are not children or adults. Legally, adolescents are treated as children in some cases and as adults in others.²⁵ In North Carolina, youth can seek employment and drop out of school at age 16; can marry (without parental permission), register to vote, purchase tobacco products, give medical consent, and enlist in the armed forces at age 18; but cannot legally purchase alcohol until age 21.^a Further complicating this picture, North Carolina treats all youthful offenders ages 16 and 17 as adults in the criminal justice system, regardless of their crime, and allows youth as young as 13 to be tried as adults. This gradual granting of adult rights and duties at different ages effectively creates a legal transition to adulthood, but also presents adolescents with conflicting views of the onset of adulthood.

Emergence of Health Risk Behaviors

Other than the first few years of life, at no other period do individuals experience so much change in such a short time. During the second decade of life, adolescents are constantly adapting to rapid biological, cognitive, and emotional changes, as well as the restructuring of social contexts. Given all the changes that adolescents must cope with, it is no surprise that they face challenges—including opportunities to engage in activities that can positively or negatively impact health and well-being. Providing appropriate support at home, school, and in the community are critical to help adolescents navigate these challenges successfully.

Although adolescence is typically a time of robust physical health, death and serious health problems increase dramatically during adolescence. Unlike other age groups, adolescent death and serious health problems are most often due to preventable behaviors. The Centers for Disease Control and Prevention has identified six critical types of adolescent health behaviors as the leading causes of death and serious health problems for youth:

^a These are the general ages to participate in these activities in North Carolina, however, there are exceptions for younger youth in certain cases.

1. Alcohol and drug use
2. Behaviors that increase the risk of injury and violence
3. Tobacco use
4. Poor nutrition
5. Physical inactivity
6. Risky sexual behaviors.²⁶

Motor vehicle crashes, other unintentional injuries, homicide, and suicide are the leading causes of mortality for youth ages 15-24 in North Carolina, accounting for 80% of deaths in this age group.²⁷ Unintended pregnancies and STDs result in substantial health and social problems for adolescents. Tobacco use, nutrition, and physical activity are all related to the two leading causes of death among adults in the United States: cardiovascular disease and cancer.²⁸ These behaviors are usually established during adolescence and often persist into adulthood. (See Table 2.1.) Since these health problems are all linked to behavior, which can be influenced, they are preventable. This explains the critical importance of focusing on health-related behaviors during adolescence.

Health Risk Behaviors Cluster

Research over the past thirty years has documented that adolescent health risk behaviors are interrelated. Many health risk behaviors occur together. For example, sex and drug use or substance use and violence often happen together.^{29,30} The way behaviors cluster varies by gender, race and ethnicity, age, and risk and protective factors. Generally, these studies have found:

- Males are more likely than females to engage in any specific risk behavior and are more likely to engage in multiple risk behaviors.
- The likelihood of engaging in multiple risk behaviors does not vary significantly by race and ethnicity, but the specific behaviors may.
- Older youth are more likely to engage in risky behaviors.
- Youth with higher levels of protective factors and/or lower levels of risk factors are less likely to engage in risky health behaviors.

Socioeconomic characteristics (such as family income and parent education) have not been found to be very good predictors of risk behaviors. Further, increasing protective factors alone is not the answer, as many youth who engage in risky behaviors also report protective factors such as being physically active, engaging in hobbies, being connected to school and parents, and having a positive outlook.²⁹⁻³⁴

Research over the past thirty years has documented that adolescent health risk behaviors are interrelated.

Approximately 30% of high school students engage in multiple health risk behaviors at moderate to high levels.

Table 2.1
Many North Carolina High School Students* Engage in Health Risk Behaviors and Have Mental Health Problems

Substance Abuse and Mental Health	2007
Used in the past 30 days:	
Marijuana	19.1%
Alcohol (beer included)	37.7%
Binge Drinking (5 or more drinks within a couple of hours)	21.1%
Depressed**	26.9%
Seriously considered attempting suicide during the past 12 months	12.5%
Mental Health	2006
Parent told by doctor/nurse/school representative, child (14-17) has ADD or ADHD	17.3%
Parent told by doctor/health professional, child (14-17) has depression/anxiety	10.2%
Violence	2007
In a physical fight one or more times during the past 12 months	30.1%
Carried a weapon (i.e. gun, knife, club) on one or more of past 30 days	21.2%
Homicide Deaths (ages 10-20)	87
Firearm Deaths (ages 10-20)	70
Unintentional Injury	2007
Never or rarely used a seat belt	7.9%
Rode in a car driven by someone who had been drinking alcohol one or more times in the past 30 days	24.7%
Motor Vehicle Deaths (Ages 10-20)	197
Sexual Health	2007
Ever Had Sex	52.1%
Currently Sexually Active	37.5%
Chronic Illness	2007
Used tobacco products in the past 30 days	26.6%
Were not physically active for a total of 60 minutes or more per day on five or more of the past seven days	55.7%
Low-income children (12-18) who are overweight	29.6%

* Data are for students in grades 9-12 unless otherwise noted.

** Felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing usual activities (during past 12 months)

Data Sources: Parent report data: State Center for Health Statistics. Child Health Assessment and Monitoring Program, 2006; Death data: Scott K. Proescholdbell, MPH; Head, Injury Epidemiology and Surveillance Unit, Injury and Violence Prevention Branch, Chronic Disease and Injury Section, Division of Public Health, NC DHHS. Written (email) communication. October 23, 2009; Tobacco data: Tobacco Prevention and Control Branch, NC DHHS. North Carolina Youth Tobacco Survey, 2007; Obesity data: Eat Smart Move More North Carolina. North Carolina-Nutrition and Physical Activity Surveillance System (NC-NPASS). Includes data on children seen in North Carolina Public Health Sponsored WIC and Child Health Clinics and some School Based Health Centers; All other data: North Carolina Department of Public Instruction. Youth Risk Behavior Survey, 2007.

A study examining eight risk behaviors found that the vast majority (~60%) of high school students have low-risk profiles at any specific point in time. The typical low-risk profile individual is sexually active but has significantly lower

levels of risk on nearly every measure, including alcohol use, binge drinking, cigarette use, marijuana use, illicit drug use, fighting, and suicide ideation. Approximately 30% of high school students engage in multiple health risk behaviors at moderate to high levels. A minority of high school students (8%–12%) are in the highest risk profile. Youth in the highest risk profile were more likely than their peers to engage in every risk behavior and to do so at higher levels.³¹

These findings as well as those from other studies show that, although youth risk behaviors cluster together, there are distinct risk patterns of adolescent health behaviors. For example, a study looking only at the most common risk behaviors among youth, substance use and sexual behavior, found 16 different risk profiles with different patterns of drug use and sexual activity and variations in the frequency of these behaviors.³⁰ The existence of distinct risk patterns indicates that there are likely different pathways leading to these behaviors; there is not one single problem behavior that leads to involvement in other risky behaviors. Instead, a variety of factors—including risk and protective factors, gender, and race and ethnicity—influence the type and frequency of engagement in risky behavior.^{29–31,35} This research also suggests that there is likely fluidity in behavioral patterns, so that the pattern of risk behavior any one individual adolescent engages in may vary over time.

Research in this area has important policy implications. The fact that at any one point in time, most youth are low-risk and participating in no or few risky behaviors indicates that prevention and education activities work and should continue for all youth. However, most adolescents at some point in time do engage in one or more behaviors that can jeopardize health, and some are engaged in multiple risky behaviors. For youth who do participate in risky behaviors, remediation efforts should be used to reduce risk behaviors and their negative effects on health and well-being. These efforts should not just target single risk behaviors but should address multiple risk behaviors.³¹

Health Risk Behavior Disparities

Health disparities are gaps in access, outcomes, or quality between two or more groups. Disparities may be caused by a variety of factors. One of the goals of the Centers for Disease Control and Prevention is to “eliminate health disparities that occur by race and ethnicity, gender, education, income, geographic location, disability status, or sexual orientation.”³⁶ Health disparities by race and/or ethnicity, gender, and geographic location are evident for most of the health risk behaviors that the Task Force focused on, including injuries, chronic illness, tobacco use, nutrition and physical activity, substance use, sexual health, mental health and violence. Research and national data indicate that there are likely disparities for these health risk behaviors by other factors including, but not limited to, disability status, sexual orientation, language, and immigration status.³⁷ However, state data are not always available to measure the size and direction of disparities. Additionally, the direction of the disparity varies by indicator. (See Table 2.2 and Appendix C.)

The fact that at any one point in time, most youth are low-risk and participating in no or few risky behaviors indicates that prevention and education activities work and should continue for all youth.

Table 2.2
Disparities Among North Carolina High School Students' Participation in Health-Related Behaviors Varies by Indicator, 2007ⁱ

	Total	Gender		Race/Ethnicity					
		Male	Female	White	African American	Hispanic	American Indian	Asian	Multiple
Used alcohol (past 30 days)	37.7%	37.8%	37.6%	43.0%	27.2%*	38.7%	48.9%	39.9%	37.4%
Rode as passenger with drinking driver	24.7%	25.8%	23.6%	23.6%	24.9%	28.4%	45.4%*	27.4%	30.1%
Carried weapon on school property	21.2%	32.4%	9.8%*	22.7%	17.3%*	19.7%	15.5%	27.8%	33.2%
Threatened/injured with weapon at school	6.6%	8.2%	4.9%*	5.2%	7.2%	13.7%*	9.2%	11.2%	12.1%
Had sex with one or more people in past 3 months	37.5%	36.3%	38.5%	33.6%	46.9%*	29.3%	51.3%	35.1%	36.3%
Had check-up/physical exam during past 12 months	60.2%	60.2%	60.3%	60.9%	62.0%	48.7%*	60.2%	52.0%	60.5%
Watched 3+ hours of TV on school day	35.3%	36.5%	34.1%	23.6%	56.5%*	39.3%*	48.8%*	43.2%*	25.6%
Participate in extracurricular activities at school	62.4%	64.1%	60.9%	66.2%	58.1%	46.6%*	72.1%	47.3%*	66.3%

ⁱ For a more comprehensive table reviewing health risk behavior disparities, see Appendix C, Tables 1 and 2.

* Denotes statistically significant difference at the p<0.05 level for males relative to females or whites relative to specified race/ethnicity.

Source: North Carolina Institute of Medicine. Analysis of North Carolina Youth Risk Behavior Survey, High School Data, 2007.

Disparities are driven by a number of factors including biological, cultural, and confounding factors. Biological factors that influence disparities are relatively limited (e.g. Sick cell anemia).³⁸ Cultural differences, such as the types of food eaten and gender norms, also play a role in cultivating and impacting disparities.³⁹ Other factors, such as income and education, are confounding factors. Confounding factors are those that have a strong relationship with both the independent variable (i.e. the probable effecter) and the outcome variable (i.e. the outcome) and thus distort the relationship between the two. For example, taking predisposing individual elements (e.g. income, parental education) and/or enabling elements (e.g. transportation, health insurance status, clinic availability) into account can change the size of disparities between groups. While measuring confounding factors is important (so as to understand true levels of disparities), in most cases, confounding factors do not explain all disparities.³⁷

While it is important to acknowledge disparities among youth, for this report, the issue of central concern is the extent to which different groups are distinct enough to warrant modifications to general health promotion programs and services. The answer varies by the behaviors, populations, and communities being targeted. Therefore, when looking at which programs and services can best meet the needs of the population being served, it is important to first consider if disparities exist.

Youth Development Framework

Although we all want our youth to grow up healthy and become productive, contributing members of society, we tend to focus on preventing problem behaviors rather than ensuring that all youth have the kinds of positive relationships, opportunities, skills, and values that research shows contribute to positive development. Traditionally, most work with adolescents has focused on *preventing* risky or negative behaviors. Although this is important work, researchers have found it is not enough to prevent poor decision making or risky behaviors.⁴⁰ The absence of negative decisions or behaviors does not necessarily lead to youth who are developing *positively* towards adulthood. Rather than only focusing on what adolescents should *not* do, parents, communities, and society as a whole need to also identify what resources youth need to succeed and then proactively work to ensure youth have those resources.

Youth development is founded on the idea that all youth have strengths and the potential for positive development; in other words, youth have the ability to change and shape their own future. Research shows that youth who are surrounded by supportive families, schools, communities, programs, and policies are more likely to develop in positive ways.⁴⁰ As discussed, adolescents go through a number of transformational changes as they grow from childhood into adulthood. During this time, the job of each adolescent is to gain the skills and competencies needed to become a successful adult. The job of families and society is to provide a healthy foundation and opportunities for healthy development so that every youth has the opportunity to develop into a productive, engaged adult who is physically and psychologically healthy.

The concept of *youth development* emerged from work looking at why some youth at risk for negative outcomes develop into healthy, productive adults despite growing up in challenging conditions (e.g. poverty, family instability) while others experience negative outcomes due to risky behaviors in adolescence and adulthood. Youth who show positive outcomes in spite of risk show resilient behaviors. Although youth can become successful adults regardless of their circumstances, research has shown that risk factors make success less likely while protective factors make success more likely.³⁴

Risk or vulnerability factors include elements of experiences in a child's life that increase the likelihood of poor outcomes. Research shows that the effects of risk are cumulative; the more risk factors an individual has, the less likely they are to have positive outcomes. Protective factors, or "assets," include events or experiences that increase the likelihood of positive outcomes. While protective factors do not remove risks, they can moderate the impact of risk factors and can buffer youth against involvement in risky behaviors. Risk and protective factors exist at many levels including individual, family, peers, school, and community.^{41,42}

Rather than only focusing on what adolescents should not do, parents, communities, and society as a whole need to also identify what resources youth need to succeed and then proactively work to ensure youth have those resources.

A healthy foundation is one in which protective factors outweigh the risk factors a child experiences.

Table 2.3
Risk and Protective Factors Exist at All Levels

Domain	Risk Factors	Protective Factors
Individual	Aggressive temperament	Social skills
Family	Neglectful parenting	Parental involvement in schooling
Friends	Participation in deviant culture	Prosocial norms
School	Perceived availability of drugs	School connectedness
Community	Poverty	Positive adult role models

Source: Scales PC, Leffert N. *Developmental Assets*. Second ed. Minneapolis, MN: Search Institute; 2004.

One of the principles of youth development is that in order to reach their maximum potential, children and adolescents must have a healthy foundation from which to grow. A healthy foundation is one in which protective factors outweigh the risk factors a child experiences and youth are provided opportunities to develop. Thus, policies, programs, and interventions should work not only to reduce risk behaviors but also to reduce risk factors and enhance or establish protective factors.

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Leadership and Infrastructure and Improving the Quality of Youth Policies, Programs, and Services



Over the course of its work, the Task Force on Adolescent Health concluded that improving the health of adolescents between ages 10 and 20 will require a new and comprehensive approach. This approach recognizes that:

1. Families, schools, communities, health care providers, and policies all make important contributions to adolescent health and well-being.
2. Effective youth-development approaches aimed at keeping adolescents healthy and on track in their lives will prevent a wide range of adolescent health problems.
3. Many evidence-based strategies to address one specific type of adolescent health problem often will simultaneously address other health problems because of the clustering of adolescent risk behaviors.

To employ this approach, North Carolina will need to increase collaboration among the wide variety of agencies that address specific adolescent-health issues; develop leadership to champion the improvement of the health of all adolescents—who may be in or out of school—from an evidence-based perspective; and provide resources to inform implementation of evidence-based policies, programs, and services addressing the unique needs of adolescents in a comprehensive way.

Furthermore, the orientation toward evidence-based strategies needs to be combined with an increased level of accountability. There are many organizations (including governmental units) in our state dedicated to improving the health of adolescents, and their energy provides inspiration for us all. But in this era of increased accountability for limited resources, effort and enthusiasm are not enough. Organizations must be good stewards and utilize public health dollars more efficiently by choosing and exercising fidelity to proven models and welcoming monitoring and accountability requirements by funding partners. Research shows that fidelity to proven models is essential to replicating their success.¹ Monitoring an organization's fidelity to proven models ensures the greatest return for the dollar and provides guidance for future funding. Funders need to design and implement systems and measures to track accountability. These systems of accountability may be difficult for many funders to implement and for funded programs to welcome. But with the end goal of increasing the maximum return on investment, it is a new environment to which all must adapt.

The orientation toward evidence-based strategies needs to be combined with an increased level of accountability.

Strengthening the Leadership and Infrastructure for Adolescent Health

Currently North Carolina has not identified a core leadership or resource group whose main concern is adolescent health. This Task Force provided many key stakeholders in child and adolescent health a first-ever opportunity to collectively and comprehensively focus attention on young people between 10 and 20 years of age. This process led to the recognition of the need for a state-based resource center that focuses exclusively on improving adolescent health and well-being in North Carolina via the above-listed activities. The federal Maternal and Child Health Bureau (MCHB) supports a national Adolescent Health Resource Center that is designed to assist in the development of state-specific resource centers, and it would be available to provide technical support during development and early operations^a. A North Carolina resource center would provide a single point of contact for North Carolinians—health professionals, community leaders, and the public—for learning more about adolescent health. There are a wide variety of public and private resources and programs available across the state, but they are typically uncoordinated and sometimes conflict with one another. A resource center that collects and disseminates all adolescent health data and increases collaboration would support the many efforts to improve adolescent health. The Center for Early Adolescence (CEA), a unit within the University of North Carolina at Chapel Hill, founded by Joan Lipsitz, operated from 1978 to 1994 and was a national leader in focusing attention on young adolescents. It provided technical assistance to schools and replied to thousands of inquiries from parents each year.² The experience of the CEA illustrates the gap—especially for parents—that an adolescent health resource center could fill. Therefore, the Task Force recommends:

Recommendation 3.1: Establish an Adolescent Health Resource Center

An Adolescent Health Resource Center should be established within the Women and Children’s Health Section of the Division of Public Health. The Center should be staffed by an Adolescent Health Director, an Adolescent Health Data Analyst, and an Adolescent Health Program Manager. Center staff should be responsible for supporting adolescent health around the state by coordinating the various health initiatives; expanding the use of evidence-based programs, practices, and policies; and providing adolescent health resources for youth, parents, and service providers. As part of its work, the Center should create and maintain a website that serves as a gateway to resources on adolescent health in North Carolina as well as provide links to relevant national resources. The North Carolina General Assembly should appropriate \$300,000^b in recurring funds beginning in SFY 2011 to support this effort.

a <http://www.med.umn.edu/peds/ahm/programs/sahrc/aboutus/home.html>

b The Division of Public Health estimates it would cost \$300,000 in salary and benefits to support a health director, data analyst, and program manager for the Adolescent Health Resource Center. (Petersen R. Chief, Chronic Disease and Injury Section, Division of Public Health, North Carolina Department of Health and Human Services. Oral communication. March, 25, 2009.)

In addition, the Adolescent Health Resource Center could help address emerging and understudied issues that the adolescent health community has identified but are less well-known among parents and the public at large.

Improving the Quality of Programs and Services for Youth

Increasingly, policymakers, researchers, and practitioners are turning to evidence-based, best, or promising strategies to ensure that public and private investments are used effectively and strategically. Often, in the past, health intervention programs and services have been based on what leaders thought or hoped would work, without any real evidence of their efficacy. Alternatively, an initiative that works in one location may be attempted in another community without fidelity, i.e. not following the same program structure. Lack of fidelity to the model often causes programs to fail or not produce the expected results. In the field of adolescent health behaviors, there are a growing number of evidence-based programs that have been rigorously evaluated and shown to produce the desired outcomes. In an environment of increasing fiscal challenges, it is important to maximize the value of funding. Thus, the Task Force focused its work on identifying evidence-based policies, programs, and services to improve adolescent health behaviors and outcomes. The policies, programs, and services identified are the basis of the Task Force recommendations.

Evidence-Based Programs

Essentially, evidence-based programs or strategies are those that have been subject to rigorous evaluation and have been shown to produce positive outcomes. Typically, an intervention is considered “evidence-based” when it has been subject to multiple evaluations across different populations, the evaluations include large enough sample sizes to be able to measure meaningful effects of the intervention, and when the evaluations consistently find positive outcomes.³ The best evidence stems from double-blind randomized control studies, where the individuals who are part of the study (“subjects”) are randomly assigned to an intervention or nonintervention (“control”) group, and neither the researchers nor the subjects know which group the subjects are in. Any changes in health status as a result of the intervention can generally be attributed to the intervention because individuals were randomly assigned to a control or intervention group. While considered the “gold standard,” randomized control trials (RCTs) are usually expensive and take a long time to conduct. RCTs are most often used to test clinical interventions and are more difficult to conduct for the testing of community-wide interventions.

Population-based prevention interventions are often evaluated through other study designs. For example, researchers may use a comparison-group study (examining the outcomes of an intervention in one community with a “matched” group or another community with similar characteristics that did not receive the intervention). Or they may conduct pre-post studies (which measure the changes on the same individuals before and after the intervention).

Evidence-based programs or strategies are those that have been subject to rigorous evaluation and have been shown to produce positive outcomes.

**The Task Force on
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While these evaluation studies are generally less expensive and quicker to conduct, the findings are not as robust—that is, the evidence is not considered as strong—as those that come from a well-designed RCT.

The Task Force on Adolescent Health used a variety of resources to identify evidence-based policies, programs, and services. The US Task Force on Community Preventive Services produces the Guide to Community Preventive Services (Community Guide).^c This was one of the NCIOM Task Force’s primary sources of information on evidence-based strategies, such as tobacco taxes to reduce youth smoking and school-based programs to reduce violence, substance use, and overweight and obesity. The US Preventive Services Task Force (USPSTF)^d was used when examining potential clinical interventions, such as the type of health care policies or programs that will reduce STDs and teen pregnancy. Other resources were also used, depending on the topic. (See Appendix B.) For example, Blueprints for Violence Prevention identifies evidence-based strategies to reduce youth violence, aggression, delinquency, and substance abuse.^e Similarly, the US Department of Education maintains a website of evidence-based interventions to improve educational outcomes.^f Additionally, there are other national organizations that have examined the evidence and made recommendations for subjects that were not addressed through these resources, including the Institute of Medicine of the National Academies and professional associations such as the American Academy of Pediatrics.

Unfortunately, there are not well-researched evidence-based strategies for all of the risk factors identified by the NCIOM Task Force. Some interventions have not yet been subject to sufficient evaluation to draw a definitive conclusion about their effectiveness. The intervention may not have been subject to multiple evaluations (in different settings) or the intervention may be too new to have been studied. In these instances, the Task Force tried to identify best practices—that is, practices where there is scientific evidence to suggest that this intervention *might* be effective. There may be some evidence from the published scientific literature but not a sufficient number or quality of studies to warrant designation as an evidence-based practice. Alternatively, there may have been internal program evaluations or other evidence of positive results that have not been published in the scientific literature.

c The US Task Force on Community Preventive Services is appointed by the Director of the Centers for Disease Control and Prevention (CDC) to identify evidence-based community-based prevention initiatives. The Guide to Community Preventive Services (Community Guide) provides information on recommended evidence-based interventions to improve public health and systematic reviews of the evidence behind multiple strategies for major public health issues. <http://www.thecommunityguide.org/index.html>.

d The US Preventive Services Task Force studies preventive clinical services and issues recommendations to guide clinical care for a variety of health issues ranging from nutrition to sexually transmitted diseases. <http://www.ahrq.gov/CLINIC/uspstfix.htm>.

e The Blueprints for Violence Prevention Program out of the Center for the Study and Prevention of Violence at the University of Colorado at Boulder systematically and continuously reviews the research on violence and drug abuse programs to determine which are exemplary and grounded in evidence. <http://www.colorado.edu/cspv/blueprints/index.html>

f The US Department of Education maintains a website of evidence-based programs that have been shown to improve educational outcomes. <http://ies.ed.gov/ncee/wvc/>.

The Task Force also considered promising practices when it was unable to identify either evidence-based or best practices. Promising practices include interventions that may have yielded positive intermediate effects (e.g. changes in knowledge) but have not been tested to determine whether it produced changes in health outcomes (e.g. behavioral changes).⁴

Overall, the Task Force sought to identify policies, programs, and services that have the greatest likelihood of producing positive health outcomes—either through reductions in risk factors or improvements in health-promoting behaviors.

Implementing Evidence-Based Programs and Services in Communities

Cultural Fit of Programs and Services

Evidence-based strategies have typically been proven in a select set of communities. Although the highest grade of evidence involves those programs that have evidence demonstrated across multiple populations, in practice, most programs were evaluated in a few populations and the effectiveness is assumed to be replicable in other populations. However, each community is unique, and even if there are large similarities among types of communities, differences in outcomes for interventions might occur. Thus, providing evidence-based and promising policies, programs, and services for youth is essential to impact health outcomes but is not enough alone. When designing or choosing health policies, programs, and services for youth, it is important to be sensitive to the diverse cultural norms and beliefs of the adolescents and families targeted. Factors concerning individuals such as age, gender, race and ethnicity, sexual orientation, disability status, and cultural background play a significant role in determining health attitudes, behaviors, and outcomes. Ensuring that health policies, programs, and services are culturally appropriate, linguistically competent, and appropriate for the needs of diverse populations of adolescents can be challenging, but they are critical to ensure that investments in improving adolescent health and well-being are effective.⁵ In other words, the needs, resources, and circumstances of the community must be considered when implementing programs. For example, a program relying on public transit may not be a reasonable strategy in rural settings. The consideration of the population being addressed is as important as model fidelity.

Developmentally Supportive Settings

In addition to ensuring that programs and services are evidence-based and a good fit with the community, it is important that programs and services targeting youth provide developmentally supportive settings. Youth are influenced by the settings in which they spend their time such as families homes, schools, neighborhoods, and community programs. The National Research Council and

When designing or choosing health policies, programs, and services for youth, it is important to be sensitive to the diverse cultural norms and beliefs of the adolescents and families targeted.

Research shows that programs designed to strengthen families, often through teaching parenting and communication skills can have a positive impact on youth health behaviors.

Institute of Medicine’s Committee on Community-Level Programs for Youth has identified eight features of daily settings that are important for positive adolescent development⁸ including:

Physical and psychological safety: safe and health-promoting facilities

Appropriate structure: clear and consistent rules and expectations, continuity and predictability, and age-appropriate monitoring

Supportive relationships: caring, responsive, trustworthy, supportive, loving adults

Opportunities to belong: opportunities for meaningful inclusion, engagement, and integration for all youth

Positive social norms: expectations, rules for behavior, values, and morals;

Support for efficacy and mattering: youth-based practices that support enabling, responsibility, and meaningful challenge

Opportunities for skill building: opportunities to learn physical, intellectual, psychological, emotional, and social skills and to develop social and cultural capital

Integration of family, school, and community efforts: coordination and synergy among family, school, and community.

These features help set the stage for adolescents to have the kinds of positive experiences that contribute to healthy development. They build upon and complement one another in positive ways. Research suggests that the more components a setting has, the greater the contribution to positive youth development. Youth who do not experience any of these features anywhere in their daily lives are at risk of becoming involved in risky behaviors or experiencing poor outcomes.⁶ Catherine D. DeAngelis, MD, a renowned expert and the first female editor of the *Journal of the American Medical Association*, has suggested that in order to reduce the prevalence of adolescent health-risk behaviors we need to “Start early, include everyone possible, and don’t ever stop.”⁷ Investing in adolescents and their families is one of the surest ways to reduce risk behaviors.

Supporting and Strengthening Families

Providing high-quality programs and services for adolescents is essential to improving their health and well-being, however, research shows that supporting and strengthening their families is also critical.⁷ Although adolescence is a time of growing independence, families continue to provide physical necessities, emotional support, learning opportunities, moral guidance, and skills needed

^g See Chapter 2 for more information on positive youth development.

in preparation for adulthood. It is critical that parents continue to provide nurturing, responsive relationships that promote healthy relationships and development throughout adolescence. During a time when youth typically begin to test boundaries and try new things, families can help their children make healthy decisions by providing appropriate monitoring, communication, and supervision.¹ Research has shown that family functioning plays a critical protective role when it comes to health risk behaviors.⁸

The vast majority of parents of teenagers in North Carolina report that they would like to know more about adolescent health and about how to communicate with their teenagers.⁹ There is wealth of information about what parents can do to help their adolescents develop positively towards adulthood, but parents do not always know how to access this information. Incorporating parent education into programs and services for adolescents would benefit both youth and their parents.

Furthermore, research shows that programs designed to strengthen families, often through teaching parenting and communication skills can have a positive impact on youth health behaviors.¹ For example, the Strengthening Families Program (SFP), which teaches parent skills, children's life skills, and family skills to families with children ages 3-16, has been shown to reduce behavioral, emotional, academic, and social problems among high-risk youth. In addition SFP increases protective factors by improving family relationships and improving adolescent life and social skills.¹⁰ Family therapy and in-home services, both when children are young and during adolescence, have also been shown to strengthen families and improve outcomes for high-risk youth.¹¹ Programs and services that work to reduce risk factors and increase protective factors can have a positive impact on a wide range of adolescent health risk behaviors.

To improve the effectiveness of interventions designed to improve adolescent health behaviors and outcomes, the Task Force recommends:

Recommendation 3.2: Fund Evidence-Based Programs that Meet the Needs of the Population Being Served (PRIORITY RECOMMENDATION)

Public and private funders supporting adolescent initiatives in North Carolina should place priority on funding evidence-based programs to address adolescent health behaviors, including validation of the program's fidelity to the proven model. Program selection should take into account the racial, ethnic, cultural, geographic, and economic diversity of the population being served. When evidence-based programs are not available for a specific population, public and private funders should give funding priority to promising programs and to those programs that are theory-based and incorporate elements identified in the research literature as critical elements of effective programs.

- a) The North Carolina General Assembly should amend the purpose of the North Carolina Child and Family Leadership Council^h to include increasing coordination between North Carolina Departments that provide funding, programs, and/or services to youth. Whenever possible the North Carolina Child and Family Leadership Council should encourage departments and agencies to adopt common evidence-based community prevention programs that have demonstrated positive outcomes for adolescents across multiple protective and risk behaviors, and to share training and monitoring costs for these programs. This initiative should focus on evidence-based strategies that have demonstrated positive outcomes for adolescents in reducing substance use, teen pregnancies, violence, and improving mental health and school outcomes. To facilitate this work:
- 1) The North Carolina Child and Family Leadership Council (Council) should work to identify a small number of evidence-based programs that have demonstrated positive outcomes across multiple criteria listed above. As part of this work, the Council should collaborate with groups that have already done similar work to ensure coordinated efforts. All youth-serving agencies should agree to place a priority on funding the evidence-based programs identified. Each agency should dedicate existing staff to provide technical assistance and support to communities implementing one of the chosen evidence-based programs.
 - 2) Agencies should identify state and federal funds that can be used to support these initiatives. Each agency should work to redirect existing funds into evidence-based programs and to use new funds for this purpose as they become available. Agencies can support programs individually or blend their funding with funds from other agencies.
 - 3) Funding should be made available to communities on a multiyear and competitive basis. Funding priority should be given to communities that are high-risk based on the behaviors listed above. Communities could apply to use a best or promising program or practice if they can demonstrate why existing evidence-based programs and practices will not meet the needs of their community. In such cases, a program evaluation should be required to receive funding.
 - 4) The North Carolina General Assembly should appropriate \$25,000ⁱ in recurring funds beginning in SFY 2011 to the Council to support their work.

h The North Carolina Child and Family Leadership Council includes the Secretary of the Department of Health and Human Services, the Superintendent of the Department of Public Instruction, the Chair of the State Board of Education, the Secretary of the Department of Juvenile Justice and Delinquency Prevention, the Director of the Administrative Office of the Courts, and others as appointed by the Governor.

i \$25,000 would be used to support 1/3 of a full-time employee at the Department of Administration to provide administrative support to the North Carolina Child and Family Leadership Council.

- b) The agencies and other members of the Alliance for Evidence-Based Family Strengthening Programs should identify funds that could be blended to support family strengthening programs that focus on families of adolescents.
- c) North Carolina foundations should fund pilots and evaluations of existing evidence-based parent-focused interventions. If found to be effective, the North Carolina General Assembly and North Carolina foundations should support statewide program dissemination and implementation. Pilot programs should include those targeted for specific health domains that are aimed at universal and selected populations.

Multifaceted Interventions

As discussed in Chapter 1, the Task Force work was guided by the understanding that changes in population health require multilevel interventions, or a socioecological approach. Although many of the recommendations in this report focus on interventions in a single setting or for a single health risk behavior, the Task Force encourages comprehensive community-wide approaches that address multiple determinants of health.

This type of community approach may hold the most promise in changing adolescent health risk behaviors. The CDC notes that:⁵

Communities experiencing the most success in addressing health and quality-of-life issues have involved many components of their community: public health, health care, business, local governments, schools, civic organizations, voluntary health organizations, faith organizations, park and recreation departments, and other interested groups and private citizens.

Communities that are interested in improving the health of certain at-risk groups, like adolescents, have found more success when they work collaboratively within their communities. This is because many health problems relate to more than one behavioral risk factor as well as social and environmental factors, as noted in Chapter 2. ⁵ Comprehensive community-wide evidence-based approaches to health problems require a lot of time, leadership, and funding; therefore, the Task Force recommends funding demonstration projects using this approach in a select number of communities and expanding policies, programs, and services that are shown to be effective. The Task Force recommends:

Recommendation 3.3: Support Multifaceted Health Demonstration Projects

The North Carolina General Assembly should provide \$1.5 million annually for five years beginning in 2011 to the Division of Public Health to support four multicomponent, locally-implemented adolescent health demonstration projects. Funds should be made available on a competitive basis.

- a) To qualify for funding, the demonstration project should involve families, adolescents, primary health care providers (which may include school-based health centers), schools, Juvenile Crime Prevention Councils, and local community organizations. Projects must include evidence-based components designed to improve health outcomes for at-risk adolescent populations and increase the proportion of adolescents who receive annual well visits that meet the quality of care guidelines of the US Preventive Services Task Force, Centers for Disease Control and Prevention, American Academy of Pediatrics/Bright Futures, and the Advisory Committee on Immunization Practices.
- b) Priority will be given to projects that recognize and comprehensively address multiple adolescent risk factors and to counties that have greater unmet health or educational needs, including but not limited to counties that have graduation rates below the state average, demonstrated health disparities or health access barriers, or high prevalence of adolescent risky health behaviors.

Demonstration projects will be selected and provided with technical assistance in collaboration with the Department of Public Health (DPH), Department of Public Instruction, Community Care of North Carolina, and the NC School Community Health Alliance. These groups will work collaboratively to identify appropriate outcome indicators, which will include both health and education measures. As part of this project, DPH should contract for an independent evaluation of the demonstration projects.

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Adolescents as a group are generally healthy. However, the majority of youth and young adults will, at some time, engage in behaviors that can lead to serious negative health consequences. (See Chapter 2.) The socioecological model of health used by this Task Force recognizes the contributions of families, communities and schools, and policy to adolescent health. (See Chapter 1.) Within this context, the Task Force reviewed and discussed the contributions of health care strategies to improving adolescent health.

Regular preventive check-ups and counseling in health care settings can help ensure that all adolescents develop patterns of behavior that will favorably influence lifelong trajectories of health and can provide unique opportunities for early diagnosis and intervention when problems emerge. Furthermore, there are substantial numbers of adolescents who have chronic health conditions or disabilities. Eighteen percent of adolescents in North Carolina between ages 12 and 18 years have a chronic physical, developmental, behavioral, or emotional condition that requires health and related services beyond that required by children generally. The most prevalent diagnoses include allergies, asthma, attention deficit disorders (ADD/ADHD), anxiety or depression, and headaches. Health conditions such as seizure disorders, cerebral palsy, autism, diabetes, cystic fibrosis, Downs Syndrome, and heart and blood problems (e.g. sickle cell disease, congenital heart disease) are much less common.¹ Adolescents with acute illness, chronic conditions, or disabilities need high-quality health care for these conditions.

Adolescent Health Care Services

What is High-quality Primary Care?

Health care professionals play an important role in promoting adolescent health. All adolescents need access to high-quality preventive services, screening, and anticipatory guidance. In addition, children who are ill or those with special health conditions need health services that address their specific health needs. Over the past 15 years, a model for comprehensive high quality adolescent health services has emerged. This model is structured around periodic routine visits with primary care health providers for all adolescents ages 11-21 years. It recognizes the extent to which adolescents change year-to-year, the wide variation in normal development during the second decade of life, and the role of health care professionals in both preventing and addressing health problems in this age group. The need for regular periodic visits has been endorsed by different health professional associations, governmental bodies, and accrediting organizations including the American Medical Association (AMA), American Academy of Pediatrics (AAP), Health Resources and Services Administration and the Maternal and Child Health Bureau of the US Department of Health and Human Services, American Academy of Family Physicians (AAFP), US Preventive Services Task Force (USPSTF), and National Committee for Quality



Health care professionals play an important role in promoting adolescent health.

Assurance (NCQA).^a Over the past two decades, a consensus has emerged among the AMA, AAP, MCHB, and NCQA that periodic routine adolescent health visits should occur on an **annual** basis; the AAFP and USPSTF do not make a specific recommendation about frequency.

Recommendations vary about the specific components and content of a comprehensive wellness visit, but components endorsed by multiple organizations/agencies including the Centers for Disease Control and Prevention (CDC) are listed below:²⁻⁸

Regular preventive check-ups and counseling in health care settings can help ensure that all adolescents develop patterns of behavior that will favorably influence lifelong trajectories of health and can provide unique opportunities for early diagnosis and intervention when problems emerge.

- Medical history (AAP, AMA, NCQA)
- Psycho-social-behavioral history (AAP, AMA, NCQA), including information about:
 - home environments (AAP, AMA)
 - family connectedness (AAP, AMA)
 - school connectedness and academic performance (AAP, AMA)
 - jobs, hobbies, and activities outside of school (AAP, AMA)
 - eating and physical activity habits (AAP, AMA, NCQA)
 - tobacco, alcohol, and other substance use (AAP, AMA, NCQA)
 - sexual development and behaviors (AAP, AMA, NCQA, AAFP, USPSTF)
 - emotional health (AAP, AMA, USPSTF)
 - behaviors that reduce risk of injury (AAP, AMA, AAFP)
- Physical examination, including height, weight, and body mass index (AAP, AMA, NCQA)
- Laboratory tests:
 - Screen for chlamydia in all females who have had sex (AAP, AMA, CDC, NCQA, AAFP, USPSTF)
 - Screen for gonorrhea in all females who have had sex (AAP, AMA, AAFP, CDC, USPSTF)
 - Cervical cytology in all females three years after first sexual intercourse (AAP, AMA, AAFP, USPSTF)
 - HIV and syphilis screening among males and females at increased risk (AAP, AMA, CDC, USPSTF)

^a NCQA measures the extent to which adolescents ages 12-21 years receive an annual well-care visit with a primary care provider or OB/GYN as part of its Healthcare Effectiveness Data and Information Set (HEDIS).

- Immunizations if indicated (AAP, AMA, NCQA, AAFP, CDC, USPSTF)
- Tailored developmentally-appropriate counseling/anticipatory guidance (AAP, AMA, NCQA)
- Specific counseling to reduce STDs if at risk (AAP, AMA, AAFP, CDC, USPSTF)

There is less consensus among professional organizations regarding other components of wellness visits, such as the guidelines for screening adolescents for high cholesterol or diabetes.

The specific types of issues discussed, content of discussions, level of parental involvement, and the type of counseling provided during adolescent health visits should be tailored to individual patients and is influenced by the developmental stage of the adolescent patient. The specific content of a routine visit for an 11-year-old adolescent would be expected to be quite different than that of a 19-year-old adolescent.^{4,5,9}

In summary, there is current consensus that high quality adolescent health care includes an annual routine health visit for all adolescents between ages 11-21 years. For this to have an impact on adolescent health, adolescents who seek health care services for routine care or for specific health conditions need to receive evidence-based high quality health care. Those who present for routine health care need to receive a package of services consistent with current recommendations of the AAP, AMA, CDC, NCQA, AAFP, and USPSTF.

Utilization of Adolescent Health Care Services

The National Research Council and National Institute of Medicine recently released an extensive review of adolescent health and health services, entitled “Adolescent Health Services: Missing Opportunities.”¹⁰ The review noted that most adolescents have a usual source of medical care, however, the settings where adolescents receive these services vary. Among adolescents who have a usual source of care, the majority (approximately 77%) rely on a doctor’s clinic or managed care organization, while a little over 20% rely on a clinic or health center. Very small proportions rely on school-based health centers, emergency departments, or family planning centers as their usual source of care. This review also reports that most adolescents see a health care provider annually, although annual visits to health care providers decline as adolescents grow older (particularly among boys).¹⁰

In North Carolina, 55% of adolescents have a medical home based on parental report (data indicating where this medical home is located are not available). Parents report that more than 75% of adolescents had a preventive medical visit in the previous 12 months.¹¹ However, reports from adolescents differ from that of parents. In 2007, only 52% of middle school students and 60% of high school students in North Carolina reported a routine health care visit in the previous year.¹²

National data show a large gap between the services that are recommended and the actual services most adolescents receive.

Improving Quality of Adolescent Health Care

When adolescents are seen for routine health care, many health care providers fail to adhere to recommended prevention guidelines, to screen for appropriate risk factors and unhealthy behaviors that emerge during adolescence, and to provide effective counseling that could reduce risks and foster health promotion. National data show a large gap between the services that are recommended and the actual services most adolescents receive. For example, one population-based study found that only 34% of adolescents received recommended preventive health services.¹³ Results from the 2007 National Immunization Survey showed that no more than one-third of adolescents had received vaccines that had been recommended by the Advisory Committee for Immunization Practices.^{b,14} And few adolescents receive appropriate screening for sexually transmitted diseases. In 2007, only 42% of sexually active females ages 15-25 years in commercial and Medicaid health plans received annual screening for chlamydia infection, although such testing is recommended by AAP, AMA, NCQA, AAFP, and USPSTF.¹⁵

While some North Carolina data show that most adolescents received preventive visits in the last year, there is a lack of state-level data to measure the quality of routine adolescent health services delivered in clinical settings. One of the few measures available—the adolescent immunization rate—suggests that North Carolina adolescents receive less comprehensive care in the clinical setting than the nation. North Carolina has lower rates of adolescent vaccination than nationally, particularly for tetanus, diphtheria, acellular pertussis (Tdap) booster vaccine (1 dose), and the meningococcal conjugate vaccine (MCV4) (1 dose).¹⁶ (See Table 4.1.) North Carolina is performing at about the national average for the quadrivalent human papillomavirus vaccine for girls (HPV4; 3 doses).

Other state-specific information about the quality of clinical visits is not available. However, there are other regional data that suggest that adolescents

Table 4.1
North Carolina Adolescents Less Likely to Have Received Recommended Immunizations

Vaccine Type	US	NC
≥ 1 Tdap	41%	28%
≥ 1 MCV4	42%	31%
≥ 1 HPV4	37%	34%

Source: Centers for Disease Control and Prevention, US Department of Health and Human Services. National Immunization Survey—Teens (13 Through 17 Years Old). <http://www.cdc.gov/vaccines/stats-surv/nis/nis-2008-released.htm#nisteent>. Published September 17, 2009. Accessed September 21, 2009.

b Thirty percent had received the tetanus, diphtheria, acellular pertussis vaccine; 32% had received meningococcal conjugate vaccine; and 25% had initiated the quadrivalent human papillomavirus vaccine series.

in the South receive lower quality services, at least as it relates to the screening for chlamydia infections among sexually active adolescent and young adult females. Data show that the screening rates are lower in the South than in other regions of the United States.^{15,17} This is of particular concern because rates of chlamydia infection among adolescents and young adults in the South, including North Carolina, are among the highest in the United States.¹⁸

To improve the quality of health services provided to adolescents, expectations for the content of a standard routine adolescent preventive health care visit needs to be explicitly clear to health care providers, and these services need to be covered by insurers. One barrier to this has been the lack of specific details about the expected preventive health services for adolescents in the NC Medicaid Health Check Program, which provides guidelines for Early Periodic Screening, Diagnosis, and Treatment (EPSDT) visits and Medicaid reimbursement for children under age 21. To overcome this barrier, the NC Division of Medical Assistance (DMA), Division of Public Health (DPH), and several North Carolina health care providers have been working on a new Medicaid policy called the Adolescent Health Check Screening Assessment. The proposed policy provides specific guidance for the expected content of annual routine adolescent health visits including: a comprehensive health history, measurements, vision/hearing risk assessment, dental screen, laboratory tests as clinically indicated (e.g. STD/HIV, dyslipidemia, pregnancy test, etc.), nutrition assessment, health risk screen and developmentally-appropriate psychosocial/behavioral & alcohol/drug use assessments, physical exam, immunizations, anticipatory guidance, and follow-up/referral. For female adolescents receiving a preventive health check screen that includes a family planning component the Extended Adolescent Health Check Screening Assessment should be a billing option. The proposed policy also provides guidance about billing and links to the evidence-based recommendations upon which the preventive health services are based. The proposed policy is currently in final review at DMA, and decisions on exact content and reimbursement are being discussed.

As expectations for the content of evidence-based high-quality routine annual adolescent health visits become clear, there will be a need to assist providers in various clinical settings to learn how to deliver this care in a time-efficient and effective manner. This will require a multifaceted approach that should include education of clinical and administrative staff about new expectations for routine adolescent health care; continuing medical education for many clinicians around specific adolescent health topics; incorporation of new practice tools into clinical settings; technical assistance related to new billing procedures; and strategies to reach adolescents and their parents to encourage routine use of adolescent preventive health services.

Clinicians may also need to learn new skills in order to deliver high-quality routine health care to adolescents with chronic conditions or disabilities. All adolescents need the counseling, anticipatory guidance and preventive services

To improve the quality of health services provided to adolescents, expectations for the content of a standard routine adolescent preventive health care visit needs to be explicitly clear to health care providers, and these services need to be covered by insurers.

**High-quality
routine adolescent
health care
should prepare all
adolescents for
their transition to
adulthood.**

offered during routine comprehensive health care, including but not limited to such topics as nutrition, physical activity, sexuality, pregnancy prevention, mental health, tobacco use, and alcohol and substance use. However, children with special health needs or disabilities may face unique issues. All discussions with adolescents need to be tailored to the individual young person's specific resources and needs which are influenced by their social support system, abilities, and physical and mental health conditions. For example, adolescents with cognitive limitations may need very direct, matter-of-fact, concrete discussion about puberty, menstruation, and sexuality as well as concrete demonstrations or role-playing to learn skills to refuse unwanted sexual attention or invitations to use alcohol or other drugs. Adolescents in wheelchairs need to have counseling about the importance of maintaining a healthy weight that is tailored to their capacity for physical activity. Adolescents who have chronic conditions that will be adversely affected by tobacco use (e.g. asthma, cystic fibrosis), pregnancy (e.g. conditions where pregnancy would result in major deterioration in health or increase chance of death), or intoxication with alcohol or drugs (e.g. insulin-dependent diabetes) need counseling about these behaviors that take into consideration unique risks.

Finally, high-quality routine adolescent health care should prepare all adolescents for their transition to adulthood. Young people must work on general transition competencies as early as developmentally appropriate, which may include learning about their medical history; understanding their potential for physical and mental health risks or conditions; learning how to negotiate health care systems; self-advocacy for their needs; and increasing responsibility for meeting their own routine and condition-specific health care needs as they enter adulthood. Adolescents with chronic conditions or disabilities need to learn, to the extent possible, how to manage their own medication, recognize and appropriately respond to warning signs for problems specific to their unique condition, take care of their own health needs independent of their parents or other caregivers, and maintain complete medical records and portable medical summaries. All adolescents need guidance on how to successfully transition to an adult health care system, which typically operates under the assumption that patients have strong self-management skills. This transition may be particularly challenging for adolescents with complex and chronic health care needs and disabilities. These adolescents with complex and chronic health care needs should work with their medical provider to develop a written transition plan. This transition plan should guide them through a process to assure ongoing insurance coverage, coordinate needed health services, and access adult health care providers.

Improving Performance in Practice (IPIP) is an innovative quality improvement (QI) model that has demonstrated quality improvement for chronic care in practices. The model involves quality improvement consultants who work closely with practices to help them identify strategies to improve quality of care for chronic conditions. Strategies differ across practices, but the ultimate goal

is to help clinicians learn how to conduct their own QI. This QI model could be applied to practices caring for adolescents to improve the quality of adolescent care. In North Carolina, IPIP has been implemented by a partnership with many organizations, including CCNC, DPH, and specialty societies like the North Carolina Academy of Family Practice. It has been folded into the North Carolina Healthcare Quality Alliance and currently is housed in the NC AHEC. Such a collaborative model could be effective in improving care for adolescents.

In recognition of the need to improve the quality of health care delivered to adolescents in North Carolina, the Task Force recommends:

Recommendation 4.1: Cover and Improve Annual High-Quality Well Visits for Adolescents up to Age 20

- a) The Division of Medical Assistance (DMA) should:
 - 1) Implement the DMA Adolescent Health Check Screening Assessment policy.
 - 2) Review and update the DMA Adolescent Health Check Screening Assessment policy at least once every five years.
- b) Other public and private health insurers, including the State Health Plan, should cover annual well visits for adolescents that meet the quality of care guidelines of the US Preventive Services Task Force, Centers for Disease Control and Prevention, American Academy of Pediatrics/Bright Futures, and Advisory Committee on Immunization Practices.
- c) Community Care of North Carolina (CCNC), Area Health Education Centers (AHEC) Program, and the Division of Public Health should pilot tools and strategies to help primary care providers deliver high quality adolescent health checks. Strategies could include:
 - 1) Trainings and other educational opportunities around the components of the Adolescent Health Check including dental screening, laboratory tests as clinically indicated (e.g. STD/HIV, dyslipidemia, pregnancy test, etc.), nutrition assessment, health risk screen and developmentally-appropriate psychosocial/behavioral & alcohol/drug use assessments, physical exam, immunizations, anticipatory guidance and follow-up/referral, and, for female adolescents, a family planning component.
 - 2) The development and implementation of a quality improvement model for improving adolescent health care.

North Carolina's foundations should provide \$500,000 over three years to support this effort.

A major barrier to receiving routine care or care for specific health conditions is lack of adequate insurance.

Barriers to Adolescents Receiving High-Quality Health Care

There are a variety of barriers to adolescents having access to and using high-quality health care services. A major barrier to receiving routine care or care for specific health conditions is lack of adequate insurance. In North Carolina, 13% of youth ages 10-18 are uninsured, as are 34% of young adults ages 19-24. Most uninsured children under age 19 are already eligible for, but not enrolled in, publicly-funded insurance such as Medicaid or NC Health Choice (the state's Child Health Insurance Program) as these programs together cover all children with family incomes up to 200% of the federal poverty guidelines (or \$44,100/year for a family of four in 2009).^c In North Carolina, for example, 66% of the uninsured adolescents between ages 10-18 are eligible for, but not enrolled in, Medicaid or NC Health Choice. Many eligible children are denied coverage or lose eligibility during recertification due to procedural barriers.¹⁹ Another 12% would be eligible if the state expanded the income eligibility guidelines up to 300% of the federal poverty guidelines (or \$66,150/year for a family of four).

The income eligibility criteria for young adults ages 19-20 years is much stricter than for younger adolescents. For example, a 17-year-old can qualify for Medicaid if their countable income is not more than \$903/month (100% of the federal poverty guidelines), and can qualify for NC Health Choice if their income is between \$903 and \$1,805/month. However, a young adult age 19 or 20 can only qualify for Medicaid if their countable income is no more than \$362/month (40% of the federal poverty guidelines). Adults age 21 years or older cannot qualify for Medicaid at all—unless they have dependent children or meet very strict disability standards and have low incomes. Young adults are the most likely age group to lack insurance coverage, and a greater percentage of 19-24 year olds are uninsured in North Carolina than nationally (34% vs. 30%, respectively).^d This is due to a combination of reasons, including the difficulty in qualifying for public coverage; the fact that many young people work in jobs that do not offer insurance coverage; loss of parental coverage once a child turns 18 (unless he or she is enrolled full-time in college); and the high cost of private insurance coverage.²⁰

Ensuring that adolescents have access to care is critical to improving their immediate and long-term health. Therefore, the Task Force recommends:

^c Medicaid covers children ages 10-18 with family incomes up to 100% of the federal poverty guidelines (or \$22,050 for a family of four in 2009). NC Health Choice covers children ages 10-18 with family incomes between 100-200% of the federal poverty guidelines. To qualify, the youth must be a US citizen or a lawfully present immigrant who has lived in the United States for at least five years.

^d North Carolina Institute of Medicine. Analysis of the Current Population Survey, Annual Social and Economic Supplement.

Recommendation 4.2: Expand Health Insurance Coverage to More People

The Task Force believes that everyone should have health insurance coverage. In the absence of such, the North Carolina General Assembly should begin expanding coverage to groups that have the largest risk of being uninsured. Such efforts could include, but not be limited to:

- a) Provide funding for the Division of Medical Assistance to do the following:
 - 1) Expand outreach efforts and simplify the eligibility determination and recertification process to identify and enroll children and adolescents who are already eligible for Medicaid or NC Health Choice.
 - 2) Expand Medicaid income eligibility levels for adolescents 19-20 up to 200% of the federal poverty guidelines (FPG) or higher if the income limits are raised for younger children.
- b) Expand publicly subsidized coverage to children and adolescents with incomes up to 300% FPG on a sliding scale basis.
- c) Change state laws to require insurance companies to offer parents the option to continue dependent coverage until the child reaches age 26, regardless of student status.

School-Based Health Care

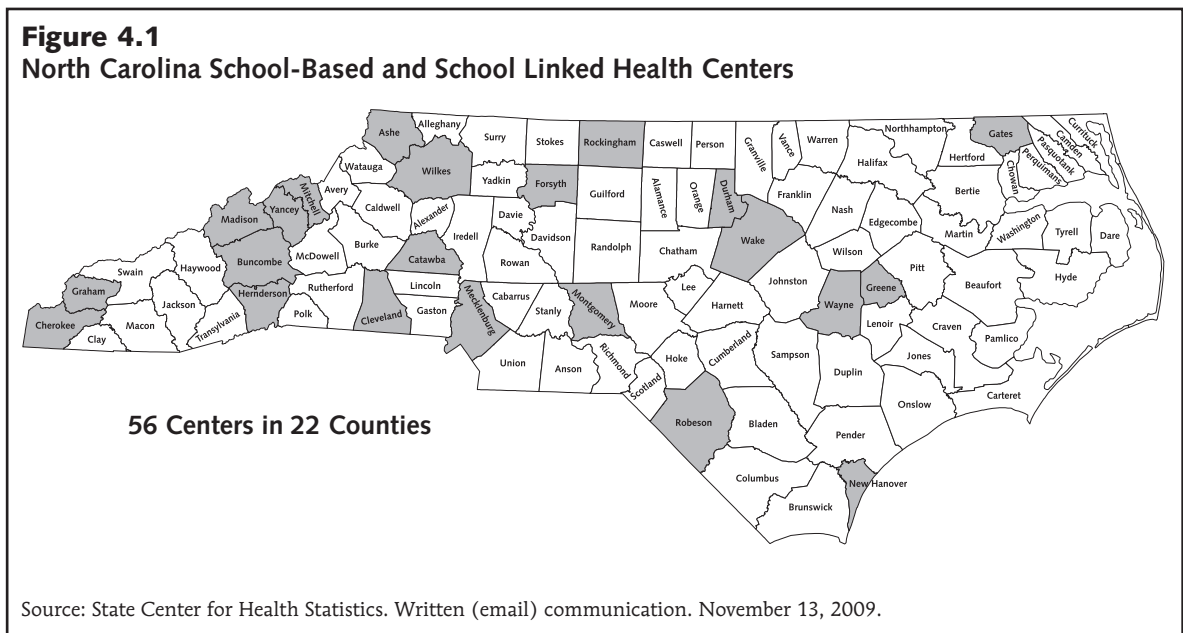
Schools have been providing health services to students for over 100 years, initially with the goal of controlling communicable diseases and reducing absenteeism.²¹ Current school health services have expanded upon these initial goals due to an increasing understanding of the link between children's physical and mental health and school performance. (See Chapter 5.) The CDC's Division of Adolescent and School Health (DASH) recognizes the strong relationship between education and health and has developed a model for this through the Coordinated School Health Program (CSHP). The eight components of this model focus on specific issues that directly impact the health of students and in turn the health of the overall school. (See Chapter 5.) North Carolina has a history of investing in the multiple components of the model. In this chapter we discuss three strategies that include strengthening the health-services component of this model.

SBLHCs have been shown to increase receipt of needed physical and mental health care, improve health knowledge and reported health behavior ... and decrease general emergency department utilization among users of health centers.

School-Based Health Care Centers

School-based and school-linked health centers (SBLHCs) are comprehensive clinics within or linked to schools that meet the needs of students. Within the SBLHC an interdisciplinary team provides access to high quality comprehensive physical and mental health services emphasizing prevention and early intervention.²² Most address the CSHP components of health services; counseling, psychological, and social services; and health education. Many address additional components of individual Health Education and Health Promotion for staff. SBLHCs have been shown to increase receipt of needed physical and mental health care, improve health knowledge and reported health behavior, lower risk of asthma-related hospitalizations and emergency department utilization, and decrease general emergency department utilization among users of health centers. Providing mental health services is a primary goal for many SBLHCs and mental health programs in schools have been shown to produce comparable improvement in mental health functioning when compared to community-based services and increased utilization of mental health counseling services in comparison with having services in other settings.¹⁰

North Carolina has invested in SBLHC, particularly in middle and high schools in underserved and rural communities. (See Figure 4.1.) Currently there are 56 centers in 26 Local Education Authorities (LEA) serving approximately 28,000 students.^e Centers have diverse funding streams to maintain financial viability. In North Carolina, state funding for SBLHCs has



^e North Carolina has approximately 2,500 schools serving approximately 1,000,000 students.

diminished since 2000 by approximately 10%, despite the growing evidence of their value as safety-net sites and despite a 20% increase in funding of SBLHCS nationally. Several SBLHCS in North Carolina have closed, and many others are struggling to survive. As detailed below, the Task Force recommends increased investment in these centers as a core strategy to connect adolescents in underserved and rural communities to needed health services.

School Nurses

School nurses address several CSHP components based on the needs of their communities and provide important health services to children and adolescents while in school. Most frequently they address the CHSP components of Health Education, Healthy School Environment, and Health Services. For example, school nurses also provide counseling, chronic disease management, emergency services, and also help oversee the administration of medications or other health care procedures.²³ The CDC, the US Department of Health and Human Services Health Resources and Services Administration, and the National Association of School Nurses recommend that there be at least one nurse for every 750 students.^{24,25} In 2008 North Carolina schools had, on average, one nurse for every 1,225 students.^f A North Carolina study that examined the impact of school nurse-to-student ratios on student health outcomes in a 21 county region in Eastern North Carolina found that the increased presence of school nurses increased the services provided to children with diabetes and asthma. Schools with more school nurses also provided more counseling for depression, teen pregnancy, learning difficulties, and a higher percentage of students received follow-up care for school related injuries and vision services.²⁶ In recognition of the importance of having a sufficient number of school nurses to help assure that adolescent health needs are appropriately addressed, the Task Force recommends funding to increase the number of school nurses in middle and high schools across the state to achieve the ratio of 1:750.

Child and Family Support Teams

The third investment has been the North Carolina General Assembly (NCGA) support for the Child and Family Support (CFST) pilot and evaluation currently being conducted in 100 schools across the state. One goal of this effort is to identify adolescents at high risk of or with significant behavioral or mental health problems and to create comprehensive, multifaceted effective approaches to assure that their needs are met. An evaluation to measure health and behavioral outcomes is underway. These evaluations should include measurement on a variety of outcomes, including educational, health, and justice system outcomes using NC Window on Student Education (WISE) data.

The CDC, the US Department of Health and Human Services Health Resources and Services Administration, and the National Association of School Nurses recommend that there be at least one nurse for every 750 students.

^f Tyson CF. School Health Unit Manager, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. March 30, 2009

Due to the important role schools can play in providing health care services, the Task Force recommends:

Recommendation 4.3: Fund School-Based Health Services in Middle and High Schools (PRIORITY RECOMMENDATION)

- a) The Department of Public Instruction and the Division of Public Health should work together to improve school-based health services in middle and high schools. The North Carolina General Assembly (NCGA) should appropriate \$7.8 million in recurring funds in SFY 2011, \$13.1 million in recurring funds in SFY 2012, and additional funding in future years to support school-based health services, including:
- 1) \$2.5 million^g in recurring funds beginning in SFY 2011 to support school-based and school-linked health centers (SBLHC) and provide funding for five new SBLHCs.
 - 2) \$5.3 million in recurring funds each year from SFY 2011-2015 (for a total cost of \$26.8 million^h) to the Division of Public Health to achieve the recommended statewide ratio of 1 school nurse per 750 middle and high school students.
 - 3) The NCGA should continue to support the Child and Family Support Teams (CFST) pilot and evaluation. If CFSTs are shown to improve health and educational outcomes for youth, they should be fully funded to allow for statewide implementation.

Priority in funding should be given to schools and communities with higher populations of at-risk youth and/or greater identified need.

- b) North Carolina foundations should fund evaluations of the effectiveness of these initiatives.

During the course of the Task Force work, other strategies to increase the likelihood that all adolescents are connected to high-quality routine health care services were discussed. One model discussed was based on the state's experience with mandating a health assessment at entry to kindergarten. This has been used as an effective mechanism to assure near-universal receipt of a basic health assessment and updating of immunizations among young children

g \$2.5 million is the estimated cost to fund 5 new school-based or school-linked health centers. (Tyson CF. School Health Unit Manager, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. March 23, 2009).

h \$26.8 million is the estimated cost to achieve the recommended 1:750 ratio in middle and high schools. (Tyson CF. School Health Unit Manager, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. March 30, 2009).

as they enter school. The Task Force recommends convening a working group to develop a sixth grade school assessment plan. The 2008 North Carolina Child Health Assessment Monitoring Program (NC CHAMP) survey found that 94% of parents of adolescents between the ages of 11 and 17 reported that they felt it was important for a child to get a regular check-up before entering middle school.¹¹ Therefore, the Task Force recommends:

Recommendation 4.4: Developing a Sixth Grade School Health Assessment

The Women and Children’s Health Section of the Division of Public Health should convene a working group to develop a plan to operationalize a sixth grade health assessment. The working group should include the Department of Public Instruction, Division of Medical Assistance, the North Carolina Pediatric Society, North Carolina Academy of Family Physicians, Community Care North Carolina (CCNC), representatives from local health departments, and other health professionals as needed. The plan should be presented to North Carolina School Health Forum and the North Carolina General Assembly by the beginning of the 2011 Session.

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Improving Adolescent Health through Education

Chapter 5

The socioecologic model of health used by the Task Force recognizes the role of schools in improving adolescent health. (See Chapter 1.) Research reviewed by the Task Force provided clear support for the connection between education and health.

The guiding mission of the North Carolina State Board of Education is that every public school student will graduate from high school, globally competitive for work and postsecondary education and prepared for life in the 21st century.¹

The guiding mission of the North Carolina State Board of Education (SBE) is to prepare students to graduate from high school and be successful in the 21st century. To meet this mission, schools must provide high-quality academic courses that engage students in learning and building skills as well as provide students with the knowledge and skills needed to become healthy and responsible adults.¹

Schools have a vested interest in providing a healthy environment and teaching students healthy behaviors. There is mounting evidence that students who have nutritionally sound diets, are physically active, spend time in stress-reducing environments, avoid risk behaviors, have positive school connections, and experience nurturing relationships with adults have improved school attendance, behave better in class, and perform better on standardized tests.² Creating this environment should help improve the health of the students, as well as their academic performance.^{a,1}

More Years of Education Linked to Better Health

The intersection between educational attainment and health has important implications for the development of both education and health policy. There is mounting empirical evidence that education and health outcomes are tightly intertwined, and success in school and the number of years of schooling impact health across the lifespan. People with more years of education are more likely to live longer, healthier lives. In general, this education-health link is one that seems to result from the overall amount of time in school rather than from any particular content area studied or the quality of education.³ Therefore, targeted investments in North Carolina public education have the potential to improve both academic performance of students and total years of schooling, which



There is mounting evidence that students who have nutritionally sound diets, are physically active ... avoid risk behaviors, have positive school connections ... have improved school attendance, behave better in class, and perform better on standardized tests.

^a The SBE identified five strategies to achieve the goal of producing students who are healthy and responsible. These include: “Every learning environment will be inviting, respectful, supportive, inclusive and flexible for student success. Every school provides an environment in which each child has positive, nurturing relationships with caring adults. Every school promotes a healthy, active lifestyle where students are encouraged to make responsible choices. Every school focuses on developing strong student character, personal responsibility and community/world involvement. Every school reflects a culture of learning that empowers and prepares students to be life-long learners.” (North Carolina State Board of Education. Future-Ready Schools: Preparing Students for the 21st Century (2004-2006 Biennial Report). North Carolina Department of Public Instruction website. <http://www.ncpublicschools.org/docs/stateboard/resources/reports/2004-06/biennial-report.pdf>. Accessed July 13, 2009.

In North Carolina, the statistics on educational attainment and achievement leave room for much improvement.

will not only be associated with a more educated workforce and the potential for enhanced economic development, but also improved long-term health outcomes.

In North Carolina, the statistics on educational attainment and achievement leave room for much improvement. Far too many adolescents (approximately 30%) are leaving high school without a diploma, which positions them for lower earning potential, increased risk for criminal activity, and poorer health as adults. The four-year cohort graduation rate for 2009, a measure of the percentage of students who began high school in 2005 that graduated four years later, was 71.7%. The numbers are even lower for minority and disadvantaged students.⁴ (See Table 5.1.) Students with limited English proficiency had the lowest graduation rate, with only slightly more than 50% graduating within four years; Latinos and Native Americans were among the minority groups with the lowest graduation rates, 59.0% and 59.9%, respectively. (See Table 5.1.) Nationally, North Carolina ranks 39th in the percentage of incoming ninth graders who graduate within four years (with first being the state with the highest four-year graduation rate).⁵

Education has an independent effect on health, with the relationship between higher educational achievement and better health outcomes persisting even after controlling for other socioeconomic factors.³ Educational achievement has also been linked to earning potential, with those who fail to graduate high school earning far less than those with college or post-graduate degrees.⁶ In 2008-2009, the average salary in North Carolina of individuals with a high school diploma or equivalent was 25% higher than the average salary of individuals

Table 5.1
Almost Thirty Percent of North Carolina High School Students Do Not Graduate in Four Years

Percentage of Students Graduating in Four Years	
All Students	71.7%
White	77.6%
African American	63.1%
Latino	59.0%
Native American	59.9%
Asian	83.7%
Two or More Races	71.3%
Economically Disadvantaged	61.8%
Limited English Proficiency	52.2%
Students with Disabilities	56.8%

Source: North Carolina Department of Public Instruction. 4-Year Cohort Graduation Rate Report: 2005-06 Entering 9th Graders Graduating in 2008-09 or Earlier. http://app.ncpublicschools.org/2009/app/cgrdisag/disag_result.php. Accessed September 24, 2009

with some high school but no diploma (\$29,858 vs. \$23,852, respectively).^b Average salary increases for each additional level of educational attainment: some college, \$35,274; bachelors, \$50,029; and graduate degree, \$65,354.^c Income has an independent impact on health; those with lower incomes generally have worse health outcomes than those with higher incomes.⁷ Thus, educational achievement can impact health directly or indirectly by influencing potential earnings.

North Carolina has a long way to go to ensure that more of our students graduate from high school, and, in turn, are healthier. Access to affordable, high quality health care is important when considering ways to improve the health of North Carolinians, but health care alone is not sufficient to improve long-term health. We must also focus on schools and education policies to improve the health of our state.⁷

Health Disparities Related to Years of Schooling

People who have completed more years of schooling generally have longer life expectancies and fewer chronic illnesses than those with fewer years of education. Studies have shown that there are significant differences in mortality rates across educational categories of both sexes and all races.⁸ White males with less than nine years of education can expect to die 10 years earlier, on average, than those who graduated high school. The impact of education is even greater for African American males; African American males with less than nine years of education die, on average, 16 years earlier than those who graduated high school.⁹ Adults who have not finished high school are also more likely to suffer from acute and chronic health conditions, including heart disease, hypertension, stroke, elevated cholesterol, emphysema, diabetes, asthma, and ulcers.^d In addition, people with more education are less likely to report functional limitations and are less likely to miss work due to disease.³

The differences in health by education also cross generations. For example, maternal education is strongly linked to infant and child health. Babies born to women who dropped out of high school are nearly twice as likely to die before their first birthday as those born to college graduates.⁷ More educated mothers are less likely to have low or very low birthweight babies, which is correlated with infant death within the first year of life. Children whose parents have not finished high school are over six times as likely to be in poor or fair health as children whose parents are college graduates.¹⁰

Education is also linked to a range of risk behaviors such as smoking, binge drinking, substance abuse, poor diet, low physical activity, early onset of sexual

People who have completed more years of schooling generally have longer life expectancies and fewer chronic illnesses than those with fewer years of education.

^b Those with less than a ninth grade education had an average salary of \$21,765.

^c North Carolina Institute of Medicine. Analysis of Annual Social and Economic Supplement of the Current Population Survey. Converted to annual equivalent based on average wage.

^d Cancer, for example, is one exception, possibly due to increased rates of reporting, screening, and diagnosis, or cancer survival. Physical and mental functioning are improved for those with more education, as they are less likely to self-report poor health, anxiety, or depression.

Schools play a vital role in helping young people achieve the competence, confidence, character, and connectedness that they require to succeed academically and later in life.

activity, teenage pregnancy, and criminal activity. Those with more years of schooling are less likely to smoke, drink excessively, be overweight or obese, or use illegal drugs. Education also shapes health by increasing protective behaviors, including preventive care, use of seat belts, and control of chronic conditions such as diabetes and hypertension. Moreover, the positive health results associated with increased years of education persist, even after controlling for income, family size, marital status, urban residence, race, Hispanic origin, and coverage by health insurance.³ Policies and programs that support improved educational outcomes for adolescents also have the potential to improve their health.

Strategies to Increase the Educational Attainment of North Carolina Youth

Providing high quality preschool and early childhood educational programs can help improve the likelihood for a positive academic experience. Studies have shown that students establish their trajectory for high school success or failure as early as third grade and that strong foundational skills in literacy and numeracy are essential for success in primary school and secondary school, where increased cognitive functioning is necessary to complete the academic workload.¹¹ However, because the focus of the Task Force was on adolescents, it did not explore early childhood education. Rather, the Task Force concentrated on strategies to improve educational and health outcomes for adolescents ages 10 to 20 years.

After the early years, an intensified focus on youth and adolescent development is essential for increasing school success for middle- and high-school students. During this stage of life, youth need to feel physically and psychologically safe, valued, useful, cared for, and spiritually grounded. Positive youth development programs are ones in which adults have sincere relationships with youth that give them the support, guidance, and monitoring they need as they mature. Adolescents benefit from programs that provide skills for improved decision making, as well as opportunities to contribute to their families, schools, and communities. Adolescents need to believe in themselves and their inherent value and place in the world. A sense of belonging and a meaningful connectedness to prosocial groups in their lives are crucial for their well-being.¹²

Schools play a vital role in helping young people achieve the competence, confidence, character, and connectedness that they require to succeed academically and later in life. Positive school climates that help build these life-enhancing skills will keep kids in school for longer periods of time. Connectedness to school, family, and community have been found to be powerful protective factors for increasing the likelihood of positive outcomes for youth, including staying in school, and its correlate, improved health. Therefore, youth development programs that promote school connectedness are very important for both academic success and long-term health.¹²

It is not surprising that students perform better on standardized tests if they have fewer absences, office referrals, and short- and long-term suspensions. There is a correlation between school crime and violence, suspensions and expulsions, and dropouts in North Carolina. Despite our knowledge of the implications of short- and long-term suspensions on school achievement, there are still too many students suspended during the year. In 2007-2008, there were 308,010 out-of-school short-term suspensions reported in the state (142,506 in grades 9-12). While the number of short-term suspensions declined slightly from the prior year, long-term suspensions (i.e. 11 days or more) increased by 10.3%.¹³ Evidence-based strategies that are effective at improving behavior and keeping children in school should be implemented to decrease suspensions and to increase achievement outcomes. Schools that have implemented Positive Behavior Support (PBS), ninth grade academies, alternative programs and schools, and innovative high school models such as early college programs (described more fully below) are seeing positive early results.¹³⁻¹⁵

Positive Behavior Support (PBS) is one example of an evidence-based, school-wide approach that has been shown to improve student behavior. PBS establishes, teaches, and reinforces clear behavioral expectations. Currently, more than 75% of counties in North Carolina have at least one school participating in the PBS initiative with staff in various stages of the three PBS training modules. Participating schools are collecting data on office discipline referrals, suspensions, and academic performance. These schools have shown a consistent decrease in suspensions over the past three years. PBS also has been associated with improved test scores, especially in schools where staff have been fully trained in the PBS curriculum and have implemented the program with fidelity.¹⁴

Other school districts are taking innovative action for positive educational outcomes by redesigning the traditional, comprehensive high school into smaller learning environments that foster closer adult-student relationships and real-world connections to student learning. These schools often use academic themes such as health sciences, engineering, and technology as a means of preparing students for college and any career they choose. Another example of high school innovation is the *Learn and Earn* Early College High School model. These high schools are located on two- and four- year university and college campuses, and students can graduate with both a high school diploma and transferable college credit.¹⁶ As of the 2009-2010 school year, there were 27 redesigned high schools and 69 Learn and Earn programs serving students in 73 of 115 school districts. These programs focus on attracting students who often are underrepresented in college: minorities, students from low-income families, and those whose parents never attended college. Many of these students are the first generation in their families to attend college.¹⁵

Evidence-based strategies that are effective at improving behavior and keeping children in school should be implemented to decrease suspensions and to increase achievement outcomes.

The first four-year cohorts of students from redesigned and innovative high schools are now beginning to graduate, and the early results are promising. The ninth grade promotion rate was higher in these schools, with more than two-thirds of innovative high schools having no 9th grade dropouts. The attendance rates in these high schools were also higher. Forty-eight percent of teachers in these schools strongly believe their school is a good place to work and learn, compared to 26 percent for the state. Additionally, six of the 10 early college high schools in the state exceeded their expected growth targets on the End-of-Course tests.^{e,15}

Research has shown that raising the compulsory attendance age while providing support services for students can help decrease the dropout rate in schools.

Our economy needs high school graduates who have the skills to enter the workforce, go to college, or some combination thereof. The compulsory school attendance age is 16 for most states in the country, but the laws mandating this age were enacted between 1870 and 1920, when society was more agrarian, the economy was vastly different, and only 15% of adolescents even attended high school. Many states are examining the educational and fiscal outcomes of raising the attendance age to 18, coupled with support for struggling students, as one strategy for decreasing the high school dropout crisis in this country.¹⁷ Research has shown that raising the compulsory attendance age while providing support services for students can help decrease the dropout rate in schools. If the compulsory attendance age is raised, additional resources may be necessary to provide the supplemental support services which students at risk of dropping out are likely to need. However, the short-term costs associated with an increase in student enrollment and the provision of extra support for students may be offset by a decrease in the long-term costs associated with high school dropouts.¹⁷

Given the importance of education on both immediate and long-term health and well-being, increasing the academic performance and educational attainment of North Carolinians is critical to positively influencing healthy life outcomes. Therefore, the Task Force recommends:

Recommendation 5.1: Increase the High School Graduation Rate (PRIORITY RECOMMENDATION)

- a) The North Carolina State Board of Education (SBE) and the North Carolina Department of Public Instruction (DPI) should expand efforts to support and further the academic achievement of middle and high school students with the goal of increasing the high school graduation rate. The SBE should implement evidence-based or best and promising policies, practices, and programs that will strengthen interagency collaboration (community partnerships), improve student attendance rates/decrease truancy, foster a student-supportive school culture and climate that promotes school connectedness, explore and implement customized learning options for students, and more fully engage

^e The End-of-Course results are from DPI 2006-2007 school year; promotion, attendance and teacher attitudes are from the 2005-2006 school year.

students in learning. Potential evidence-based or promising policies, practices, and programs might include, but are not limited to:

- 1) Learn and Earn partnerships between community colleges and high schools.
 - 2) District and school improvement interventions to help low-wealth or underachieving districts meet state proficiency standards.
 - 3) Alternative learning programs for students who have been suspended from school that will support continuous learning, behavior modifications, appropriate youth development, and increased school success.
 - 4) Expansion of the North Carolina Positive Behavior Support Initiative to include all schools in order to reduce short- and long-term suspensions and expulsions.
 - 5) Raising the compulsory school attendance age.
- b) The SBE should work with appropriate staff members in DPI, including curriculum and finance representatives, and staff from the North Carolina General Assembly (NCGA) Fiscal Research Division, to examine the experiences of other states and develop cost estimates for the implementation of the initiatives to increase the high school graduation rate. These cost estimates should be reported to the research division of the NCGA and the Education Oversight Committee by April 1, 2010 so that they can appropriate recurring funds.

Healthy School Environments Foster Adolescent Health

While the core mission of public education is academic achievement, schools can and must play an important role in positively shaping health behaviors in the state's youth. Healthy children and adolescents are better learners, and better learners are healthier people.¹⁸ The North Carolina Healthy Schools program promotes the union of health and learning within the public school setting by providing a state-level support structure for healthy North Carolina schools and students through a coordinated and integrated approach to health and achievement.¹⁹

Coordinated School Health Systems

The Centers for Disease Control and Prevention (CDC) has identified eight critical elements that should be included in a coordinated school health approach: health education, physical education, health services, nutrition services, mental and behavioral health services, healthy school environment, health promotion for staff, and family/community involvement.²⁰ The CDC awarded competitive

The CDC has identified eight critical elements that should be included in a coordinated school health approach: health education, physical education, health services, nutrition services, mental and behavioral health services, healthy school environment, health promotion for staff, and family/community involvement.

grants to 22 state education agencies, including the North Carolina Department of Public Instruction (DPI), to implement the coordinated school health approach.^{19,21} In North Carolina, the North Carolina Healthy Schools Partnership (NCHSP), a collaborative between DPI and the North Carolina Department of Health and Human Services (DHHS) Division of Public Health (DPH), is responsible for implementing the coordinated school health approach.^f Having staff members in the two state departments bolsters the cooperative working relationship between education and health personnel at both the state and local levels and provides the underpinnings of an integrated and interdepartmental approach to school health.²²

The goal of NCHSP is to improve the health and well-being of students and staff by implementing the coordinated school health approach. State staff in DPI and DPH work with schools to help them implement the eight components:

- *Comprehensive school health education:* Students receive age-appropriate health education and skills-building exercises annually, starting in kindergarten and continuing through eighth grade. Students also are expected to complete one unit of Healthful Living in high school. The North Carolina Healthful Living Standard Course of Study includes grade-level health objectives but does not mandate that schools use specific health curriculum.²³ The Healthful Living Standard Course of Study is described more fully below.
- *Physical education:*^g The CDC recommends that children receive a minimum of 60 minutes of moderate to vigorous physical activity^h each day. As part of the North Carolina Healthy Active Children Policy, students in kindergarten through eighth grades must participate in at least 30 minutes of physical activity at school daily.^{19,24} The state's physical activity requirement can be provided as part of more formalized physical education or can be incorporated into other classroom activities. The physical education requirements are described more fully below.

^f More information about the North Carolina Healthy Schools initiative is available at: <http://www.nhealthyschools.org/> (Accessed July 8, 2009).

^g Physical Education is a *curriculum (or a class)* that includes physical activity while physical activity is a *behavior*. Students need both physical education and physical activity to develop lifelong, active-living habits. Physical education is a curriculum or class taught by a qualified educator that teaches students the skills and knowledge needed to establish and sustain an active lifestyle and provides supervision in practicing those skills. (Ballard K, Caldwell D, Dunn C, Hardison A, Newkirk J, Sanderson M, Schneider L, Thaxton Vodicka S, Thomas C, *Move More, North Carolina's Recommended Standards For Physical Activity In School*. North Carolina DHHS, Division of Public Health, Raleigh, NC; 2005. <http://www.opi.state.nc.us/pdf/SchoolFood/Wellness/NCMoveMore.pdf>. Accessed August 27, 2009.)

^h Physical activity is defined as bodily movement of any type and may include time spent in classroom-based movement, recess, walking or biking to school, physical activity time during the physical education course, and recreational sport and play that occurs during, before, and after school. (Ballard K, Caldwell D, Dunn C, Hardison A, Newkirk J, Sanderson M, Schneider L, Thaxton Vodicka S, Thomas C, *Move More, North Carolina's Recommended Standards For Physical Activity In School*. North Carolina DHHS, Division of Public Health, Raleigh, NC; 2005. <http://www.opi.state.nc.us/pdf/SchoolFood/Wellness/NCMoveMore.pdf>. Accessed August 27, 2009.)

- *Nutrition services:* Schools should be providing nutritious meals and nutrition education to foster healthy eating behaviors. Meals provided through the National School Lunch Program and School Breakfast Program must meet the 1995 Dietary Guidelines for Americans.ⁱ In 2005, The North Carolina General Assembly required the SBE to adopt nutrition standards to ensure that *all* meals and snacks served in public schools are healthy.^j The SBE adopted nutrition standards, beginning with elementary schools, which are required to be implemented statewide by the end of the 2009-2010 school year. (See **Recommendation 10.2** for more information.)
- *School health services:* A coordinated school health approach should offer preventive and emergency services, as well as be able to manage acute or chronic health problems. School-based prevention and health promotion programs that have evidence of success and are well-implemented can have a positive influence on a diverse array of academic, social, and health outcomes.²⁵ Schools try to accomplish this goal in different ways. Many schools have school health nurses; a smaller number have school-based or school-linked health centers (SBLHC), which offer preventive, primary care, mental health, and substance use services to students.²⁶ (See **Recommendation 4.3** for more information.)
- *Counseling and psychological services:* In addition to physical health, many students need help with mental health, substance abuse, and other counseling or support services to succeed academically. To help meet these needs, the North Carolina General Assembly funds SBLHCs and School-Based Child and Family Support Teams (CFST). CFST are nurse-social worker teams that work with community partners in the local mental health agencies (i.e. Local Management Entities), departments of social services, health departments, and juvenile justice organizations to link students and their families to appropriate counseling, psychological, and other support services.²⁶ (See **Recommendation 4.3** for more information.)
- *Health promotion for staff:* School faculty and staff serve as role models for students. Thus, the coordinated school health approach provides assessments, education, and fitness activities to help faculty and staff pursue a healthy lifestyle.¹⁹
- *Healthy school environment:* To optimize health and well-being, schools must be safe and free from biological and chemical agents that could harm the health of the students and staff. In addition, schools must offer a healthy and supportive environment that promotes learning.

i More information on the Dietary Guidelines developed jointly by the US Department of Health and Human Services and the US Department of Agriculture is available online at <http://www.health.gov/DietaryGuidelines/>.

j NCGS §115C-264.3

The success of the coordinated school health approach is contingent, in part, on having broader support at the state and local level for effective school health programs, practices, and policies.

Providing an educational environment free from bullying is also one of the components of a coordinated school health approach. (See Chapter 10 for more information on bullying.)

- *Parent/community involvement:* Parents, family members, health care workers, the media, and other community organizations should work in partnership with schools to optimize student health, well-being, and educational achievement. When schools encourage parental involvement in the education of their children, there is a positive effect on the academic achievement, social behaviors, and school attachment of students.²⁷ Further, the involvement of other community partners helps maximize the resources available to improve the health and educational outcomes of students.

Research has shown that well-executed components of the coordinated school health approach, including programs for physical education/physical activity, nutrition services, health services, and mental health programs, have a positive effect on some academic outcomes.²⁸ The work of NCHSP in implementing the coordinated school health approach is critical to ensuring the health and well-being of North Carolina's students. Currently, NCHSP is funded by the CDC through February 2013. If North Carolina does not receive renewed funding for another five-year cycle from the CDC in 2013, then the North Carolina General Assembly should provide \$1.1 million^k in recurring funds beginning in SFY 2013 to support NCHSP.

State and Local Support for Coordinated School Health Approach

The success of the coordinated school health approach is contingent, in part, on having broader support at the state and local level for effective school health programs, practices, and policies. *At the state level*, the North Carolina School Health Forum (Forum) was created in 1998 to convene top-level leadership in DPI and DHHS, along with representatives of key division leaders, to discuss and maintain support for coordinated school health.^{l,m} The Forum has not met recently and should be reconvened to ensure continued support and implementation of the coordinated school health approach. In addition, NCHSP staff should be expanded to provide ongoing coaching, consultation, and technical assistance to more local schools to help with implementing a

^k \$1.1 million in funding would allow NCHSP to continue the implementation of the Youth Risk Behavior Survey and Profiles Survey, accountability measures that track youth health behaviors, and the implementation of effective, coordinated school health policies, programs, and practices. The funding would also support coordination among state agencies and organizations to provide quality technical assistance and training for local school systems to support both 21st Century school health systems and produce globally competitive students. (Reeve R. Personal Communication. Reeve, R. Senior Advisor for Healthy Schools, North Carolina Healthy Schools, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. October 15, 2009.)

^l The North Carolina School Health Forum is composed of leaders of DHHS and DPI as well as representatives from DHHS and DPI divisions. This group was not meeting while key positions were vacant but is expected to begin meeting again soon.

^m Gardner, D. Section Chief, North Carolina Healthy Schools, Department of Public Instruction. Oral communication. July 15, 2009.

coordinated school health approach. Trained and dedicated staff are needed at both the state and local level to implement coordinated school health systems effectively.²⁵

At the local level, the SBE mandated that each LEA establish and maintain a School Health Advisory Council (SHAC).ⁿ SHACs were created to provide advice to the school system in implementing the coordinated school health approach and in specifically monitoring the physical activity that students receive. SHACs also can help with program planning; parent and community involvement; advocacy to support coordinated school health systems; identifying and recruiting community organizations or providers to meet specific school health program needs; fiscal planning; and evaluation, accountability, and quality control. SHACs must be broadly representative of individual expertise in the eight coordinated school health areas, including personnel from local schools and public health.^{o,29}

In the past, many school districts (50 of 117 LEAs) had trained and certified school health coordinators.²⁹ These staff were dedicated to promoting school health and student wellness. Studies have documented that their presence is a strong and independent predictor of the use of evidence-based programs in schools.³⁰ Because they were not responsible for other curricula or administrative duties, coordinators could provide focused and sustained support to schools for wellness initiatives and health-related curriculum programs. However, over time, state funding that was used to support these positions was reallocated to other purposes. Today, while all 115 LEAs still have personnel responsible for the Healthful Living curriculum, these individuals also have other responsibilities.^p Most districts that choose to fund a school health coordinator do so with local dollars.^q

In order for school districts to effectively teach a health curriculum that has evidence of causing positive behavior changes in youth and to successfully integrate school health into the instructional and operational components of a school, there needs to be strong leadership and an infrastructure in place for administering funds, selecting evidence-based curricula, providing technical assistance for implementation, and monitoring for compliance and improvement.²⁵ Local healthy schools coordinators can help provide the infrastructure to meet these goals and assist local teachers and school administrators select and implement evidence-based health education curricula (described more fully below).

Local healthy schools coordinators can help ... local teachers and school administrators select and implement evidence-based health education curricula.

n North Carolina State Board of Education. GCS-S-00. Available at: <http://sbepolicy.dpi.state.nc.us> (accessed July 13, 2009).

o Information about School Health Advisory Councils is available at: <http://www.nhealthyschools.org/docs/schoolhealthadvisorycouncil/advisorycouncilsmanual.pdf> (Accessed July 8, 2009).

p Gardner, D. Section Chief, North Carolina Healthy Schools, Department of Public Instruction. Oral communication. July 15, 2009.

q Collins P. Senior Policy Advisor, Healthy Responsible Students, North Carolina State Board of Education. Written (email) communication. June 22, 2009.

In addition, local healthy school coordinators can support schools in collecting the data needed for the Youth Risk Behavior Survey (YRBS), School Health Profiles, and School Level Impact Measures.^r The National School Boards Association found in its review of 25 schools with exemplary school health programs that all schools had designated a central person to be the healthy schools coordinator.³¹ This may be a critical school district position for the successful infusion of healthier environments and evidence-based practices and policies in North Carolina public schools and thus improve both health and education outcomes.

To ensure the effective implementation of the coordinated school health approach, the Task Force recommends:

Recommendation 5.2: Enhance North Carolina Healthy Schools Partnership (PRIORITY RECOMMENDATION)

- a) The North Carolina School Health Forum should be reconvened to ensure implementation of the coordinated school health approach and expansion of the North Carolina Healthy Schools Partnership (NCHSP).
- b) The North Carolina School Health Forum should develop model policies in each of the eight components of a Coordinated School Health System. This would include reviewing and modifying existing policies as well as identifying additional school-level policies that could be adopted by schools to make them healthier environments for students. When available, evidence-based policies should be adopted. The North Carolina School Health Forum and NCHSP should develop a system to recognize schools that adopt and fully implement model policies in each of the eight components.
- c) The Department of Public Instruction (DPI) should expand the NCHSP to include a local healthy schools coordinator in each local education agency (LEA). The North Carolina General Assembly should appropriate \$1.64 million in recurring funds beginning in SFY 2011 increased by an additional \$1.64 million in recurring funds in each of the following six years (SFY 2012-2017) for a total of \$11.5 million^s recurring to support these positions.

^r The YRBS, School Health Profiles, and School Level Impact Measures are described more fully below. YRBS is a school-based survey conducted to assess “health risk behaviors that contribute to some of the leading causes of death and injury among children and adolescents.” (<http://www.dpi.state.nc.us/newsroom/news/2007-08/20080215-01>) School Health Profiles “is a system of surveys assessing school health policies and programs in states and large urban school districts.” (<http://www.cdc.gov/healthyYouth/profiles/index.htm>) School Level Impact Measures are “measures of the percentage of secondary schools in a jurisdiction that are implementing policies and practices recommended by CDC to address critical health problems faced by children and adolescents.” (http://www.cdc.gov/DASH/program_mgt/docs_pdfs/slimtips.pdf)

^s This level of funding (\$100,000 per LEA for 115 LEAs) would support one local healthy schools coordinator in each district as well as provide funding for travel, materials, and administrative support.

- 1) The North Carolina School Health Forum should identify criteria to prioritize funding to LEAs during the first five years. The criteria should include measures to identify LEAs with the greatest unmet adolescent health and educational needs.
 - 2) In order to qualify for state funding the LEA must show that new funds will supplement existing funds through the addition of a local healthy schools coordinator and will not supplant existing funds or positions. To maintain funding, the LEA must show progress towards implementing evidence-based programs, practices, and policies in the eight components of the Coordinated School Health System.
 - 3) Local healthy schools coordinators will work with the School Health Advisory Council (SHAC), schools, local health departments, primary care and mental health providers, and community groups in their LEA to increase the use of evidence-based practices, programs, and policies to provide a coordinated school health system and will work towards eliminating health disparities.
- d) The NCHSP should provide monitoring, evaluation, and technical assistance to the LEAs through the local healthy schools coordinators. The NCGA should appropriate \$225,000^t in recurring funds beginning in SFY 2011 to DPI to support the addition of three full-time employees to do this work. Staff would be responsible for:
- 1) Implementing the monitoring system (including gathering data, measuring compliance, and reporting to the State Board of Education) for the Healthy Active Children Policy.
 - 2) Implementing the monitoring system (including gathering data, measuring compliance, and reporting to the State Board of Education) for the Youth Risk Behavior Survey (YRBS) and School Health Profiles Survey (Profiles).^u
 - 3) Providing technical assistance and professional development to LEAs for coordinated school health system activities and implementing evidence-based programs and policies with fidelity.
 - 4) Implementing, analyzing, and disseminating the YRBS and Profiles survey, including reporting on school-level impact measures (SLIMs).

^t Each full-time employee estimated to cost \$75,000 in salary and benefits. The NC Healthy Schools Section believes that 3 staff members would be needed to handle the new responsibilities. Gardner, D. Section Chief, North Carolina Healthy Schools, Department of Public Instruction; and Reeve R. Senior Advisor for Healthy Schools, North Carolina Healthy Schools, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. October 15, 2009.)

^u Note: The School Health Profiles are the way to monitor whether LEAs are making progress on their Coordinated LEA Health Action Plan.

- 5) Working with the North Carolina PTA and other partners as appropriate to develop additional resources and education materials for parents of middle and high school students for the Parent Resources section of the NCHSP website. Materials should include information for parents on how to discuss material covered in the Healthful Living Standard Course of Study with their children as well as evidence-based family intervention strategies when available. Information on how to access the materials should be included in the Student Handbook.

The YRBS is a survey of middle school and high school students that monitors the behaviors that contribute to the leading causes of death (mortality) and disability or injury (morbidity).

Monitoring and Evaluating the Coordinated School Health Approach

As designed by the CDC, a critical component of the coordinated school health approach is ongoing collection, analysis, and interpretation of data to see how well the program is being implemented and to assess the prevalence of health risk behaviors among students. The CDC has developed the Youth Risk Behavior Survey (YRBS) to collect data on student risk behavior and the School Health Profiles Survey (Profiles) to collect data on school building level health policies and activities from surveys of principals and health educators. Data from these surveys can help schools plan and implement effective health strategies, policies, and programs that meet the needs of their community in order to improve health outcomes.³²

The YRBS is a survey of middle school and high school students that monitors the behaviors that contribute to the leading causes of death (mortality) and disability or injury (morbidity). The health behaviors monitored include tobacco use, unhealthy dietary behaviors, physical inactivity, alcohol and other drug use, mental health behaviors, and risk behaviors for unintentional injury and violence. The high school survey also assesses sexual behaviors that can lead to unintended pregnancy and sexually transmitted diseases. These behaviors often begin in early adolescence and can have immediate health-impairing effects, as well as effects that often continue into adulthood. The YRBS also tracks the prevalence of asthma, obesity, and the general health status of adolescents, so the results have widespread applications for public health.³²

The YRBS, which is conducted every two years at national, state, and local levels, provides health information about a representative sample of 6th-12th graders. The CDC identifies school districts to participate in the YRBS using a sampling framework that ensures the state results will include enough participants to generate results by age, grade, gender, race/ethnicity, and region.^v In order for a state to have results that are meaningful, most school districts that have schools selected must participate.³³ LEAs and schools have historically had the option of refusing to participate if selected. Unfortunately, in many years, the refusal rate

^v The survey design involves stratification of schools, randomly selecting schools within each stratum, and then random selection of students within the selected schools.

has been high enough to threaten the validity of statewide estimates derived from participating schools. In 1999 the YRBS was not successfully completed in North Carolina. Common reasons for declining to participate include the loss of instructional time and an increasing number of survey requests and the sensitivity of some survey questions.^w

While the YRBS is used to monitor student outcomes, the Profiles survey is designed to monitor school outcomes, such as health programs, practices, and policies. Profiles collects data from principals and lead health teachers every two years on eight coordinated school health components, including school health education requirements and content; physical education requirements; health services; nutrition-related policies and practices; family and community involvement in school health programs, school health policies on HIV and AIDS prevention, tobacco-use prevention, violence prevention, and physical activity; and professional preparation and staff development for lead health education teachers. The Profiles surveys are used by the NCHSP to monitor the school level impact of the coordinated school health approach at the school level. The school level impact measures (SLIMs) serve as accountability measures for coordinated school health efforts.

A critical connection between these two data systems is the ability to link school-level policies with student risk behavior at the state level. Profiles allow NCHSP to monitor changes in school policies and practices (short-term outcomes) that are critical to impacting student behaviors (long-term outcomes). In order to best inform state-level policy, the North Carolina State Board of Education needs to have sustained comprehensive and complete information on the linkages between local policy, local behavior, and outcomes. Therefore the Task Force recommends:

Recommendation 5.3: Actively Support the Youth Risk Behavior Survey and School Health Profiles Survey

The North Carolina State Board of Education (SBE) should support and promote the participation of Local Education Agencies (LEAs) in the Youth Risk Behavior Survey (YRBS) and the School Health Profiles Survey (Profiles). As part of this effort, the SBE should:

- a) **Identify strategies to improve participation in the YRBS and the Profiles survey. Options should include, but not be limited to, training for superintendents and local school boards, changing the time of year the survey(s) are administered, financial incentives, giving priority for grant funds to schools that participate, a legislative mandate, convening a clearinghouse to reduce duplicative surveys of youth risk behaviors and other school health surveys.**

^w Langer S. Physical Activity and Nutrition Branch, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. July 30, 2009.

- b) Expect any LEA randomly selected by the Centers for Disease Control and Prevention to participate in the YRBS and/or the Profiles survey to implement both surveys in their entirety unless a waiver to not participate is requested by the LEA and granted by the SBE.
- c) Develop policies addressing the ability of schools, parents, and students to opt out of the YRBS and Profiles surveys, over-sampling for district-level data, and any additional data that needs to be added to the surveys.

North Carolina schools are required to teach health education to students in kindergarten through ninth grade.

Effective Health Education and Physical Education in Schools Healthful Living Standard Course of Study

The SBE is charged with developing a comprehensive school health education program that includes instruction in health education and physical education. The SBE accomplishes this by establishing competency goals and objectives for health education and physical education in the *Healthful Living Standard Course of Study* (HLSCOS), the curriculum guide that includes content areas and skills to be taught in each grade level. It is reviewed, and revised as needed, every five years.^{x,34}

The HLSCOS identifies age-appropriate, health-related knowledge and skills for instruction that can help students develop healthy behaviors and active lifestyles. The SBE approves the HLSCOS, but decisions about the specific curriculum used to teach these objectives are made at the local level by school districts.

Health Education: North Carolina schools are required to teach health education to students in kindergarten through ninth grade.^y By statute, health education is required to include age-appropriate instruction covering mental and emotional health; drug and alcohol prevention; nutrition; dental health; environmental health; family living; consumer health; disease control; growth and development; first aid and emergency care; preventing sexually transmitted diseases; reproductive health and safety; and bicycle safety. The HLSCOS outlines which topics and objectives must be mastered by the end of each grade but does not specify the curricula to be used for instruction. While there are evidence-based curricula that have been shown to produce positive behavioral changes in school settings for some of the subject areas included in the SCOS, schools are not required to use these curricula.^{z,35} Nor are schools required to report on whether they have implemented evidence-based curricula in the HLSCOS. One study that examined the use of evidence-based substance abuse prevention curricula found that few North Carolina schools were using these curricula in 2004.³⁶

x More detailed information about the Healthful Living Standard Course of Study is available at: <http://www.ncpublicschools.org/docs/curriculum/healthfulliving/scos/2006healthfullivingscos.pdf>

y NCGS §115C-81(e1).

z Examples of evidence-based health education include: Making a Difference (covers HIV/STD/teen pregnancy prevention); Life Skills Training and Project TNT (covers drug/alcohol and tobacco prevention), and Second Step and Victims, Aggressors, and Bystanders (covers violence prevention).³⁵

Physical education:^{aa} Quality physical education programs provide the arena for schools' physical activity programming. The selection of an effective physical education curriculum is essential for teaching adolescents the skills, knowledge, confidence, and behaviors necessary to lead a physically healthy life.³⁷ Regular physical activity in adolescence can improve strength, endurance, and flexibility; build healthy muscles and bones; help maintain a healthy weight; alleviate stress and anxiety; improve mood and concentration; and may reduce high blood pressure and high cholesterol levels.³⁸ Studies also show that increased levels of physical activity coupled with an increased curricular focus on physical education are positively associated with students' academic achievement.^{39,40}

Using Evidence-Based Curricula to Teach Health Education and Physical Education

As noted in Chapter 3, evidence-based curricula often require an investment in time, money (to purchase the curricula if proprietary), and teacher training. It is difficult to meet the current yearly requirements in the HLSCOS and still have the time needed to dedicate to evidence-based programs. DPI is in the process of reviewing the HLSCOS and is examining ways to streamline the required annual curricula goals to provide the time which would be needed to implement evidence-based curricula. To the extent possible, the health education and physical education curricula used in North Carolina's middle and high schools should have evidence of effectiveness in increasing the adoption of health-promoting behaviors by adolescents. DPI can promote the use of evidence-based curricula by reviewing and selecting specific curricula that have been shown to be effective in increasing health-promoting behavioral changes in adolescents across multiple dimensions (e.g. violence prevention, teen pregnancy prevention, prevention of substance use, physical activity, nutrition) and by providing grants to local school systems to help them offset the additional costs of transitioning to or using these curricula. DPI should provide training and technical assistance to schools receiving grants to ensure that the curricula are being implemented with fidelity.

In addition to grants to implement specific evidence-based curricula, DPI can assist schools in selecting evidence-based curricula by helping train schools in the use of the Health Education Curriculum Analysis Tool (HECAT)^{ab} and Physical Education Curriculum Analysis Tool (PECAT).^{ac} The CDC developed the HECAT

The selection of an effective physical education curriculum is essential for teaching adolescents the skills, knowledge, confidence, and behaviors necessary to lead a physically healthy life.

aa For information on the difference between physical education and physical activity, see footnote g.

ab The HECAT is based on the National Health Education Standards and the CDC's Characteristics of Effective Health Education Curricula. These standards and characteristics have been identified based on reviews of effective programs and curricula and inputs from experts in the field of health education. (Centers for Disease Control and Prevention, US Department of Health and Human services. Health Education Curriculum Analysis Tool (HECAT). <http://www.cdc.gov/healthyyouth/hecat/index.htm>. Accessed June 16, 2009.)

ac The PECAT is designed, based on national physical education standards, to provide the structure for a complete, clear, and consistent review of a written physical education curriculum and to help districts develop new curricula, enhance current curricula, or select a published curriculum, as well as to strengthen the delivery of physical education instruction. (Centers for Disease Control and Prevention, US Department of Health and Human Services. Physical education curriculum analysis tool. Atlanta, GA. <http://www.cdc.gov/HealthyYouth/PECAT/pdf/PECAT.pdf>. Published 2006. Accessed June 16, 2009.)

To the extent possible, the health education and physical education curricula used in North Carolina's middle and high schools should have evidence of effectiveness in increasing the adoption of health-promoting behaviors by adolescents.

and PECAT for school systems to help them identify effective health education and physical education curricula that meet the needs of their communities. The HECAT and PECAT contain guidance and analysis tools to improve curriculum selection, strengthen health and physical education instruction, and improve the ability of Healthful Living educators to have a positive effect on health behaviors and healthy outcomes in adolescents.^{ad}

The effective teaching of an evidence-based Healthful Living curriculum by fully-certified teachers has great potential to improve the health and well-being of the state's adolescents. However, the teaching of Healthful Living is often given less attention in North Carolina public schools because it is not a subject in which students are tested.³⁵ The Task Force supports DPI's Accountability and Curriculum Reform Effort (ACRE) to address learning standards, student tests, and school accountability for all courses in the standard course of study, including Healthful Living.

Healthful Living Education Requirements

The CDC recommends that all children in grades K-12 receive quality physical education instruction every day.³⁷ National organizations, including the American Heart Association, the American Cancer Society, the American Diabetes Association, the National Association for Sport and Physical Education, the National Association of State Boards of Education (NASBE), the CDC, and the Institute of Medicine of the National Academies, recommend 225 minutes per week of physical education for students in middle school and high school with at least 50 percent of class time spent in moderate to vigorous physical activity. North Carolina's current requirements fall far short of this recommendation.

Currently, SBE policy requires 30 minutes of moderate to vigorous physical *activity* daily for elementary and middle-school students (K-8). SBE policy encourages middle schools to move towards 225 minutes weekly of Healthful Living^{ae} with certified health and physical education teachers.^{af} In order to fulfill the requirements for high school graduation, students must take one unit of Healthful Living, which includes both health education and physical education. It is important for the health of our state's adolescents that students spend adequate amounts of time in quality physical education programs that have research-based results for positive behavior change. By addressing the quality, quantity, and intensity of

^{ad} These tools can greatly assist the curriculum committees or educators at the school district level by being used in conjunction with the NC Standard Course of Study as a framework for the development of new or improved courses of study and learning objectives. The resources can also help in the selection of curricula for purchase and in the scrutiny of curriculum currently in use. At the state level, the HECAT and PECAT could assist DPI staff in the development of a list of recommended health and physical education curricula for LEAs to use in selecting their curricula. (Centers for Disease Control and Prevention, US Department of Health and Human Services. Physical education curriculum analysis tool. Atlanta, GA. <http://www.cdc.gov/HealthyYouth/PECAT/pdf/PECAT.pdf>. Published 2006. Accessed June 16, 2009.)

^{ae} The recommendation for 225 minutes of Healthful Living would provide 112 minutes of health education and 112 minutes of physical education weekly. It would not provide 225 minutes of physical education each week.

^{af} HSP-S-000.

health education and physical education, policymakers will maximize children's potential for a lifetime of physical activity, health, and wellness.⁴¹

North Carolina's high school students are required to take one unit of Healthful Living to graduate, which students typically take in ninth grade.¹⁹ Although the teenage years are formative in developing life-long health habits, most students do not take additional health education classes after they complete their required unit of healthful living. This creates the scenario in which access to health education in schools diminishes when adolescents' participation in risk behaviors is steadily increasing. The state should expand the high school graduation requirements to require two units of healthful living (including health education and physical education) because the knowledge and skills gained are likely to impact both immediate and long-term health. To meet the diverse needs of students, and to encourage students to take additional healthful living credits, healthful living electives, beyond those currently offered, should be developed. These courses should provide more in-depth coverage of healthful living standard course of study objectives, such as nutrition, biomechanics and exercise physiology, sports medicine, strength training, and stress management. Courses should be offered to meet the needs of all students, including those taking honors level courses. Such courses could be taught in traditional classrooms or through distance learning.

To ensure that students receive the high quality health education and physical education needed to give them the knowledge and skills to adopt and maintain healthy behaviors and active lifestyles, the Task Force recommends:

Recommendation 5.4: Revise the Healthful Living Standard Course of Study

- a) The North Carolina General Assembly (NCGA) should require schools to use evidence-based curricula when available to teach the objectives of the Healthful Living Standard Course of Study.
- b) The NCGA should appropriate \$1.15 million^{ag} in recurring funding beginning in SFY 2011 to the North Carolina Department of Public Instruction (DPI) to provide grants to Local Education Agencies (LEAs) to implement evidence-based curricula. To implement this provision, the North Carolina Healthy Schools Partnership (NCHSP) should identify 3-5 evidence-based curricula that demonstrate positive change in behavior across multiple health risk behaviors (i.e. substance use, violence, sexual activity) and provide grants (of up to \$10,000 per LEA) for implementation and technical assistance to ensure curricula are implemented with fidelity.

^{ag} \$1.15 million in funding would provide \$10,000 per local education agency to support the adoption of evidence-based curricula. Typically there are training and materials costs to adopting evidence-based curricula.

- c) The State Board of Education (SBE) and DPI should work together to ensure that middle and high schools are effectively teaching the Healthful Living standard course of study objectives.
 - 1) The NCHSP should coordinate trainings^{ah} for local school health professionals on the Centers for Disease Control and Prevention’s Health Education Curriculum Assessment Tool (HECAT) and the Physical Education Curriculum Assessment Tool (PECAT) so that they are able to assess and evaluate health and physical education programs and curricula.
 - 2) SBE should require every LEA to complete the HECAT and PECAT for middle and high schools every 3 years beginning in 2013 and submit them to the North Carolina Healthy Schools Section. The Superintendent should ensure the involvement of the Healthful Living Coordinator and the School Health Advisory Council.
 - 3) Tools to assess the implementation of health education should be developed as part of the DPI’s Accountability and Curriculum Reform Effort (ACRE).
- d) The NCGA should require SBE to implement a five-year phase-in requirement of 225 minutes of weekly “Healthful Living” in middle schools and 2 units of “Healthful Living” as a graduation requirement for high schools. The new requirements should require equal time for health and physical education. SBE shall be required to annually report to the Joint Legislative Education Oversight Committee regarding implementation of the physical education and health education programs and the Healthy Active Children Policy. SBE should work with appropriate staff members in DPI, including curriculum and finance representatives, and NCGA fiscal research staff, to examine the experiences of other states and develop cost estimates for the five-year phase-in, which will be reported to the research division of the NCGA and the Joint Legislative Education Oversight Committee by April 1, 2010.
- e) The SBE should encourage DPI to develop healthful living electives beyond the required courses, including, but not limited to, academically rigorous honors-level courses. Courses should provide more in-depth coverage of Healthful Living Course of Study Objectives. DPI and health partners should identify potential courses and help schools identify evidence-based curricula to teach Healthful Living electives.

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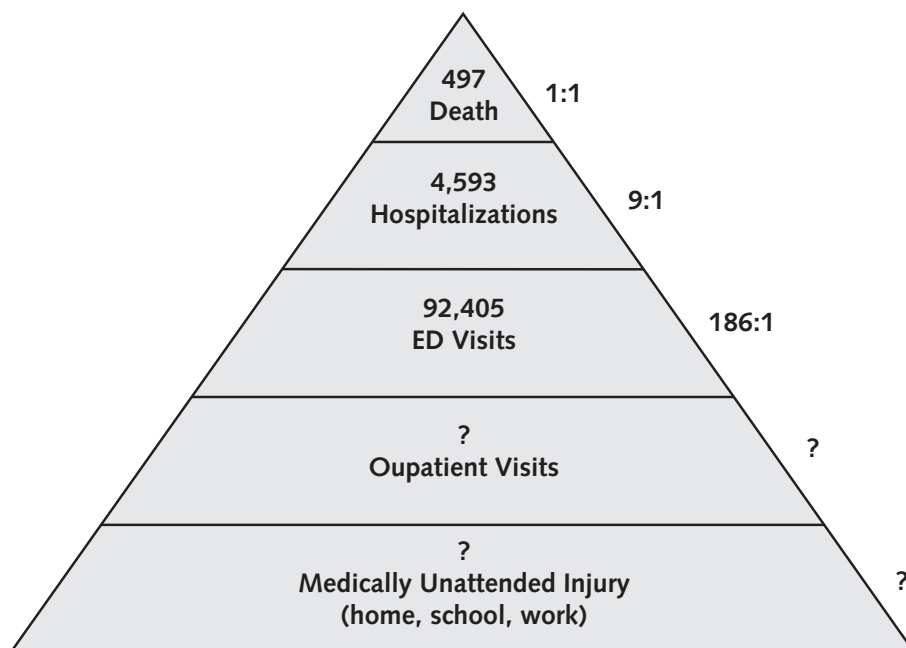


Unintentional injuries,^a the leading cause of death for North Carolinians ages 10-20, are a serious threat to the health and safety of adolescents.¹ Twice as many North Carolinians ages 10-20 die from unintentional injuries than all other causes combined.² Motor vehicle crashes are the most common cause of unintentional injuries suffered by adolescents in North Carolina. In addition to motor vehicle crashes, a large number of adolescents are injured as a result of being cut, struck, or falling. A significant number of cuts, falls, or other injuries are the result of participation in athletic programs.³ In order to reduce the number of unintentional injuries among adolescents in North Carolina, the Task Force developed recommendations focused on motor vehicle crashes and sports-related injuries.

Most adolescents do not die from unintentional injuries. For every adolescent death that occurred in North Carolina in 2006 as a result of unintentional injury, there were 9 hospitalizations, 186 emergency department (ED) visits, an unknown number of outpatient visits, and an unknown number of people who did not seek medical attention.⁴ (See Figure 6.1 and **Recommendation 8.1**.) The total amount of hospital charges resulting from these injuries in 2005-2006 was more than \$223 million.⁴

Unintentional injuries, the leading cause of death for North Carolinians ages 10-20, are a serious threat to the health and safety of adolescents.

Figure 6.1
Injury Pyramid, Youth Ages 10-20 Years, North Carolina, 2006



Source: Russell, VC. State of the State: Adolescent Injury. Presented to the North Carolina Institute of Medicine Task Force on Adolescent Health; July 11, 2008; Morrisville, NC.

^a Unintentional injuries are defined as injuries judged to have occurred without anyone intending that harm be done.

Motor Vehicle Crashes

Motor vehicle crashes are the leading cause of death for adolescents in North Carolina, as well as a major cause of non-fatal injuries.⁴ In 2006, 205 youth ages 10-20 years died in motor vehicle crashes, representing almost half of all deaths for this age group. Motor vehicle injuries represented the number one cause of injury-related hospitalizations in North Carolina in 2006 for those ages 10-20 years.^b

Many strategies have been shown to reduce the number of motor vehicle crashes among adolescents, including creating a graduated driver's licensing (GDL) system, requiring seat belt use for all seating positions, passing primary seat belt laws (which allow law enforcement to pull someone over for not wearing a seatbelt), having high visibility enforcement of existing traffic laws, and having a zero blood alcohol concentration (BAC) limit for adolescents.⁵ North Carolina has already adopted and seen positive results with these policies and is regarded as a national leader in this area.

GDL is one example of a successful accident reduction strategy being used in North Carolina. New drivers are particularly vulnerable to crashes during the first year of driving and have dramatically fewer crashes for each additional month they have been licensed. GDL is especially effective because it requires that new drivers under age 18 be accompanied by more experienced drivers during the most vulnerable period of their driving lifetime—the first 12 months.^{c,5} Since the implementation of GDL in 1997, there has been a 38% reduction in the population-adjusted crash rate ratio for 16-year-old drivers. Research shows that the benefits of GDL extend to new drivers of any age.⁵

Despite already being a national leader in implementing evidence-based strategies to minimize the rate of motor vehicle crashes in adolescents, North Carolina can make even more progress. Additional strategies to reduce the youth motor vehicle crash rate include redeveloping driver education to more effectively train new drivers and better involve parents, and improving the use of driving while impaired (DWI) checkpoints throughout the state. Although the latter addresses the entire driving population, it would have particular benefits for young drivers.

Driver Education

North Carolina is one of the few states in the country that still fully funds driver education in high schools.⁵ In North Carolina successful completion of a driver education course is required to obtain a learner's permit or provisional license if the applicant is less than 18-years-old.^d North Carolina offers driver

Despite already being a national leader in implementing evidence-based strategies to minimize the rate of motor vehicle crashes in adolescents, North Carolina can make even more progress.

b Proescholdbell S. Head, Injury Epidemiology and Surveillance Unit, Injury and Violence Prevention Branch, Chronic Disease and Injury Section, NC Division of Public Health. Written (email) communication, September 23, 2009.

c NCGS § 20-11

d NCGS § 20-11.

education free of charge to any student enrolled in school in North Carolina.^e Driver education in schools must consist of at least six hours of instruction and six hours of actual driving experience. Although driver education does help train new drivers, research shows that these programs do not reduce young driver's crash rates.^{6,7} Many researchers argue that such programs are geared too much towards teaching skills and are not focused enough on providing driving experience. Current driver education programs also do not provide parents with a clear way to become involved in the driving education of their children.⁵

Although the current model for training new drivers—which focuses heavily on standard didactic, classroom-style education—may not be effective, there is presently no clear evidence about how to design a more effective model. North Carolina has a unique opportunity to be a pioneer in this area because it is one of a few states that provides full funding for driver education programs in schools.^f The North Carolina Department of Transportation (DOT) receives \$34 million to support driver education in high schools. The North Carolina General Assembly directed the North Carolina Department of Transportation (DOT) to conduct a continuation review of the driver education program as part of the FY 2010 state budget.^g The review requires the DOT to make recommendations for changes needed to “improve efficiency and effectiveness of services delivered to the public.”^h As part of the continuation review, the DOT should consider new models to deliver driver education. The General Assembly should provide continuation funding to pilot and evaluate new driver education programs. The driver education pilots should also include strategies to involve parents in the education of their children. If a revised approach to driver education is determined to be effective for reducing crash risk among youth, it should then be implemented across the state. The Task Force recommends:

The DOT should consider new models to deliver driver education.

Recommendation 6.1: Improve Driver Education

The North Carolina General Assembly should continue funding driver education through the North Carolina Department of Transportation (DOT). The DOT should work to improve the comprehensive training program for young drivers. The revised driver education program should include the following components:

- a) **The Governor's Highway Safety Program (GHSP) should work with the Center for the Study of Young Drivers at the University of North Carolina (and other appropriate groups) to conduct research to determine effective strategies for enhancing the quality of driver training and to develop pilot programs to**

^e Individuals may also take driver education at a local professional state-approved driver training program. (NCGS § 20-11).

^f Foss, R. Director, Center for the Study of Young Drivers, UNC Highway Safety Research Center. Written (email) communication. July 14, 2009. www.ncdot.org/dmv/driver_services/graduatedlicensing/requirements.htm

^g Historically, the North Carolina General Assembly has allocated approximately \$34 million to the Department of Transportation in recurring funds to support driver education. In the 2009 session, the North Carolina General Assembly eliminated recurring funds for driver education, replacing it with one-time funding of \$34 million pending the results of the continuation review. (The Joint Conference Committee Report on the Continuation, Expansion and Capital Budgets. K28 of Senate Bill 202. North Carolina General Assembly 2009 Session. August 3, 2009.)

^h Sec. 6.6E.(c)(6) of Session Law 2009-451

improve driver education. The GHSP should work with the Department of Public Instruction to implement a large-scale trial of the program through the current driver education system in public schools. Any program developed should include materials to involve parents appropriately and effectively in young driver training. Materials should help educate parents as to what types of information, skills, and knowledge are critical to effectively teach their adolescents to drive.

- b) The DOT should fund an independent evaluation of the pilot projects. Evaluation should include collecting data on the driving records of those exposed to the program and those exposed to traditional driver education. If the pilot programs are shown to be successful, they should be expanded statewide.

More than one-quarter (28%) of drivers ages 15-20 years who were killed in a motor vehicle crash had been drinking.

Reducing Driving While Impaired (DWI)

More than 16,000 people in the United States died in alcohol-related motor vehicle crashes in 2005, representing 39% of traffic related deaths. More than one-quarter (28%) of drivers ages 15-20 years who were killed in a motor vehicle crash had been drinking. Young drivers who have been drinking are less likely to use seat belts, which greatly increases the severity of injuries resulting from crashes. Seventy-four percent of young drivers who had been drinking and killed in motor vehicle crashes were unrestrained.⁸ In North Carolina, 25% of high school students report having ridden during the previous 30 days in a vehicle driven by someone who had been drinking alcohol, and 9% reported that they had driven a vehicle one or more times in the past 30 days when they had been drinking alcohol. Similarly, 27% of middle school students report having ridden in the car in the past 30 days with someone who had been drinking alcohol.⁹ Implementing strategies which successfully reduce the number of drivers of any age who drive while impaired would have a significant impact on reducing alcohol-related deaths and injuries among adolescents, both as drivers and as passengers. Research into motor vehicle deaths of children younger than 15 shows that in many alcohol crash cases where children younger than 15 are killed, the child's driver (either their own parent or other adult) was the drinker.¹⁰ North Carolina has already implemented one of the more effective approaches, a zero tolerance law for drivers younger than age 21.

Another strategy shown to limit the number of people who drive while impaired is the effective use of regular, well-publicized, and highly-visible sobriety checking stations, also known as sobriety checkpoints. In North Carolina, the Forensic Tests for Alcohol Branch in the Division of Public Health administers the state's Breath Alcohol Testing (BAT) Mobile Unit Program in conjunction with law enforcement agencies throughout the state.¹ As one of the North

ⁱ Currently, the Forensic Tests for Alcohol Branch is supported by part of the administrative fee that individuals with DWI convictions pay for license restoration. The current fee is \$100, with \$50 going to the general funds, \$25 to the county, and \$25 to the Forensic Tests for Alcohol Branch BAT program within the Division of Public Health.

Carolina Governor's Highway Safety Program initiatives, the *Booze It & Lose It* campaign includes checking stations as well as publicity to reduce drunk driving.

These checkpoints are generally of short-term duration and concentrated during holiday weekends and holiday seasons. The campaign has resulted in nearly 102,000 DWI arrests since 2001.

Studies show that checking stations are most effective at reducing motor vehicle crashes when the goal is *deterrence* rather than *arrests*. That is, although checking stations not only result in the apprehension of alcohol-impaired drivers, more importantly they have the potential to deter many more individuals from driving after drinking.¹¹ The key to having an effective sobriety checkpoint program is to have ongoing, highly-publicized checking stations during a variety of times and in undisclosed locations throughout the year. The wide publicity needs to be backed up with enough enforcement to make such publicity credible. Such a system maintains a sense of uncertainty among drivers about when they could encounter a sobriety checkpoint, thereby reducing the number of individuals who drive after drinking. North Carolina's current *Booze It & Lose It* campaign and use of DWI sobriety checking stations is not as effective as it could be in reducing fatal crashes or changing individual long-term behavior. Despite the large number of arrests made for impaired driving, the rate of alcohol-related crashes and fatalities have changed little. To be more effective, the campaign must be sustained, well-publicized, and occur at a variety of times during the year in undisclosed locations.⁵ Therefore, the Task Force recommends:

The key to having an effective sobriety checkpoint program is to have ongoing, highly-publicized checking stations during a variety of times and in undisclosed locations throughout the year.

Recommendation 6.2: Strengthen Driving While Intoxicated (DWI) Prevention Efforts

- a) All North Carolina state and local law enforcement agencies with traffic responsibilities should actively enforce DWI laws throughout the year and should conduct highly-publicized checking stations. State and local law enforcement agencies should report at the beginning of each biennium their efforts to increase enforcement of DWI to the North Carolina House and Senate Appropriations Subcommittees on Justice and Public Safety.
- b) The North Carolina General Assembly should increase the reinstatement fee for DWI offenders by \$25. Funds from the increased DWI fees should be used to support DWI programs, including training, maintenance of checking station vehicles and equipment, expanding the operation of DWI checking stations to additional locations and times, and expanding dissemination of the existing *Booze It & Lose It* campaign.

- c) The North Carolina General Assembly should appropriate \$750,000^j in recurring funding beginning in SFY 2011 to the North Carolina Division of Public Health to work with the Governor's Highway Safety Program, the UNC Highway Safety Research Center, and other appropriate groups to improve the effectiveness of checking stations and to develop and implement an evidence-based dissemination plan for the existing *Booze It & Lose It* campaign. The plan should focus on reaching adolescents and young adults.

Participation in sports and recreational activities is an important part of a healthy lifestyle for adolescents but is also a potential source of injury.

Sports and Recreation Injuries

Participation in sports and recreational activities is an important part of a healthy lifestyle for adolescents but is also a potential source of injury. To truly improve the health of youth ages 10-20, there needs to be promotion of both increased activity and injury prevention. Although participation in sports is linked to reduced rates of obesity and obesity-related diseases, improved self-image and self-esteem, and improved social and team-building skills, adolescents cannot participate if they are injured. Also, injury has been found to be the single greatest reason adults ages 20-84 years stop exercising. Preventing injury for adolescent athletes therefore can have a positive impact throughout the rest of their lives.¹²

In North Carolina, more than 123,000 people visit an ED for sports and recreational activities per year, of whom slightly more than half (66,000) are younger than age 18. The sports with the most injuries are football, boy's and girl's soccer, and boy's basketball. Each of these sports has a rate of injury in North Carolina of between 2 to 4 injuries per 1,000 games/practices.¹³ There are approximately 175,500 high school athletes in North Carolina, two-thirds of whom play more than one sport. These athletes experience over 10,000 injuries per year, with an average injury risk per sport of 1-in-20 per season, or 1-in-5 over four years. In addition, many youth are involved in sports outside of school and almost all youth engage in physical recreation activities such as walking, biking, swimming, skateboarding, dancing, water skiing, hiking, horseback riding, and rock climbing. While these activities all have health benefits, they also place youth at risk for injury. Other recreational activities that are less physically demanding, such as cooking, riding all-terrain vehicles (ATVs), boating, and going on amusement rides, also pose risks.

Although it is impossible to prevent all accidents from occurring, many sports- and recreation-related injuries are preventable. There are many evidence-based strategies for reducing specific sports-related injuries such as improving warm-up and training programs, requiring the use of safety gear such as mouth guards,

^j The North Carolina Department of Transportation estimates it would cost \$750,000 to improve the effectiveness of checking stations and to develop and implement an evidence-based dissemination plan for the existing *Booze It & Lose It* campaign. (Nail D. Assistant Director, Governor's Highway Safety Program, North Carolina Department of Transportation. Written (email) communication. June 12, 2009.)

and doing more to accurately assess injuries when they occur. For example, there are an estimated 3,000 anterior cruciate ligament (ACL) tears in North

Carolina each year. This is a particularly difficult injury to recover from, often requiring surgery and intense rehabilitation. Approximately 80% of people with ACL tears develop osteoarthritis within 15 years of their injury. However, well-designed warm-up and training programs can reduce ACL injury for adolescents by 90%, as well as prevent 50% of other knee or ankle injuries.^{12,14,15}

Another problematic injury is mild traumatic brain injury or concussion. Prompt recognition and management of concussion is important to ensuring that adolescents do not suffer the severe neurologic consequences associated with repeat concussion that have been observed in collegiate and professional athletes.^{16,17} There is a need for increased education and awareness among parents, coaches, and athletes of the nature and management of sports-related concussions.¹⁸ Likewise, there are evidence-based strategies to reduce the risk of recreational injuries, such as wearing protective gear (e.g. a helmet when biking, skateboarding, in-line skating, or riding a scooter or ATV); following proper safety precautions (e.g. having lifejackets on hand when boating); and being aware of one's surroundings when walking, running, and engaging in other activities near traffic.¹⁹

Each sport has its own unique risks as well as a number of proven approaches to reduce injuries. However, rather than focus on specific types of injuries from specific sports, the Task Force focused on prevention strategies that will have a broad impact and reduce risk for those participating in a variety of sports and recreational activities. Although there are many effective strategies to prevent injury for a number of sports, there is currently no definitive source of information for school and community sports administrators and coaches to refer to when implementing policies to prevent injury. In addition to the need for the promotion of model policies, there is also a need for injury prevention training. Coaches, athletes, and parents need to be educated on potential injuries associated with each sport, as well as how to reduce the risk of these injuries.

In order to enhance the role of injury prevention educators across the state, the Task Force recommends:

Recommendation 6.3: Fund Injury Prevention Educators

- a) **The University of North Carolina Injury Prevention Research Center should hire three full-time employees for the dissemination of evidence-based injury prevention programs and policies to schools and youth sports clubs across the state. Staff would:**

Although it is impossible to prevent all accidents from occurring, many sports- and recreation-related injuries are preventable.

- 1) Train coaches and other youth athletic staff/volunteers and employees of local Parks and Recreation Departments on how to implement evidence-based programs proven to reduce youth sports and recreation injuries, such as those developed by staff at the University of North Carolina Injury Prevention Research Center.
 - 2) Develop and distribute materials targeting parents to increase awareness of the frequency of sports and recreation injuries and to provide information on how to prevent the most common sports and recreation injuries.
 - 3) Implement injury prevention programs in schools and youth sports leagues and monitor compliance.
- b) The North Carolina General Assembly should appropriate \$300,000^k in recurring funds beginning in SFY 2011 to support this effort.

^k The UNC Injury Prevention Research Center estimates it would cost \$300,000 in salary and benefits to support three full-time employees for the dissemination of evidence-based injury prevention programs and policies to schools and youth sports clubs across the state..

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Reducing Substance Use and Improving Mental Health for Adolescents and Young Adults

Chapter 7



Adolescence is a unique developmental period that most youth successfully navigate without significant psychological, social, or health problems. However, adolescence is also the period when threats to mental and physical health increase and lifelong mental health problems begin or emerge.¹ Many adolescents experience difficulty with emotional and behavioral regulation at some level, which has led to the popular mischaracterization of adolescence as a time of “storm and stress.” In fact, these challenges are normal and most youth are able to successfully adapt. However, some youth do develop serious problems. Youth who are unable to successfully regulate their emotions and behaviors may develop mental disorders or health conditions characterized by alterations in thinking, mood, behavior, which are associated with distress and impaired functioning (e.g. depression, anxiety, eating disorders, alcohol and drug abuse and dependence, conduct disorders).^{2,3}

Experimentation with drugs or alcohol, by itself, is not considered a mental health “disorder.” Nonetheless, adolescents can sustain injury and death associated with experimentation, and experimentation can lead to more significant problems if it becomes more regular. While occasional use of these substances is not considered a mental health disorder, alcohol and drug abuse and dependence are considered mental health disorders. Nonetheless, substance use, abuse, and dependence are usually discussed as problems separate from other mental health disorders. The Centers for Disease Control and Prevention combines improving mental health and reducing substance use under one health objective.⁴ This is because mental health and substance use are very closely related; nearly one in three adults with a mental disorder has a co-occurring substance use disorder; likewise, 40-50% of adults with an alcohol or drug disorder has a co-occurring mental disorder. Co-occurring mental and substance disorders are also seen in youth, particularly in boys with conduct disorder problems.⁴ For these reasons, the Task Force chose to focus on substance use, abuse, and dependence and mental health as related, but distinct issues during adolescence. The Task Force studied conduct disorders (e.g. aggression, violence, delinquency), which typically begin during childhood or adolescence, in more depth in another chapter. (See Chapter 8.)

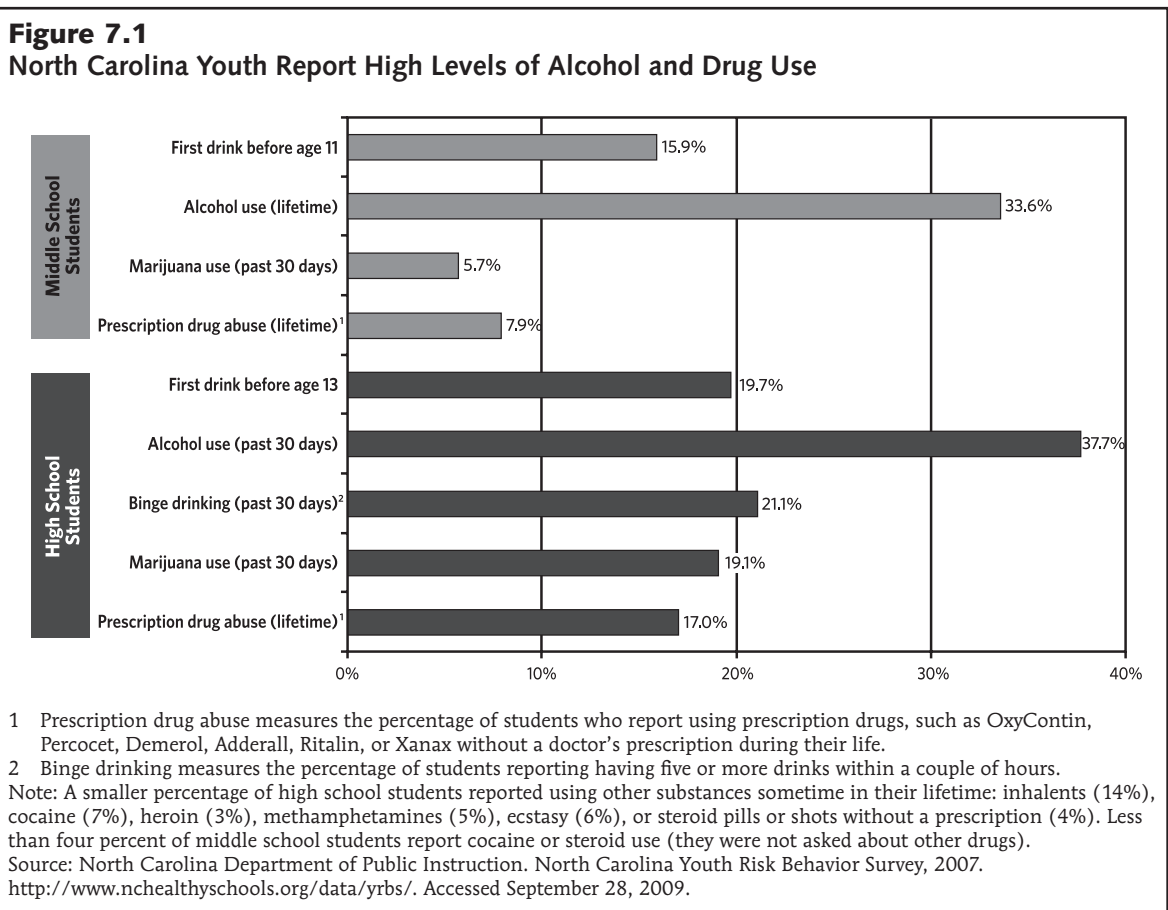
Alcohol and Drug Use and Abuse

Nationally, the use of drugs and alcohol is highest among adolescents and young adults, with drug use peaking for young people ages 18-22, and alcohol use peaking once they reach the age where drinking becomes legal (ages 21-24).⁵

Adolescence is the period when threats to mental and physical health increase and lifelong mental health problems begin or emerge.

While drinking and use of illicit drugs, or misuse of prescription drugs,^a is most common among older adolescents and young adults, the use of illicit drugs and alcohol is prevalent at earlier ages. (See Figure 7.1.)

A wealth of research has found that boys are generally more likely to report alcohol and substance use than girls. Research also finds substantial difference in substance use by race and ethnicity. Generally Asian adolescents are least likely to use alcohol and other drugs, followed by African Americans, Hispanics, whites, and American Indians.^b It is important to note, however, that these patterns vary by other factors such as the particular substance considered, age, and national origin.⁶⁻⁸



a Throughout this chapter, misuse of prescription drugs, as characterized by taking a dose other than the prescribed amount or taking prescription drugs prescribed for someone else, is included in the terms “illicit drugs” and “other drugs.” Misuse of prescription drugs is an understudied problem that has entered the spotlight in recent years. Data on youth use of individual types of prescription drugs, including sedatives, tranquilizers, amphetamines, and steroids have shown declines in recent years, while use of narcotics other than heroin is at near peak historic levels (in particularly Vicodin and OxyContin). Misuse of over-the-counter cough and cold medicines has only recently begun to be measured. (Johnston, LD, O’Malley, PM, Bachman, JG, & Schulenberg, JE. (2009). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2008* (NIH Publication No. 09-7401). Bethesda, MD: National Institute on Drug Abuse.)

b While some of these differences can be seen in the North Carolina Youth Risk Behavior Survey data, the sample size for some populations is too small to allow for meaningful analysis by race/ethnicity.

Approximately 6.8% of adolescents ages 12-17 in North Carolina reported alcohol or illicit drug dependence or abuse in 2006-2007, with 4.2% reporting alcohol dependence or abuse, and 4.3% reporting illicit drug dependence or abuse.^c Young adults ages 18-25 are more likely to report alcohol or drug misuse or dependence. Overall, 19.7% of young adults (ages 18-25) in North Carolina reported dependence or abuse of drugs or alcohol, with 15.2% reporting alcohol abuse or dependence, and 8.6% reporting illicit drug use or dependence. In contrast, less than 6% of adults age 26 or older report dependence or abuse of alcohol or drugs.⁹

Consequences of Early and Prolonged Use of Alcohol and Other Drugs

The use, and misuse, of drugs and alcohol while young can have serious, long-term physiological consequences. Research has shown that repeated exposure to drugs or alcohol alters the brain chemistry.¹⁰ This change in brain chemistry makes it more difficult for individuals to make reasoned decisions about future drug use. Children and adolescents are particularly susceptible to changes in brain chemistry, as the brain does not fully develop until around age 25. There is a strong correlation between addiction and the year in which the individual first began using alcohol or drugs. Among adults who first used alcohol at age 14 or younger, 14.7% reported alcohol abuse or dependence in the past year. This compares to only 2.2% of those who reported first drinking at age 21 or older.⁵ Similarly, 12.9% of the adults who first tried marijuana at age 14 or younger reported illicit drug dependence or abuse, compared to only 2.7% of adults who first used marijuana at age 18 or older. Not only can the early use and misuse of alcohol and drugs lead to later abuse and addiction, but repeated use has also been shown to affect learning and memory, which can lead to poorer performance in school. Use of alcohol or other drugs is strongly linked to other risky behaviors (as discussed in Chapter 2).

Not only does the misuse and dependence on alcohol and other drugs have negative consequences for the individual and his or her family, there are also much broader societal implications. Other negative consequences of underage drinking include violence, high-risk sexual activity, injury, and property crime. In 2005, underage drinking cost North Carolina more than \$1.2 billion (or \$1,705 per youth annually).¹¹ In addition, 42% of youth in North Carolina's juvenile justice system had substance abuse issues that warranted further assessment or treatment.¹² In North Carolina, approximately 20% of all motor vehicle fatalities involving drivers ages 16-19 involved alcohol in 2007.¹³ This increases to more than 35% of all motor vehicle deaths for drivers who are 22 or 23.¹⁴

The use, and misuse, of drugs and alcohol while young can have serious, long-term physiological consequences. Research has shown that repeated exposure to drugs or alcohol alters the brain chemistry.

^c Abuse refers to the misuse of alcohol or drugs (usually in terms of frequency or quantity), which increases the person's risk of adverse outcomes as a result of injuries, motor vehicle accidents, family problems, loss of a job, sexual assault, or other medical conditions. Dependence or addiction is an emotional or physiological dependence on alcohol or drugs that interferes with an individual's ability to control his or her consumption despite serious consequences.

The mental and emotional well-being of adolescents is an important indicator of success in school and the transition to adulthood.

Addiction is a Chronic Illness

Historically, people have viewed addiction as a moral failure and have stigmatized individuals who are not easily “cured” of their addiction.¹⁰ However, more recent research on the brain and on the physiological responses to the use of drugs or alcohol upon people with addiction disorders has helped us recognize that addiction is a chronic disease with no complete cure.¹⁵ There is a strong genetic predisposition to addiction, with genetics accounting for 50%-70% of the risk of addiction.¹⁰ This is similar to the underlying genetic inheritability of asthma, diabetes, and hypertension. As with other chronic illnesses, people with substance abuse disorders have similar treatment adherence and relapse rates. Like other chronic illnesses, addiction can never be completely cured. However, it can be managed so that the individual can live with the underlying addiction disorder while minimizing or eliminating substance use and the adverse medical and societal consequences from that use; this may be particularly true among adolescence with early recognition and treatment.¹⁵

Mental Health

The mental and emotional well-being of adolescents is an important indicator of success in school and the transition to adulthood. Available data on the mental health status of adolescents in North Carolina can be difficult to access and interpret because there is no uniform system for data collection. Even more importantly, the definition of mental illness can vary dramatically across data sources. The Surgeon General defines mental illness as disorders that are “characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning,” such as depression and attention deficit hyperactivity disorder (ADHD), both of which can cause individual behavioral changes.¹⁶ Mental health problems in adolescents refers to the range of diagnosable emotional, behavioral, and mental disorders, including depression, ADHD, anxiety, and eating and behavioral disorders. Serious emotional disturbances (SED) in adolescents are defined as any one of the above disorders “that severely disrupts their daily functioning in the home, school, or community.” National data show that at least one in five children and adolescents have a mental disorder, and at least one in ten have a serious emotional disturbance.¹⁷ When the mental health problems of adolescents go untreated, they pose a large burden on families and on society at-large in terms of disability, cost of treatment, and general distress. Further, if there are long delays in treatment, adolescents can experience more severe episodes that are harder to treat, and these disorders are more likely to continue into adulthood.¹⁸

The estimates of the number of adolescents and young adults in North Carolina with mental health problems vary depending on what conditions are being counted and how the research is conducted. Almost one in four middle school students (23%), 27% of high school students, and 33% of young adults aged 18-25 self-report mild or moderate depression, defined as feeling so sad or depressed for two or more weeks in a row during the past year that it interfered with

normal activities.^{8,19} However, the percentage of adolescents and young adults with clinically diagnosable depression or psychological distress is much lower. The North Carolina Department of Health and Human Services estimates that 10%-12% of children ages 9-17 suffer from SED.²⁰ Additionally, approximately 17%-18% of young adults age 18-25 report feelings that meet the definition for serious psychological distress.^{d,21} Even fewer (7%-8%) have had at least one major depressive episode in the past year.²¹

Consequences of Mental Health Problems During Adolescence

Youth with better mental health are physically healthier and they exhibit more pro-social behavior, improved academic achievement in school, and engage in fewer behaviors that put their health at risk. Conversely, adolescents with symptoms of mental illness are more likely to have academic or social problems in school, be expelled or suspended, become pregnant during adolescence, be convicted of a crime, experiment with alcohol and illegal substances, and commit suicide.¹⁸ Of additional concern is that half of all serious adult psychiatric illnesses start by age 14, and by age 25, three-quarters of them are present. Even so, the majority of mental illness in adolescents goes unrecognized or untreated, leaving youth vulnerable to diminished school success and to social and behavioral impairments during this critical phase of development in their lives.²²

Research has repeatedly demonstrated that the mental and emotional well-being of students is an important contributor to academic success.²³ When the mental health needs of school-aged adolescents are not met, the following are likely:

- Decreased test scores
- Increased achievement gap between white and minority students
- Increased retention, suspension, and dropout rates
- Lowered school attendance
- Increased discipline problems in the classroom, which can also have a negative impact on teacher retention

Additionally, more than half of children with behavioral and/or emotional disorders are at risk of dropping out of high school, and only 42% of those remaining will graduate with a high school diploma.²⁴

The mental health statistics for adolescents in North Carolina provide a strong rationale for improved, widespread mental health prevention, screening and treatment among teenagers so that mood disorders, alcohol or substance abuse, ADHD, anxiety, eating disorders, disruptive behaviors, and primary risk factors for

The majority of mental illness in adolescents goes unrecognized or untreated, leaving youth vulnerable to diminished school success and to social and behavioral impairments during this critical phase of development in their lives.

d Serious psychological distress is defined as having a score of 13 or higher on the K6 scale. The K6 scale consists of six questions about symptoms of emotional distress experienced by respondents during one month in the prior year at a time when they were feeling their worst emotionally. The scale ranges from 0 to 24 points.

Prevention efforts should be targeted to delay initiation or reduce substance use among youth and young adults [and] to reduce stress, depression, and feelings of isolation among adolescents and young adults.

suicide can be identified and treated, which will help create a more positive health trajectory into adulthood for these youth. Most medical experts agree that teenagers need to get regular physical checkups, even though the chance of serious physical illness is low in this age group. In light of the fact that the chance of a mental illness can be as high as 20%, these check-ups provide important opportunities for mental health screening. The Task Force specifically recommended that adolescents receive annual high quality well visits which would include psychosocial screening and specific screening for depression. (See **Recommendation 4.1.**)

North Carolina’s Current Substance Use and Mental Health System

In North Carolina the Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) is the lead agency responsible for coordinating substance abuse prevention, treatment, and recovery supports. DMHDDSAS is also responsible for ensuring that the mental health needs of children and adolescents are being met. DMHDDSAS works closely with Local Management Entities (LMEs), which are agencies of local government charged with managing the provision of mental health, developmental disability, and substance abuse services at the local level.

Prevention

Prevention efforts should be targeted to delay initiation or reduce substance use among youth and young adults. This is particularly important, as the longer that youth delay initiation and the less frequently they engage in these risky behaviors, the lower the likelihood of substance abuse and addiction. Prevention efforts should be multifaceted, with strategies that target all youth and young adults (universal), those at increased risk (selective), and those adolescents and young adults who have started to use or misuse alcohol and other drugs (indicated).¹⁵ In addition, prevention strategies are needed to reduce stress, depression, and feelings of isolation among adolescents and young adults.

There are three primary avenues to provide substance abuse prevention services to adolescents and young adults—through schools, community-based strategies, and public policy approaches. Within each, there are evidence-based programs, policies, and interventions that have been effective in delaying or reducing substance use among youth and young adults. Many of these initiatives have also demonstrated other positive impacts, such as improved mental health, reduced violence, and improved school performance.^{e,f,25}

^e See Appendix B for information on evidence-based program databases.

^f Examples of substance abuse prevention initiatives with other demonstrated positive impacts include: Positive Action, a replicated school-based program that has shown to have positive effects on behavior and academic achievement (http://ies.ed.gov/ncee/wwc/reports/character_education/pa/effectiveness.asp), Family Behavior Therapy, an outpatient program shown to reduce use and initiation of alcohol and drug use and depression (http://www.nrepp.samhsa.gov/programfulldetails.asp?PROGRAM_ID=73), Guiding Good Choices, a school-based initiative shown to reduce initiation of substance use and aid in reducing/preventing delinquency and symptoms of depression (http://www.nrepp.samhsa.gov/programfulldetails.asp?PROGRAM_ID=123), and Life Skills Training, a school-based program designed to reduce substance use, violence, and delinquency (http://www.nrepp.samhsa.gov/programfulldetails.asp?PROGRAM_ID=230).

Elementary, Middle, Secondary, and Post-Secondary Schools

At the elementary, middle, and high school levels, local education agencies (LEAs) have a responsibility for providing substance abuse and mental health education as part of the Healthful Living Standard Course of Study (described more fully in Chapter 5).^g

While evidence-based substance abuse prevention curricula do exist, a review of North Carolina school districts found that only 24% of districts commonly use evidence-based substance use prevention curricula.²⁶ Similarly, there are some evidence-based suicide prevention strategies for schools, however, these are not widely used in North Carolina schools.^h Evidence-based prevention programs typically include social skills or competency-based curricula with a cognitive-behavioral focus, which are interactive in design.²⁵ Generally, these evidence-based programs take more time to implement than do the traditional content covered during the Healthful Living Standard Course of Study, which is part of the reason so few schools implement these programs.²⁷

In addition to including substance abuse prevention and emotional and mental health as subjects in the Healthful Living Standard Course of Study, DPI receives federal money that can be used to support substance abuse and mental health prevention and treatment through the Safe and Drug-Free Schools and Communities funds. These funds can be used to support substance abuse prevention and/or treatment programs, mental health services, violence prevention, counseling and referral for students at risk of violent behavior, and to purchase security equipment or other services that help promote a positive learning environment.¹⁵

Post-secondary educational institutions are also required to implement substance abuse prevention programs to prevent unlawful use of drugs or alcohol on campus. Further, community colleges, colleges, and universities must prepare and release annual crime data, including information on the number of students who were arrested or disciplined due to the use of illegal drugs or alcohol. However, data suggest that past efforts have not been very effective in reducing heavy drinking or illicit drug use among college age students. More work is needed to implement evidence-based prevention strategies for adolescents and young adults of all ages. Therefore the Task Force recommends:

DPI receives federal money that can be used to support substance abuse and mental health prevention and treatment ... Post-secondary educational institutions are also required to implement substance abuse prevention programs to prevent unlawful use of drugs or alcohol on campus.

^g The Healthful Living Standard Course of Study objectives change in each year. For example, in sixth grade, the objectives include understanding tobacco and alcohol advertising and how it is used to try to influence behavior, examining the immediate and long-term consequences of tobacco use and secondhand smoke, and demonstrating the skills needed to refuse alcohol and other drugs. In seventh grade, students are supposed to learn the health risks associated with intravenous drug use, the addictive nature of tobacco, the nature of drug dependence and addiction, and how substance abuse can lead to serious health risks. More information on the Healthful Living Standard Course of Study and Grade Level Competencies for all grades is available online at <http://www.dpi.state.nc.us/docs/curriculum/healthfulliving/scos/2006healthfullivingcos.pdf>.

^h The North Carolina Department of Public Instruction does not keep a list of the various suicide prevention programs used. Current information suggests that evidence-based suicide prevention strategies are not widely used in North Carolina schools (Miller J. Injury and Violence Prevention Branch, North Carolina Department of Health and Human Services. Oral Communication, May 27, 2009).

Recommendation 7.1: Review Substance Use and Mental Health Prevention and Services in Educational Settings

- a) The North Carolina General Assembly should direct the State Board of Education, Office of Non-Public Education, North Carolina Community College System, and University of North Carolina System to review their existing substance abuse and mental health prevention plans, programs, and policies, as well as the availability of substance abuse and mental health screening and treatment services, in order to ensure that these educational institutions offer comprehensive substance abuse and mental health prevention, early intervention, and treatment services to students enrolled in their schools. These institutions should submit a description of their prevention plans, programs, and policies; procedures for early identification of students with substance abuse or mental health problems; and information on screening, treatment, and referral services to the Education Cabinet, Joint Legislative Oversight Committee on Mental Health, Developmental Disabilities, and Substance Abuse Services, the Appropriations Subcommittee on Education, and Education Committees upon the convening of the legislative session every other year beginning in 2011.

- b) The Department of Public Instruction, North Carolina Community College System, and University of North Carolina system should coordinate their prevention efforts with the other prevention activities led by the Division of Mental Health, Developmental Disabilities, and Substance Abuse Services to ensure the development of consistent messages and optimization of prevention efforts. Prevention efforts should employ evidence-based programs that focus on intervening early and at each stage of development with age-appropriate strategies to reduce risk factors and strengthen protective factors before problems develop.

Prevention of Youth Suicide in North Carolina

In North Carolina, suicide is the fourth leading cause of death among adolescents and young adults ages 15-24, accounting for 117 deaths in 2007.²⁸ More adolescents die from suicide than from cancer, heart disease, AIDS, stroke, influenza, and pneumonia combined.²⁹ In North Carolina, 12.5% of high school students reported seriously considering attempting suicide during the past year, and 13.3% report actually attempting suicide in the past year.⁸ In 2008, 23.5% of young adults aged 18-25 in North Carolina reported being in a mental health state that was not good, including symptoms of depression, stress, and problems with emotions on three or more days of the past month, all of which can be considered risk factors for suicide.³⁰

Addressing the problem of suicide among adolescents and young adults in North Carolina requires increased public awareness of suicide and its risk factors; the development of screening and intervention programs; encouragement of further research related to suicide; and the creation of interagency partnerships involved in suicide prevention and mental health care.³¹ In order to address these issues, the North Carolina Department of Health and Human Services, Division of Public Health, Injury and Violence Prevention Branch convened the Youth Suicide Prevention Task Force (YSPTF). Through the collaborative work of agencies, organizations, and individuals with diverse roles and perspectives, the YSPTF developed a plan to prevent youth suicide called *Saving Tomorrows Today: the North Carolina Plan to Prevent Youth Suicide*. The plan lays out a framework of goals and objectives for focused and strategic state and community action around the reduction of the number of youth who attempt or complete suicide. The six goals are the following:

- Promote awareness that suicide is a public health problem that can be prevented.
- Develop and implement community-based suicide prevention programs.
- Promote efforts to decrease access to firearms and other means of self-harm.
- Implement training for recognition of at-risk behaviors and delivery of effective treatments.
- Increase access to mental health and substance abuse services.
- Improve and expand surveillance systems.²⁹

In 2008, the Injury and Violence Prevention Branch received a Federal Garrett Lee Smith Suicide Prevention Grant of \$1.3 million to be used over a three year period. The DPH and DPI are currently in year one of the grant and are collaborating to implement a communications campaign, suicide prevention training and curriculum in ten public schools, and community-based suicide prevention training programs. During the next two years of the grant, the project leaders will work with the North Carolina School Health Training Center to deliver “train the trainer” workshops (ASIST Training for Trainers and safeTALK Training for Trainers) with a subsequent evaluation by the UNC Injury Prevention Research Center to achieve some of the goals of the Youth Suicide Prevention Task Force. Full implementation of the *Saving Tomorrows Today: the North Carolina Plan to Prevent Youth Suicide* will require an ongoing commitment and allocation of resource to sustain the benefits of this work.³² Therefore the Task Force recommends:

In North Carolina, suicide is the fourth leading cause of death among adolescents and young adults ages 15-24, accounting for 117 deaths in 2007.

Recommendation 7.2: Support the North Carolina Youth Suicide Prevention Plan

The North Carolina Youth Suicide Prevention Task Force along with the Division of Public Health's Injury and Violence Prevention Branch should implement the recommendations in *Saving Tomorrows Today: the North Carolina Plan to Prevent Youth Suicide*. The North Carolina General Assembly should appropriate \$112,500ⁱ in recurring funds beginning in SFY 2011 to the Division of Public Health's Injury and Violence Prevention Branch for 1.5 full-time employees to support this effort.

Community-Based Approaches

DMHDDSAS has two sources of funds to support community-based prevention efforts, federal funds and state funds. The US Substance Abuse and Mental Health Services Administration (SAMHSA) provides funding to DMHDDSAS through the Substance Abuse Prevention Treatment Block Grant (SAPT). DMHDDSAS channels these funds through the LMEs. These funds are supposed to be used to support need assessments and to implement evidence-based prevention programs, practices, and policies.¹⁵ However, LMEs are not uniformly implementing effective prevention efforts targeting youth and young adults. In addition to the federal funds, the North Carolina General Assembly also appropriated \$800,000 over two years (SFY 2006-2007) to support local substance abuse coalitions.²⁵ These funds were used to build community capacity in eight communities to implement evidence-based prevention strategies. Despite these different funding sources, few communities have implemented comprehensive substance abuse prevention programs targeted to youth and young adults. DMHDDSAS estimates that only about 42,000 of the more than 275,000 youth who were in need of prevention services because of early use or specific risk factors, actually received prevention services in SFY 2007. To encourage the development of more comprehensive prevention plans, the Task Force recommends:

Recommendation 7.3: Develop and Implement a Comprehensive Substance Abuse Prevention Plan

- a) The North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should develop a comprehensive substance abuse prevention plan for use at the state and local levels. The plan should increase the capacity at the state level and within local communities to implement a comprehensive substance abuse prevention system, prioritizing efforts to reach children, adolescents, young adults, and their parents. The goal of the prevention plan is to prevent or delay the onset of use of alcohol,

ⁱ The Injury and Violence Prevention Branch estimates it would cost \$112,500 in salary and benefits to support the one 1.5 full-time employees needed to oversee implementation of the recommendations in *Saving Tomorrows Today: the North Carolina Plan to Prevent Youth Suicide*.

tobacco, or other drugs, reduce the use of addictive substances among users, identify those who need treatment, and help them obtain services earlier in the disease process.

- 1) The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services should pilot test this prevention plan in six counties or multicounty areas and evaluate its effectiveness. DMHDDSAS should develop a competitive process and select at least one rural pilot and one urban pilot in the three DMHDDSAS regions across the state. DMHDDSAS should provide technical assistance to the selected communities. If effective, the prevention plans should be implemented statewide.
 - 2) The pilot projects should involve multiple community partners, including but not limited to, Local Management Entities, primary care providers, health departments, local education agencies (LEAs), 2- and 4-year colleges, universities, and other appropriate groups.
 - 3) The pilots should incorporate evidence-based programs, policies, and practices that include a mix of strategies including universal and selected populations. Priority should be given to evidence-based programs that have been demonstrated to yield positive impacts on multiple outcomes, including but not limited to preventing or reducing substance use, improving emotional well-being, reducing youth violence or delinquency, and reducing teen pregnancy.
- b) The North Carolina General Assembly should appropriate \$1.95 million in SFY 2010 and \$3.72 million in SFY 2011 in recurring funds to the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services to support and evaluate these efforts.^j

Public Policies

Many of the Task Force recommendations have broad policy implications, either for new appropriations, or changes to state regulations or policies (including changes to State Board of Education policies). In addition, there are also legislative changes that can promote prevention activities, including raising the tax on tobacco (see Chapter 10) or alcohol, as well as maintaining the current drinking age of 21.

Similar to research on tobacco taxes (see Chapter 10), research has shown that youth are price sensitive to changes in the costs of alcohol. Increasing the tax on alcohol, particularly malt beverages, would help augment other efforts to

^j The appropriation requests were developed by the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services as part of the North Carolina Institute of Medicine Task Force on Substance Abuse Services.

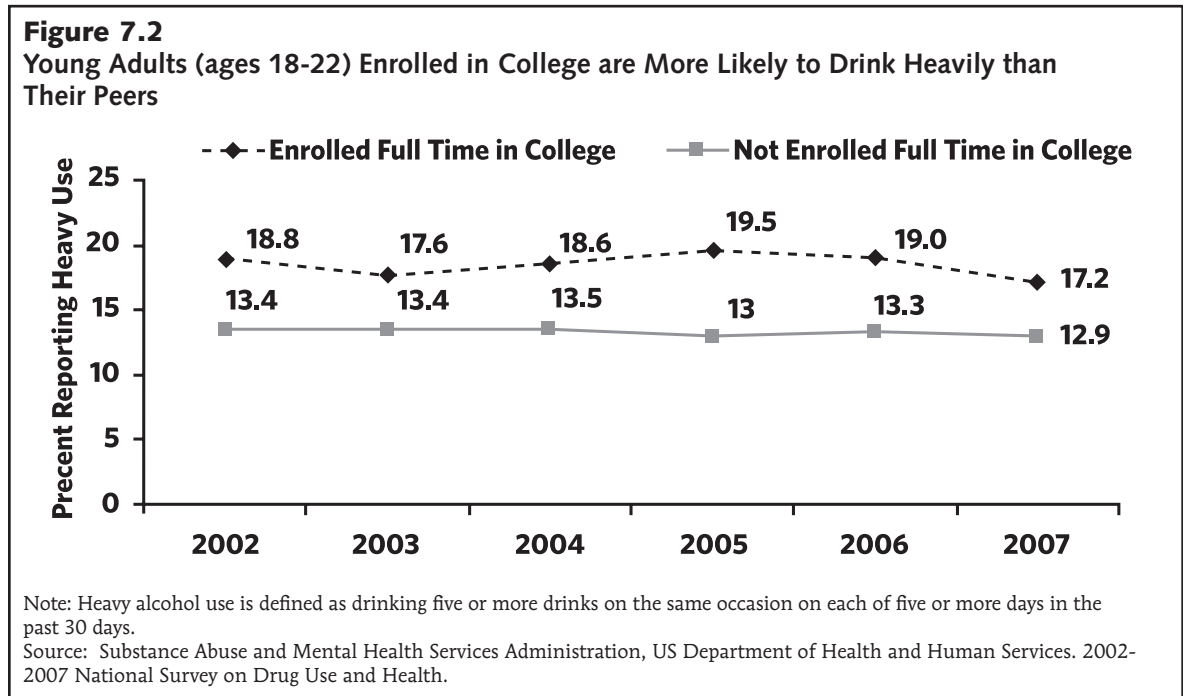
reduce youth drinking. Increasing beer or alcohol taxes leads to a reduction in youth consumption.³³ Increasing these taxes can also help raise revenues which could be used for substance abuse prevention and treatment programs. After the inception of the Task Force’s work, the North Carolina General Assembly (NCGA) increased the taxes on alcohol products, effective September 1, 2009.^k This increase is expected to raise approximately \$20.4 million in new revenues.³⁴

To further support efforts to reduce youth drinking, the Task Force recommends:

Recommendation 7.4: Increase Alcohol Taxes

The North Carolina General Assembly should index excise taxes on malt beverages and wine to the consumer price index so they can keep pace with inflation. The increased fees should be used to fund effective prevention and treatment efforts for alcohol, tobacco, and other drugs.

Underage drinking is particularly problematic on college campuses. National research has shown that underage drinking is prevalent on college campuses, with a higher proportion of college students drinking than those of the same age who are not enrolled on campus.



^k Since the inception of the Task Force’s work, the North Carolina General Assembly (NCGA) increased the taxes on alcohol products, effective September 1, 2009. The beer tax was increased by 16%, from 53.177¢ to 61.71¢ per gallon. The NCGA increased the tax on unfortified wine increase by 25% (from 21¢ to 26.34¢ per liter), and the tax on fortified wine by 22% (from 24¢ to 29.34¢ per liter). In addition, the NCGA increased the tax on distilled liquor by 20% (from 25% to 30% excise tax on the distiller’s price plus the state ABC warehouse freight and bailment charges and markup for local ABC boards). Section 27A.4 of Session Law 200-451, amending NCGS §105-113.80.

The Task Force considered the recent suggestion by some college presidents to begin a debate about whether to lower the legal drinking age.¹ However, lowering the drinking age has been shown to have adverse impacts both on the use of alcohol among college age students and on motor vehicle fatalities. Studies show the motor vehicle fatalities increased by an average of 10% when the minimum legal drinking age was lowered to 18, and that they declined by 16% when the drinking age was increased to 21.^{35,36} Further, while drinking among college students is still prevalent, drinking rates have declined since the minimum legal drinking age was increased to 21.^{37,38}

Although the Task Force members were generally supportive of new ideas to prepare young adults to make responsible choices about alcohol use, the Task Force members did not support lowering the minimum drinking age. Therefore, the Task Force recommends:

Recommendation 7.5: Drinking Age Remain 21

The North Carolina General Assembly should not lower the minimum drinking age below age 21.

Early Recognition and Intervention

The cornerstone of North Carolina's efforts to reduce inappropriate use, abuse, and dependence on alcohol and other drugs should be prevention. Similarly, we need to invest more in promoting a sense of connectedness and well-being among our youth, so that we reduce depression, stress, and feelings of isolation. However, no prevention activity will totally eliminate all use of alcohol or other drugs, or feelings of isolation, depression, or stress. Thus, it is important to combine prevention with early recognition and intervention activities.

Primary care practices are an optimal place to provide early recognition and intervention services. Regular screening of adolescents as part of routine health care, and of adolescents seen with injuries, provide important opportunities to identify adolescents who are using alcohol and other drugs, assess level of use, and provide appropriate intervention or referral. Many people with substance abuse or mental health problems are reluctant to admit they have a problem and thus are unlikely to seek care directly from treatment professionals. Even those who know they have a problem may not seek care because of the stigma attached to this condition.^{39,16} Additionally, the cost of specialized treatment services is prohibitive for some people, and, until recently, most insurers did not

No prevention activity will totally eliminate all use of alcohol or other drugs, or feelings of isolation, depression, or stress. Thus, it is important to combine prevention with early recognition and intervention activities.

¹ To date, 135 college presidents and chancellors, including the President of Duke University, signed the Amethyst Initiative statement. This statement calls on elected officials to begin a dispassionate debate on the effects of the 21 year-old drinking age and to invite new ideas about the best ways to prepare young adults to make responsible decisions about alcohol. The initiative details and list of all the signatories are available at: <http://www.amethystinitiative.org/statement/>.

While many people with behavioral health problems are reluctant to seek care from substance abuse or mental health treatment professionals, most people do seek care from primary care providers throughout the year.

provide the same coverage for mental health and substance abuse services as it did for physical and other health problems.^m

While many people with behavioral health problems are reluctant to seek care from substance abuse or mental health treatment professionals, most people do seek care from primary care providers throughout the year. In North Carolina, 76.5% of the parents of 14-17 year olds report that their child had a well-child or preventive service check-up in the past year.⁴⁰

There is a substantial body of literature that documents the efficacy of early recognition and intervention efforts to reduce use of tobacco, alcohol, and other drugs. In particular the SBIRT programⁿ—screening, brief intervention, and referral into treatment has been studied for more than 20 years in different settings and with different populations.⁴¹ This program has been shown to be effective for both adolescents and adults in reducing the use of tobacco, alcohol, and other illicit drugs.⁴² Primary care providers who treat adolescents and young adults should screen them to determine if they are using or abusing alcohol or other drugs. Individuals who are identified through screening tools to be at risk or who are using substances should be offered counseling. Those with more significant problems should be referred into more specialized substance abuse treatment services. Studies have shown that for every \$1 spent on SBIRT, overall health care costs decline anywhere from \$4-\$7 due to reduced hospitalization and emergency department costs.⁴¹ The North Carolina Governor’s Institute on Alcohol and Substance Abuse, the Area Health Education Centers (AHEC) program and the Integrated, Collaborative, Accessible, Respectful and Evidence-Based care project (ICARE) are currently working together to provide training and technical assistance to North Carolina primary care providers to encourage more practices to implement SBIRT. However, more work is needed to increase the number of primary care practices equipped to identify young people who have problems with tobacco, alcohol, and other drugs.

There is also a need to promote early detection of adolescent mental health problems and appropriate interventions. The mental health statistics for adolescents in North Carolina provide a strong rationale for improved, widespread mental health screening among teenagers so that mood disorders, alcohol or substance abuse, ADHD, anxiety, eating disorders, disruptive

^m The North Carolina General Assembly enacted a mental health parity law in 2007, which requires insurers to provide the same coverage of certain mental health disorders as provided for other physical illnesses. Session Law 2007-268. The state statute applies to all groups, including small employers, who purchase insurance through regulated insurance companies. It does not cover group health plans that are self-funded (otherwise known as ERISA plans). This bill did not provide parity for substance abuse services or for all mental illnesses. Until recently, there was no parity for substance abuse services. However, Congress recently passed a mental health and substance abuse parity law that covers all employer groups with 50 or more employees that offer mental health coverage. Under the new statute, group health plans must generally provide mental health and substance abuse coverage in parity with medical and surgical benefits offered. Insurers may not have higher cost sharing or more restrictive treatment limits for mental health or substance abuse services than what is provided generally for other medical and surgical benefits. This new law becomes effective January 1, 2010. 29 USC §1185a, 42 USC §300gg-5.

ⁿ For more information on SBIRT, visit the SAMHSA website at <http://sbirt.samhsa.gov/index.htm>.

behaviors and primary risk factors for suicide can be identified and treated, which will help create a more positive health trajectory into adulthood for our youth. The US Preventive Services Task Force now recommends screening all adolescents for depression in primary care settings, if there is an appropriate treatment system to provide follow-up care for youth identified with mental health disorders.⁴³ Thus, not only do primary care providers need to learn about evidence-based screening tools for tobacco, alcohol, and other drugs, they also need to learn about appropriate screening tools and intervention for adolescents with depression or other mental health disorders. (See **Recommendation 4.1.**)

Once identified, adolescents with substance abuse or mental health problems need access to appropriate treatment services. The care provided by primary care providers should be coordinated closely with care provided by the behavioral health specialists. However, in our current system, care is often fragmented between those who provide physical health services and those who provide behavioral health services. North Carolina is working to bridge this gap. In one model, primary care providers in pilot sites are trained to provide better mental health services (particularly aimed at depression) and then develop stronger linkages with the local LME for other more specialized behavioral health services. There are six sites covering 12 counties involved in these ICARE pilots.^o The ICARE partnership, a program seeking to improve collaboration and communication between primary care and behavioral health providers, as well as increase the capacity of primary care physicians to provide appropriate, evidence-based behavioral health services, has developed several models of integrating behavioral health and primary care. In another model, mental health professionals are co-located in the primary care practice (often in pediatric practices).^p Individuals in need of mental health services can be referred “down the hall” to a mental health provider. There are currently over 50 practices involved in the co-location model. Co-location has been shown to improve outcomes for adolescents with substance use or abuse, increasing the likelihood of abstinence and continued treatment.⁴⁴ Integrated approaches also show improvements in behavioral health outcomes.⁴⁵ Therefore, the Task Force recommends:

Once identified, adolescents with substance abuse or mental health problems need access to appropriate treatment services. The care provided by primary care providers should be coordinated closely with care provided by the behavioral health specialists.

^o The ICARE partnership, a program seeking to improve collaboration and communication between primary care and behavioral health providers, as well as increase the capacity of primary care physicians to provide appropriate, evidence-based behavioral health services, has developed several models of integrating behavioral health and primary care. More information about ICARE is available at: www.icarenc.org.

^p Initial funding for co-location of primary care and behavioral health providers was provided by the North Carolina General Assembly in SFY 2007 and SFY 2008, as part of non-recurring funds appropriated to the Office of Rural Health and Community Care (ORHCC) to pilot strategies for the Aged, Blind, and Disabled population. Since that time, ICARE and ORHCC have worked together to support this model.

Recommendation 7.6: Integrate Behavioral Health into Health Care Settings

- a) The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should work with the Office of Rural Health and Community Care, Governors Institute on Alcohol and Substance Abuse, and Area Health Education Centers (AHEC) to expand the use of Screening, Brief Intervention, and Referral into Treatment (SBIRT) in Community Care of North Carolina (CCNC) networks and other healthcare settings to increase the early identification and referral into treatment of patients with problematic substance use. A similar evidence-based model for screening, brief intervention, and referral to treatment should be identified and expanded to increase the early identification and referral of patients with mental health concerns.
- b) The North Carolina Office of Rural Health and Community Care should work in collaboration with the DMHDDSAS, the Governors Institute on Alcohol and Substance Abuse, the ICARE partnership, and other professional associations to support and expand co-location in primary care practices of licensed health professionals trained in providing mental health and substance abuse services.
- c) The North Carolina General Assembly should appropriate \$2.25 million in recurring funds beginning in SFY 2011 to support these efforts, allocating \$1.5 million to DMHDDSAS and \$750,000 to the North Carolina Office of Rural Health and Community Care.^q

Specialized Treatment Services

The LMEs charged with providing substance abuse or mental health services, are not reaching most of the children, adolescents, and young adults in need. Across the state, the LMEs treat approximately 7% of the adolescents estimated to need substance abuse services, and less than half of the children and adolescents estimated to need mental health services. This “penetration rate” varied greatly, with LMEs meeting the needs of between 4%-13% of the adolescents with substance abuse needs, and between 29%-82% of children/adolescents with mental health problems. (See Appendix C, Table 3.) Even when LMEs did report treating children and adolescents, these youth and young adults did not always receive all of the recommended care.

^q These appropriation requests were developed by the North Carolina Division of Mental Health, Developmental Disabilities and Substance Abuse Services and the North Carolina Office of Rural Health and Community Care, respectively, as part of the North Carolina Institute of Medicine Task Force on Substance Abuse Services.

LMEs should not be expected to see all of the adolescents estimated to need services because some of these children are receiving care through the private system. As noted earlier, because of changes in federal and state laws, most children with private or public insurance have coverage for mental health services in parity with other medical services. The same can not be said for people with addiction disorders. While Medicaid and NC Health Choice provide coverage for substance abuse screening, counseling, and treatment, private insurance has not historically provided these benefits as part of comprehensive coverage. Although this should change with the federal legislation entitled the Paul Wellstone-Pete Domenici Mental Health Parity and Addiction Equity Act of 2008, which mandates mental health and substance abuse parity for employer groups of 50 or more, there is no state law mandating parity for groups with fewer than 50 employees. Thus, adolescents with substance abuse disorders are less likely than those with mental health problems or general health problems to be able to access treatment services through private providers.

It is important to strengthen the treatment system for adolescents with substance abuse or dependency problems. It is also important to examine the adequacy of the treatment system for adolescents with mental health disorders. To ensure the availability of substance abuse and mental health treatment services for adolescents, the Task Force recommends:

Recommendation 7.7: Ensure the Availability of Substance Abuse and Mental Health Services for Adolescents (PRIORITY RECOMMENDATION)

- a) The North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should develop a plan for a comprehensive system that is available and accessible across the state to address adolescents' substance abuse treatment needs. In developing this plan, DMHDDSAS should:
 - 1) Ensure a comprehensive array of local or regional substance abuse services and supports.
 - 2) Develop performance-based contracts to ensure timely engagement, active participation in treatment, retention, and program completion.
 - 3) Ensure effective coordination of care between substance abuse providers and other health professionals, such as primary care providers, emergency departments, or school health professionals.
 - 4) Identify barriers and strategies to increase quality and quantity of mental health and substance abuse providers in the state.

- 5) Immediately begin expanding capacity of adolescent substance abuse treatment services.
 - 6) Include identification of co-occurring disorders and dual diagnoses, including screening all adolescents with mental health disorders for substance use and abuse and vice versa.
- b) DMHDDSAS should review the availability of mental health treatment services for adolescents among public and private providers.

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Youth violence is the intentional use of physical force or power, threatened or actual, exerted by or against youth ages 10–29. To be considered youth violence, the actions must result in or have a high likelihood of injury, death, or psychological harm or deprivation.^{a,1} There are many types of youth violence, including but not limited to, school violence, bullying, family violence, dating violence, sexual assault, firearm violence, electronic aggression, gang violence, homicide, and other assaultive behaviors.^b Youth violence impacts both individuals and society. The social costs of youth violence, including isolation, loss of income and social capital, and imprisonment, are borne by the victim, the perpetrator, their families, North Carolina communities, and society at large. Additionally, individual victims of youth violence may experience adverse physical and/or psychological outcomes as well as increased risk for future problem behaviors.² Individuals who experience one episode of victimization are also at increased risk for revictimization.³ Studies have shown that youth who are exposed to violence in the home are more likely to exhibit their own violent behavior and encounter the criminal justice system.⁴

Prevalence of Youth Violence National Estimates

It is difficult to assess the full extent of youth violence due to the lack of a coherent data system that captures data on both youth victims and perpetrators. Results from a recent national survey show that between 70%-80% of youth ages 10-17 experienced some type of victimization in the past year.^c Fifty percent of youth ages 10-17 reported having been physically assaulted in the past year; most of youth were assaulted by a peer or sibling and did not sustain an injury. Additionally, 12%-17% of youth ages 10-17 reported experiencing maltreatment by an adult in the past year, with most reporting psychological or emotional abuse, followed by physical abuse, and neglect. Youth also report high rates of witnessing violence in their families and communities; 30% of adolescents ages 10-13 and 50% ages 14-17 report witnessing violence in the past year. In the past year, one in ten of youth ages 14-17 witnessed a shooting, one in 75 witnessed a murder. Over their lifetime, 21% of youth ages 10-13 and 35% of youth ages 14-17 have witnessed family violence.⁵

National research indicates that approximately 6%-16% of adolescent males and 2%-9% of adolescent females exhibit antisocial behaviors, including aggression and violence, at levels that warrant a clinical diagnosis of antisocial



Individual victims of youth violence may experience adverse physical and/or psychological outcomes as well as increased risk for future problem behaviors.

a As in other parts of the report, the Task Force focused on youth ages 10-20.

b Suicide, another type of youth violence, is covered in chapter 7.

c Victimization includes the following: physical assault, property victimization, maltreatment, and sexual victimization.

It is difficult to get a clear picture of how many youth are involved in and affected by youth violence in North Carolina due to multiple sources of data, inconsistent data, and because of the wide range of behaviors that constitute violence.

conduct problems.^{d,6} Antisocial behaviors account for the majority of referrals to outpatient child and adolescent mental health clinics, placements in special education classes, and juvenile arrests.⁷ Aggression, or behavior that is intended to and harms another person, covers a wide range of behaviors including some that are quite typical during adolescence (e.g. physical fighting) and some that are relatively rare (e.g. homicide). Nationally, 25% of 17-year-old males report having committed at least one serious violent offense in their lifetime.^{e,8}

North Carolina Data

It is difficult to get a clear picture of how many youth are involved in and affected by youth violence in North Carolina due to multiple sources of data, inconsistent data, and because of the wide range of behaviors that constitute violence. In North Carolina the main sources of data on youth violence are the Department of Public Instruction (DPI), the Department of Juvenile Justice and Delinquency Prevention (DJJDP), Department of Corrections (DOC), and the Department of Health and Human Services (DHHS).

- DPI collects data on crime and violence that occur in school for 17 reportable offenses.^{f,g} Additionally, DPI collects self-reported data on health risks, including violence, from middle and high school students on the Youth Risk Behavior Survey (YRBS).
- DJJDP collects information on the youthful offender population, including information on the types of offenses committed.
- DOC collects data on offenses committed by youth ages 16 or older.
- DHHS collects a variety of data related to youth crime. The Division of Social Services collects data on youth who are the victims of child abuse and the State Center for Health Statistics and the Injury and Violence Prevention Branch collect information on morbidity and mortality due to violence using the North Carolina Violent Death Reporting System, hospital discharge data, and emergency department data.

d This is the percent of adolescents exhibiting antisocial behaviors according to the DSM-IV diagnostic criteria (3 or more out of 15 specified behaviors, including aggression to people or animals, property destruction, stealing or lying, and violating rules). Similar behaviors are defined differently according to the setting. What is called “conduct disorder” or “aggression” in a school setting is typically called “delinquency” in a juvenile justice/criminal setting.

e Serious violent offense was defined as aggravated assault, robbery, or rape that involved a weapon or resulted in an injury.

f There are 17 reportable offenses in the Annual Report on School Crime and Violence including 10 dangerous and violent acts (assault resulting in serious injury, assault involving use of a weapon, sexual assault not involving rape or sexual offense, sexual offense, robbery without a dangerous weapon, taking indecent liberties with a minor, robbery with a dangerous weapon, robbery with a dangerous weapon, kidnapping, rape, or death by other than natural causes), and 7 other reportable acts (assault on school personnel not involving serious injury, bomb threat, burning of a school building, possession of alcoholic beverage, possession of controlled substance in violation of law, possession of a weapon excluding firearms or powerful explosives, possession of a firearm or powerful explosives) (North Carolina Department of Public Instruction, State Board of Education. Report to the Joint Legislative Education Oversight Committee. Consolidated data report 2007-2008: annual report of school crime and violence, suspensions and expulsions, and dropout rates. <http://www.ncpublicschools.org/docs/research/discipline/reports/consolidated/2007-08.pdf>. Published 2009. Accessed June 2, 2009.).

g G.S. 115C-12(21)

Although many different agencies collect data on youth violence, no single agency is responsible nor has the resources for bringing the data together. This means that there is no way to comprehensively assess the number of youth affected by and involved in youth violence.

DPI Data

According to DPI, there were 11,276 reportable acts of crime or violence during the 2007-2008 school year (or 7.85 acts per 1,000 students).^{h,i} Violent crimes constituted 3.8% of reported school crimes. Most crimes (85%) were due to possession of a controlled substance, alcoholic beverage, or weapon (excluding firearms and powerful explosives). Although most schools report safe environments, self-reported data from middle school and high school students suggest that a much higher percentage of students may be involved in reportable offenses at school. Many students report being bullied on school property, one in ten high school students report being in a fight on school property, and 6.8% of high school students report that they have carried a weapon to school. (See Appendix C, Table 1 for more information.)⁹

In addition to providing data on youth violence at school, the Youth Risk Behavior Survey, which is administered by DPI, collects data on behaviors out-of-school. Many North Carolina youth report having experienced violence in their lives. (See Figure 8.1 and Appendix C, Tables 1 and 2.) In North Carolina, more than half of middle school students reported having ever been in a physical fight, and 30% of high school students reported having been in a physical fight in the past year.^{j,9} More than one-third of middle school students and one-fifth of high school students reported ever carrying a weapon, such as a gun, knife, or club.

DJJDP Data

Although many youth engage in physical fighting and some report carrying a weapon, relatively few adolescents engage in violence that results in physical injury to another individual. Fewer than one in one thousand North Carolina youth^k commit violent felonies^l each year.¹⁰ North Carolina's youth crime rate has been decreasing since 2006, from 36.1 per 1,000 youth ages 6 to 15 to 31.5 per 1,000 in 2008. This past year in North Carolina, violent crimes^m accounted for 2.3% of all juvenile offenses (1,037 out of 43,797).¹⁰

^h See footnote e for more information on reportable offenses.

ⁱ Data are for pre-kindergarten through 12th grade. Most offenses occur at the high school level.

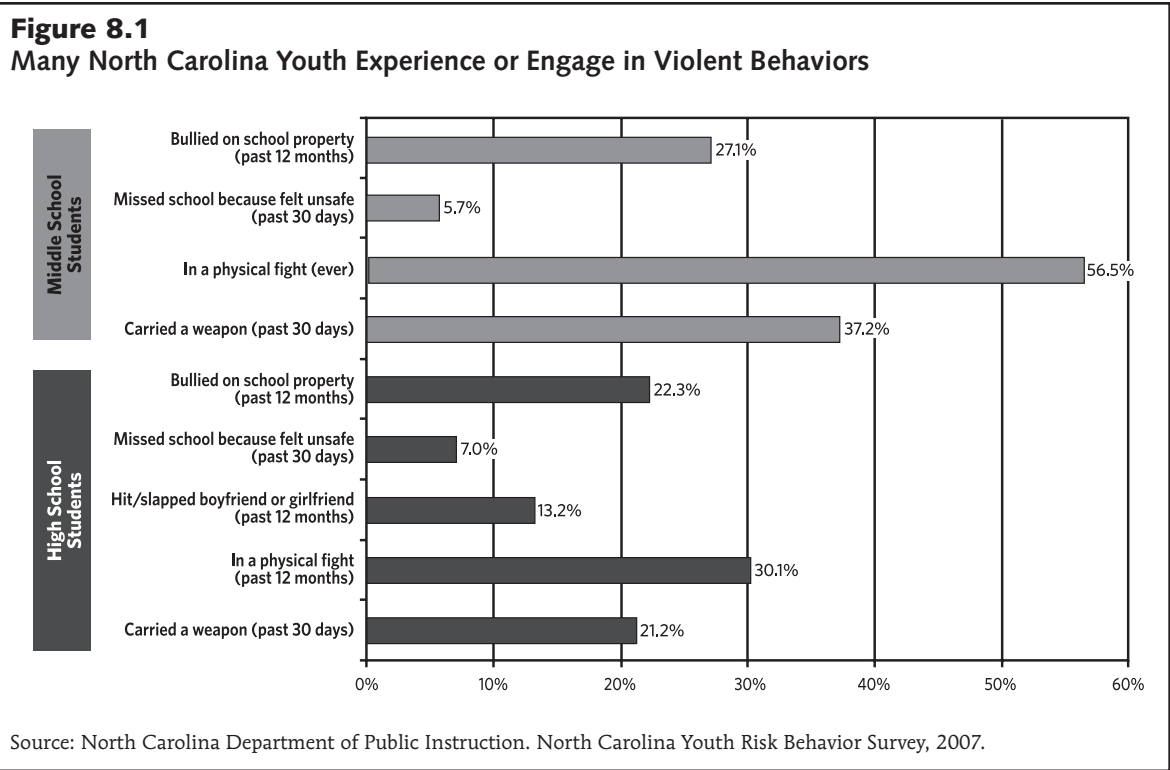
^j High school students are asked if they were involved in a physical fight one or more times during the past 12 months, whereas middle school students are asked if they were ever involved in a physical fight (i.e. not limited to the past 12 months).

^k The youth crime rate includes offenses committed by children ages 6-15. These data come from the North Carolina Department of Juvenile Justice and Delinquency Prevention which has jurisdiction over offenses committed by youth ages 6-15. Youth ages 16 and older go through the Department of Corrections which maintains separate crime data for the entire "adult" (ages 16 and older) population.

^l The Armed Career Criminal Act, 18 U.S.C. §924(e) defines "violent felony" as "purposeful, violent, and aggressive" conduct that that poses serious risk of physical injury to another.

^m The US Department of Justice defines violent crime as "murder and nonnegligent manslaughter, forcible rape, robbery, and aggravated assault." Additionally, the Uniform Crime Reporting Program defines violent crimes as any action that involves "force or threat of force."

Many students report being bullied on school property, one in ten high school students report being in a fight on school property, and 6.8% of high school students report that they have carried a weapon to school.



In addition to collecting data on youth crime, DJJDP collects data from school personnel on gang activity in schools.ⁿ In 2008 64% of North Carolina high schools, 59% of alternative schools, and 49% of middle schools reported gang presence.¹¹ Although gang membership and violence are a growing problem in North Carolina, there is no other formal collection of gang data.¹²

DOC Data

In 2009 approximately 14,500 adolescents ages 13-20 were part of the DOC population. The vast majority (12,241 youth) were on probation or parole, however, 2,338 youth ages 15-20 were serving time in prison. Of those youth in prison, most were serving time for felony charges of robbery, breaking and entering, assault, non-trafficking drug charges, or larceny.¹³

DHHS Data

Adolescents are not only the perpetrators of violence but often the victims as well. In 2006, there were 131 violent deaths among North Carolina youth ages 10-20.^{o,14} Seventy of these deaths were homicides. Eighty-seven of these deaths,

ⁿ NCDJDP defines a gang as a group of three or more persons, with a distinct name, known by an identifying sign or symbol, with some degree of organization and permanence that is involved in delinquent behavior or commits criminal acts (Temme B. Gang Violence. Presented to: North Carolina Institute of Medicine Task Force on Adolescent Health; February 6, 2009; Morrisville, NC).
^o Excludes suicides.

or 66%, involved the use of a firearm.^p However, it is difficult to understand the full circumstances of youth firearm deaths as often information such as ownership, legality of the weapon, and storage patterns are not available at the state level. Collecting such information as part of a comprehensive injury surveillance system would help the state obtain more accurate data on youth violence.

While the mortality rate due to violence is of concern, hospitalizations and emergency department visits are also disturbing. During 2006, a total of 445 youth ages 10-24 were hospitalized for an assault-related injury; 251 were due to firearm injuries and 194 were because a youth was struck by someone else. In 2007, more than 7,000 youth were seen in the emergency department for assault-related injuries; 493 visits were because of a firearm-related assault injury and 6,671 visits were because a youth was struck by someone else.¹⁵ Unfortunately, many of the ICD-9 diagnosis codes used by physicians to report accidents, injuries, or diseases (also known as E-codes) are unspecified or missing, which means no coding information is available to provide details about an individual's injury. In addition, for surveillance purposes, an unspecified E-code makes it difficult for researchers and policymakers to make inferences about data for injuries and illnesses. Better use of e-codes would help the state obtain more accurate data on youth violence.

As reviewed, it is difficult to accurately and comprehensively assess the problem of youth violence in North Carolina due to the multitude of data systems and varying definitions involved in measuring youth violence. Additionally, in some areas, such as gangs, there is a lack of data. North Carolina needs to improve the data on youth violence so that policymakers, schools, community leaders, parents, and others can better understand the causes and circumstances of youth violence and develop additional services for at-risk youth. Therefore, the Task Force recommends:

Recommendation 8.1: Enhance Injury Surveillance Evaluation

- a) The Department of Juvenile Justice and Delinquency Prevention should collect gang activity data from schools each year.
- b) The North Carolina General Assembly should amend the Public Health Act § 130A-1.1 to include injury and violence prevention as an essential public health service.

In 2007, more than 7,000 youth were seen in the emergency department for assault-related injuries.

^p Proescholdbell S. Head, Injury Epidemiology and Surveillance Unit, Injury and Violence Prevention Branch, Chronic Disease and Injury Section, NC Division of Public Health. Written (email) communication, September 23, 2009.

- c) The North Carolina General Assembly should appropriate \$175,000 in recurring funds beginning in SFY 2011 to the Department of Public Health to develop an enhanced intentional and unintentional injury surveillance system with linkages. This work should be led by the State Center for Health Statistics and the Injury and Violence Prevention Branch and done in collaboration with the North Carolina Medical Society, North Carolina Pediatric Society, North Carolina Hospital Association, North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, Governor's Highway Safety Program within the North Carolina Department of Transportation, Carolinas Poison Center (state poison control center) at Carolinas Medical Center, North Carolina Office of the Chief Medical Examiner, Department of Juvenile Justice and Delinquency Prevention, and others as appropriate. The collaborative should examine the need and feasibility for linkages to electronic health records and enhanced training in medical record coding using E codes (injury) and ICD-9/10 codes (disease).

Many different risk factors have been identified for youth antisocial behaviors and violence.

Risk and Protective Factors for Youth Violence

Many different risk factors have been identified for youth antisocial behaviors and violence, including individual, interpersonal (family and friends), community and environment characteristics, and public policies.

Individual: A child's temperament and personality have been associated with aggression later on in life. During childhood, temperament is often considered equivalent to personality; a "difficult" temperament can be described as being restless, impulsive, and having poor attention. Children with low IQ and low educational achievement are more likely to have conduct disorders, exhibit antisocial behaviors, and be involved in delinquent activities. Other individual risk factors for youth violence include low self-esteem, depression, substance use, and impairment in moral judgment, social information processing, and empathy (i.e. the understanding or acknowledgment of another individual's feelings).¹⁶ Additionally, exposure to media violence, including television, films, video games, and music, plays a significant causal role in increasing aggression and violent behavior in the short- and long-term.^{17,18}

Interpersonal: Child-rearing factors, including parental styles of supervision, punishment, reasoning, and responsiveness, impact youth engagement in violent behaviors. Low levels of supervision, lack of persistence in punishment and harsh or punitive discipline (including physical punishment), inconsistent rules, and cruel, passive, and neglectful parental attitudes have all been found to predict youth violence.⁶ Conversely, strong parental support and involvement can be a protective factor against youth violence.¹⁹ Witnessing or experiencing violence in the home are also predictors of youth violence.¹⁶ Peer groups can also be risk or protective factors for youth violence; violent peer group activities and norms affect an individual's likelihood of being involved in violent behaviors.²⁰

Community and Environment: The community, and the school in particular, that an adolescent lives in can either place youth at risk for or protect them from experiencing or engaging in violence. The school environment can either contribute to antisocial behaviors or be protective. For example, schools are more likely to produce delinquent youth if there is a high level of distrust between teachers and students, low student commitment to the school, and loosely enforced rules. Conversely, students who feel connected to their school are less likely to engage in youth violence.¹⁹ Lower neighborhood socio-economic status (SES) is associated with increased levels of adolescent involvement in delinquent, criminal, and violent behavior. Additionally, economically disadvantaged communities often have fewer adults with high school or college degrees and have fewer occupational opportunities which impacts whether youth see the value of school and, thus, how committed and connected they are to school. Other community characteristics, such as the strength of neighborhood support networks and social connections, the availability of high-quality after school programs, the level of violence in the neighborhood, and gang presence all influence adolescent engagement in violence.^{21,22}

Public policies: Local, state, and federal policies also impact youth violence both positively and negatively. Government at all levels impacts funding and support for high-quality prevention programs, after-school programs, and services for youth at-risk for or involved in youth violence, all of which can help reduce youth involvement in violent behaviors. Similarly, public policies affect the availability of guns and other weapons, housing policies that concentrate poverty, law enforcement presence in high risk communities, sentencing policies and other issues that impact youth violence. For example, there are many public policies available to reduce the availability of guns including restrictive licensing, waiting periods, bans on certain types of guns or where guns can be carried, and public education campaigns.^{23,24}

Types of Youth Violence

As discussed, there are many types of youth violence. The Task Force decided to limit its discussion of types of youth violence to those behaviors for which there are evidence-based prevention strategies including school violence, bullying, dating violence, and gang violence.

School Violence

Many acts of youth violence occur at school and, therefore, constitute school violence. School violence is “behavior that violates educational mission or climate of respect or jeopardizes the schools’ intent to be free of aggression against persons or property, drugs, weapons and disorder.”²⁵ Schools receive funding from the federal government to promote safe and drug free schools. The purpose of the Safe and Drug Free Schools Act (SDFSA) is to support programs that prevent violence around schools, prevent the use of alcohol, tobacco, and drugs, and involve parents and communities in school efforts. Safe and Drug Free Schools programs and are coordinated with federal, state,

Local, state, and federal policies also impact youth violence both positively and negatively.

DPI has a number of initiatives underway to improve school safety and reduce violence.

and local efforts to foster safe and drug free learning environments.²⁶ As part of the general effort to promote healthy and safe schools, the North Carolina General Assembly mandated that schools must have safe school plans that include a clear statement of the standard of behavior; the responsibility of the superintendent; the principal's expectation for maintaining a safe, secure, and orderly school environment; and the roles of other administrators, teachers, and other school personnel.^q The plans must have measurable objectives for improving school safety and measures of the effectiveness of efforts to assist students at risk of academic failure.

The Department of Public Instruction (DPI) has a number of initiatives underway to improve school safety and reduce violence, including safe and drug free schools coordinators; Positive Behavior Supports (PBS), an evidence-based approach to reducing problem behaviors in schools (See Chapter 5); and the 21st Century Community Learning Center Program, a program that provides after-school academic enrichment opportunities for students that attend high poverty/low performing schools.^r Additionally, DPI has formed partnerships with many groups, such as the Governor's Crime Commission, DJJDP, Smart Start, and others to address issues of school crime and violence with attention to utilizing evidence-based practices that influence multiple risk behaviors.

In addition to violence prevention as part of the Safe and Drug Free Schools Act, violence prevention is one of the subjects included in the Healthful Living Standard Course of Study (HLSCOS). The Task Force recommends the use of evidence-based programs, practices, and policies to meet the goals of the HLSCOS. (See **Recommendation 5.4.**) Furthermore, the Task Force recommends expanding efforts to support and further the academic achievement of middle and high school students (see **Recommendation 5.1.**), including fostering a student-supportive culture and climate that promotes school connectedness and expanding the use of PBS in middle and high schools.

Bullying

One particular type of violence that the Task Force explored in some depth was bullying in schools. Bullying is defined as "physical, verbal, or psychological attack or intimidation that is intended to cause fear, distress, or harm to a victim."¹⁶ A national survey found that 20.8% of students in grades 6-10 experience physical bullying, 53.6% verbal bullying, 51.4% social bullying, and 13.6% electronic bullying.²⁷ School bullying can negatively impact students. Studies have shown that victims of bullying experience psychological distress, low self-esteem, feelings of anger and sadness, poor social adjustment, and physical unwellness.²⁸ In North Carolina, 27.1% of middle school students and 22.3% of high school students reported that they have been harassed or bullied on school property one or more times during the past 12 months. (See Figure 8.1.) Notably, Latino high school students report bullying more than any other

q NCGS §115C-105.47

r 21st Century Community Learning Centers website: <http://www.ed.gov/programs/21stcccl/index.html>

racial/ethnic group. (See Appendix C.)⁹ Often times victims of bullying do not want go to school, fearing they will encounter their bully. A North Carolina study in 2003 found that nearly half of the students who were bullied failed to report the incident, fearing they would not be believed or that anything would change as a result of the report.²⁹

During the 2009 session, the North Carolina General Assembly passed a law to comprehensively define and prevent bullying and harassing.^{s,t} Bullying or harassing behavior includes any gestures, communication (written, verbal, or electronic), or physical act that occurs on school property or at any school-sponsored function that places a student or school employee in actual and reasonable fear of harm to his or her person or property, or creates a hostile environment interfering with the student's educational opportunities. These behaviors include, but are not limited to, acts based on the victim's race, color, religion, ancestry, national origin, gender, socioeconomic status, academic status, gender identity, physical appearance, sexual orientation, or mental, physical, developmental, or sensory disability. The bill requires schools to adopt policies to prohibit bullying and harassing behaviors. The policies should publicize the new standards of behavior, allow anonymous reporting of bullying or harassing behavior, prohibit retaliation against the person who reports the acts, require prompt investigation of serious complaints, and include the consequences and remedial action for any person who bullies or harasses another student or school employee.

Dating Violence

Physical and psychological abuse within the context of adolescent dating is prevalent. Nationally, approximately one in ten adolescents report they have been physically abused by a date, and 29% report psychological abuse.³⁰ Survey data varies for the percentage of youth who report sexual dating violence. In North Carolina 13.2% of high school students reported being hit, slapped, or physically hurt on purpose by their boyfriend or girlfriend in the last 12 months, and 9.3% of high school students reported being forced to have sexual intercourse when they did not want to. While high school boys and girls were about equally likely to report being physically hurt by their boy or girlfriend, girls were far more likely to report being physically forced to have sexual intercourse.⁹ (See Appendix C.) The consequences of dating violence can be significant for both boys and girls and lead to other problem behaviors. Boys and girls who have been a victim of dating abuse are at increased risk for depression, cigarette smoking, suicidal ideation, and suicide attempts. Girls are also at increased risk for marijuana use, illicit substance use, and antisocial behavior.³⁰

Researchers in North Carolina have been at the forefront of efforts to develop an evidence-based program to reduce dating violence, Safe Dates. Safe Dates

During the 2009 session, the North Carolina General Assembly passed a law to comprehensively define and prevent bullying and harassing.

^s Senate Bill 526, Session Law 2009-212, NCGS §115C-407.5.

^t The Task Force included supporting Senate Bill 526 as a preliminary recommendation. Because the bill passed, the Task Force did not include it in the final list of recommendations.

While youth reportedly turn to gangs for protection, they are more likely to be violently victimized while part of a gang than when they are not.

has been recognized nationally as an evidence-based program to prevent dating violence. Safe Dates has positive effects on reducing perpetration of psychological dating abuse, moderate physical dating abuse, severe physical dating abuse (if the perpetrator had not engaged in more than average amounts of dating abuse prior to program exposure), and sexual dating abuse. The program also has positive effects on reducing moderate physical dating abuse victimization. The program is equally effective for males and females and for whites and minority adolescents. Further, adolescents exposed to the Safe Dates program report 56%-92% less dating violence victimization and perpetration four years after exposure.³⁰ Dating violence is one of the subjects included in the Healthful Living Standard Course of Study (HLSCOS) and the Task Force recommends the use of evidence-based programs, practices, and policies to meet the goals of the HLSCOS. (See **Recommendation 5.4.**)

Gang Violence

There is no one definition of a gang, gang member, or gang violence across states or even across agencies within a state. In North Carolina, DJJDP defines a gang as a group of three or more persons, with a distinct name, known by an identifying sign or symbol, with some degree of organization and permanence that is involved in delinquent behavior or commits criminal acts.¹² Generally, gang members are between the ages of 12 and 24 years, with most being older than 18.^{31,32} More than 24,500 gangs have been identified in the United States and can be found in the vast majority of large cities as well as most suburban counties and smaller cities. Rural counties are less likely to have gangs.^{u,33,32} Youth with certain risk factors, including alcohol or drug use, poor family connectedness, low school achievement or attachment to the school, association with peers who engage in delinquency, and living in a neighborhood in which large numbers of youth are in trouble, are more likely to join gangs.³¹

The presence of gangs promotes antisocial behavior among youth and creates serious problems for the youth, their families, and the broader community. While youth reportedly turn to gangs for protection, they are more likely to be violently victimized while part of a gang than when they are not. Gang membership is also associated with other adverse consequences, including dropping out of school, teen pregnancy, and unstable employment.³¹ Broad-based community interventions have been shown to reduce gang presence. For example, the US Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP) promotes the Comprehensive Gang Model. This model has five components: community mobilization; providing gang members with opportunities for education, training, and employment; involving other communities agencies, schools, faith-based organizations, police, and others in reaching out and linking them to other services; close supervision and monitoring of youth involved in gangs; and implementation of policies and procedures to more effectively address gang problems.³⁴ The

^u Section 18.5 of Session Law 2009-451.

General Assembly appropriated \$6 million of the federal monies it received under the American Recovery and Reinvestment Act to fund two-year grant prevention and intervention pilot program that will focus on youth at risk for gang involvement, as well as those already involved in gangs.^v

The Task Force recommends better surveillance of gang activity in North Carolina (see **Recommendation 8.1**) as well as multifaceted community health demonstration projects using evidence-based programs, practices, and policies to address multiple adolescent risk behaviors. (See **Recommendation 3.3**.)

Reducing Youth Violence

Reducing youth violence requires a community-wide effort that involves individuals, families, schools, and government agencies utilizing both in- and out-of-school strategies. As discussed, DPI and DJJDP are instrumental agencies in reducing youth violence. DPI serves as a key player for reducing youth violence because they are responsible for addressing school violence through the Safe and Drug Free Schools program. Additionally the Healthy Living Standard Course of Study addresses violence as well as risk behaviors that may contribute to violence (i.e. mental health, drug and alcohol use). (See Chapter 5.) DJJDP is also responsible for reducing youth violence. Part of DJJDP's mission includes preventing violence and gang activity, preventing substance use, and funding community alternatives to incarceration. By working together and sharing resources, these two departments create a strong collaborative network for combating youth violence. Recently, DJJDP and DPI have been working together in response to Session Law 2008-56 (Senate Bill 1358) to address school violence and gang activity.

As part of Senate Bill 1358, the North Carolina Street Gang Prevention and Intervention Act, DJJDP and DPI were asked to provide a report to the Joint Legislative Corrections, Crime Control, and Juvenile Justice Oversight Committee and the Joint Legislative Education Oversight Committee looking at school violence and gang activity. After careful review of existing data and data derived from newly developed surveys the report made four recommendations: improve data collection as needed (see **Recommendation 8.1**); provide additional funding to serve at-risk youth in schools and communities (see **Recommendations 3.2, 3.3, and 5.4**); support education programs for parents and school personnel (see **Recommendation 3.1**); and fund evidence-based programming in schools and communities to prevent delinquency and gang involvement. (See **Recommendations 3.3 and 5.4**.) It was also noted that a truly comprehensive model of combating gang violence includes community mobilization, social intervention, provision of opportunities for youth and families, gang suppression, and organizational change.

Reducing youth violence requires a community-wide effort that involves individuals, families, schools, and government agencies utilizing both in- and out-of-school strategies.

^v Section 29.1 of Session Law 2009-574. Section 15.17J of Session Law 2009-451.

There is a wealth of knowledge about what programs and practices work in the field of youth violence

There are several evidence-based programs to combat violence in schools. These programs help reduce violence and reduce risk behaviors that contribute to violence (including bullying, dating violence, and gang violence). The Task Force supports the expansion of evidence-based programs and curricula in the schools. (See Chapter 5.) There are also mechanisms to provide violence prevention programs in the community, including gang violence prevention programs. Within DJJDP, Juvenile Crime Prevention Councils (JCPCs) are the funding source for community sanctions (alternatives to incarceration) and community level delinquency and substance abuse prevention. JCPCs receive \$23 million in recurring funding from the North Carolina General Assembly to review the needs of each county's at-risk and adjudicated youth population and distribute grants to support needed programs and services. In 2008, JCPCs served more than 24,000 youth across the state.¹⁰ This year, as part of the 2009 appropriations bill, the DJJDP, DOC, DHHS, and other relevant agencies were directed to study reform of the state's community corrections system, including identification of evidence-based programs to reduce crime, decrease offender recidivism rates, and improve offender reintegration into society. Another provision in the appropriations bill sought information on the effectiveness of JCPC grant funded programs.^w Thus, the General Assembly is also seeking ways to promote evidence-based programs to reduce youth violence and delinquency.

There are many violence prevention programs available to communities with differing levels of effectiveness. There is a wealth of knowledge about what programs and practices work in the field of youth violence (see Appendix B); evidence-based programs should be used whenever possible. Furthermore, the emphasis on evidence-based programs needs to be combined with an increased level of accountability. Research shows that fidelity to proven models is essential to replicating their success.³⁵ Monitoring fidelity to proven models ensures that the greatest effect can be delivered for the dollar and provides guidance for future funding. Specifically, the implementation of evidence-based, culturally sensitive programs to prevent homicide and non-fatal violence would reduce youth violence. Therefore, the Task Force recommends:

Recommendation 8.2: Support Evidence-Based Prevention Programs in the Community (PRIORITY RECOMMENDATION)

- a) **The Department of Juvenile Justice and Delinquency Prevention (DJJDP) should strongly encourage Juvenile Crime Prevention Councils (JCPC) to fund evidence-based juvenile justice prevention and treatment programs, including prevention of youth violence and substance use, and community-based alternatives to incarceration. Additionally, DJJDP should strongly encourage**

^w Youth can also commit status offenses, which are noncriminal behaviors that are illegal because of the child's age. These behaviors are not illegal for adults. For example, typical status offenses are truancy (cutting school) and running away from home.

JCPC-funded programs to address multiple health domains in addition to violence prevention.

- b) DJJDP should restructure JCPC funding grants to allow grants of longer than one year duration so that programs have the resources and commitment to implement and support evidence-based programs with fidelity.

Age of Delinquency

Since 1919, North Carolina has regarded all individuals age 16 or older as adults in the justice system. Therefore, youth ages 16 and 17 who commit any criminal offense^x automatically go through the adult criminal justice system rather than the juvenile system. There are no exceptions to this age trigger. Research shows that adolescents who are managed in an adult criminal system are 34% more likely to become repeat offenders when compared to adolescents managed in the juvenile system.^{36,37}

Most youthful offenders are not tried for violent crimes. In 2005, there were approximately 11,000 16- and 17-year olds tried in the adult system in North Carolina. Of these, 14% were for felonies, and only 4% were for felonies against a person.³⁸ When convicted and sentenced to time in prison, these youth are housed with adult criminals, where they are more vulnerable to sexual exploitation and physical assault, and learn from the negative influences of more hardened criminals. North Carolina is one of only two states that treat all 16 and 17 year olds as adults (the other is New York).³⁹

Most states do not transfer youth automatically to adult court unless they 18 or older.^y States have established higher ages for adult court jurisdiction in recognition of the reduced criminal culpability of adolescents and of youth well into their 20s. Similarly, the US Supreme court also recognized the reduced responsibility of youth under age 18. In *Roper v. Simmons*, 543 U.S. 551 (2005), the US Supreme Court ruled that youth under the age of 18 could not receive the death penalty because they are less culpable due to their developmental stage. The Supreme Court's decision was based largely on the arguments of the medical and scientific communities which argued that there are biological reasons that youth are more likely to make poor decisions and more likely to be reformed than adults.

Research shows that adolescents who are managed in an adult criminal system are 34% more likely to become repeat offenders when compared to adolescents managed in the juvenile system.

x In 2007, North Carolina was only one of three states (with New York and Connecticut) where the age of adult jurisdiction was 16. Subsequently, Connecticut raised the age to XX. In 2007, the age for adult jurisdiction was 17 in ten states, and in the remaining 37 states and the District of Columbia, the age of adult jurisdiction was 18. (North Carolina Sentencing and Policy Advisory Commission. Report on Study of Youthful Offenders Pursuant to Session Law 2006-248, Sections 34.1 and 34.2. http://www.justicepolicycenter.org/Articles%20and%20Research/Research/Sentencing/JUVENILESyo_finalreporttolegislature.pdf. Published March 2007. Accessed September 21, 2009.)

y Currently, youth as young as 13 can be transferred to Superior Court to be tried as an adult if specific criteria are met. For example, youth age 13 or older must be transferred to Superior Court if charged with a Class A felony, and can be transferred at the discretion of the Juvenile court if charged with any other felony.

Transferring youth ages 16-17 to adult court is also an ineffective strategy to decrease or prevent youth violence.

Transferring youth ages 16-17 to adult court is also an *ineffective* strategy to decrease or prevent youth violence. The CDC Task Force on Community Preventive Services reviewed published literature and found that the median effect for youth who were transferred to the adult criminal justice system was that they were 34% more likely to be rearrested for a violent or other crime than were similar youth retained in the juvenile justice system.^{36,37} Similarly, data from the North Carolina Sentencing Commission show that youthful offenders serving time in North Carolina adult prisons had the highest rate of rearrest and reconviction of all offenders, and their rates were higher than other adult offenders. In 2001-2002, 61.5% of all youthful prisoners (ages 21 years or younger) and 40.8% of youthful probationers were rearrested within three years, compared to 49.8% of all prisoners and 33.3% of all probationers.⁴⁰

The North Carolina Sentencing and Policy Advisory Commission recommended raising the age of delinquency for criminal offenses to age 18.⁴⁰ They recognized the developmental immaturity of most youth under age 18, as well as the need to balance punishment with the potential for treatment and rehabilitation. Under this proposal, juveniles younger than 18 would be tried in juvenile court, unless they meet specific criteria for transfer to be tried as an adult.^z The Commission also recommended a two-year planning period before implementation of the law changes, in order to give the agencies the time to plan for a successful transition of older juvenile offenders into the juvenile court system. In addition, the Commission recommended that the state implement evidence-based programs that have been shown to reduce the recidivism rates for youthful offenders. These programs typically focus on moral reasoning, problem solving, social skills, and impulse control. State and national data show that such an approach improves public safety while increasing the likelihood that youth be crime-free as adults.

National cost-benefit analyses show that developmentally appropriate intervention in the lives of troubled youth is one of the most cost-effective uses of public money. Moving 16- and 17-year-olds from the adult system into the juvenile justice system will provide better outcomes and increases the likelihood that they will complete their high school education, be eligible for scholarships and other higher education programs, and get needed support and guidance from their family. This creates the best environment for getting troubled youth the guidance they need to turn their lives around and ultimately to live a crime-free, productive adulthood. Better outcomes for youth also mean more effective use of limited funds and safer communities.⁴¹

Two bills^{aa} were introduced in the 2009 session that would phase in changes in the juvenile justice laws to raise the age in which youth are tried in the juvenile justice system up to age 18. Both bills recommended DJJDP create a Youth Accountability Planning Task Force (YAP Task Force) to study issues related

^z House Bill 1414 and Senate Bill 1048. Both are eligible for consideration during the 2010 Session.

^{aa} Section 18.9 of Session Law 2009-451.

to raising the age of juvenile court jurisdiction. Although neither bill passed during the 2009 session, the YAP Task Force passed as part of the budget.^{ab} The YAP Task Force is charged with determining whether the State should expand the DJJDP's jurisdiction to include persons ages 16-17 who commit crimes or infractions; developing an implementation plan; and determining the total cost of expanding the DJJDP's jurisdiction. YAP Task Force members include the Secretary of DJJDP, the Director of the Administrative Office of the Courts, the Secretary of DHHS, the Secretary of the DOC, the Secretary of the Department of Crime Control and Public Safety, the Superintendent of Public Instruction, the Secretary of the Department of Administration, the Juvenile Defender in the Office of Indigent Defense, and others as specified in the budget. The YAP Task Force met for the first time in October, 2009. The YAP Task Force will submit an interim report to the 2010 session of the 2009 General Assembly, with copies to the Joint Legislative Correction, Crime Control and Juvenile Justice Oversight Committee and the Appropriations Subcommittees on Justice and Public Safety of both houses, and will submit a final report of its findings and recommendations by January 15, 2011, to the General Assembly and the Governor.

The Task Force recommends:

Recommendation 8.3: Raise the Age of Juvenile Court Jurisdiction

The North Carolina General Assembly should enact legislation to raise the age of juvenile court jurisdiction from 16 to 18. Full implementation of the increased age for juvenile court jurisdiction should be delayed two years to enable the Youth Accountability Planning Task Force of the North Carolina Department of Juvenile Justice and Delinquency Prevention to report back recommendations on implementation and costs to the General Assembly.

^{ab} Section 18.9 of Session Law 2009-451.

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Reducing Adolescent Sexual Activity and Preventing Sexually Transmitted Diseases and Teenage Pregnancies

Chapter 9



As reviewed at length in Chapter 2, adolescence is a time of numerous changes in a young person's life. This includes physical maturation and puberty which are often correlated with increased interest in romantic relationships. During childhood, young people spend most of their time with same-sex peer groups; however, during the mid- to late-adolescent years, young people increasingly spend time with mixed-gender peer groups and close relationships with romantic partners become increasingly important.¹ Adolescent involvement in romantic relationships is a normal and expected part of development and is an important step toward the adult role of forming a family. Adolescent romantic relationships vary greatly—from short- to long-term, casual to serious—as do the behaviors that adolescents engage in with romantic partners. From a health perspective, this increase in romantic relationships is important, as the majority of youth initiate sexual behavior within the context of romantic relationships during the second decade of life, and thus are exposed to the risks of unwanted pregnancy and sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV).^{a,2}

The vast majority of adults (85%) believe that adolescents should wait until they are at least 18 years old before having sex, with almost half saying youth should wait until they are married. Adults are primarily concerned with youth having sex before they are psychologically and emotionally ready, followed by concerns about pregnancy and HIV.³ Abstaining from sexual intercourse is the only proven method to avoid these outcomes. If adolescents are sexually active, the best ways to reduce the risks of unwanted pregnancy and STDs, including HIV, are to use protection and minimize the number of sexual partners. Although not 100% effective, condoms reduce the risk of STDs and HIV and, like other forms of contraceptives, reduce the risk of pregnancy.⁴

The Centers for Disease Control and Prevention (CDC) recommends a multifaceted strategy to reduce unwanted pregnancies, STDs, and HIV among youth. The CDC recommends that communities implement programs to promote abstinence, help youth who have been sexually active return to abstinence, and educate youth who are sexually active in the correct and consistent use of condoms.⁵ The focus of most programs for the youngest adolescents promote delaying initiation of sexual intercourse because most adolescents in this age group have not yet had sex. Notably, some young teenagers do have sex, and

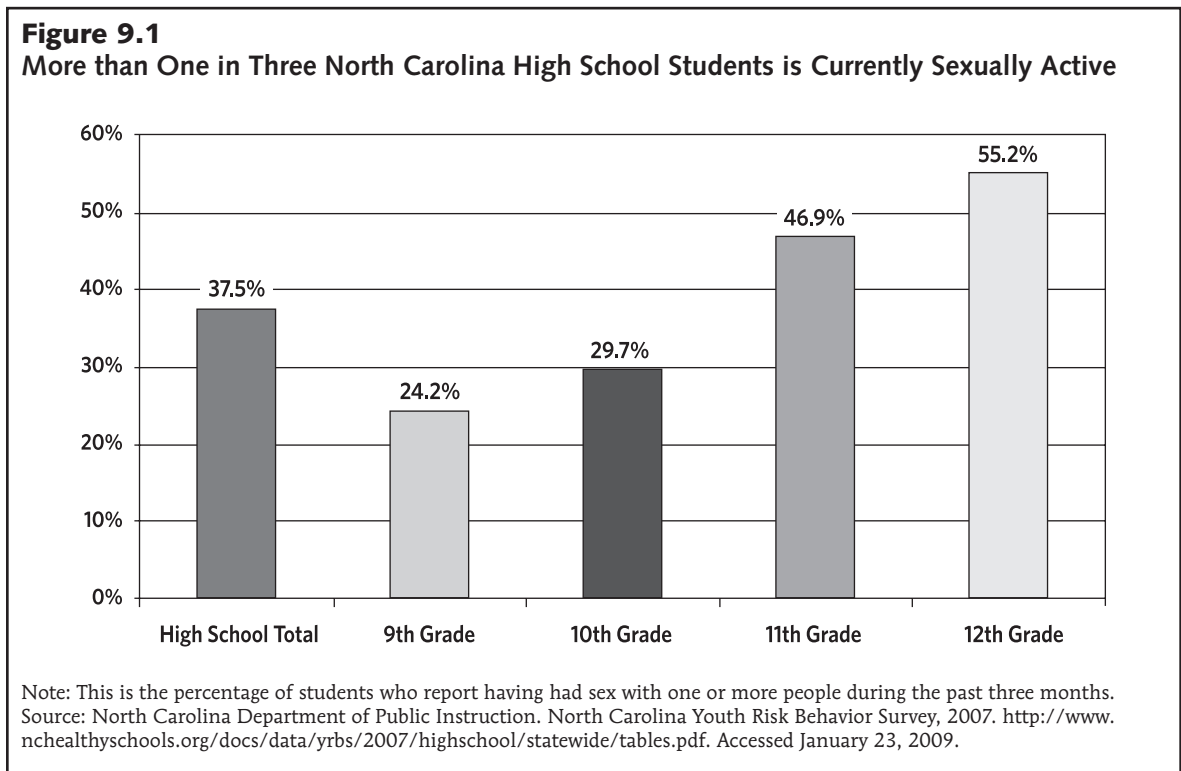
The CDC recommends a multifaceted strategy to reduce unwanted pregnancies, STDs, and HIV among youth.

^a Participating in romantic relationship and sexual behavior also exposes youth to dating violence and sexual assault which are discussed in Chapter 7.

In 2007, the percent of North Carolina high school students who reported having ever had sex was slightly higher than the national average.

they are at disproportionately high risks for unintended pregnancy and STDs.^b Unintended pregnancy and STD prevention programs for young people in the mid- to late-adolescent years tend to focus on delaying initiation of sex and, among those who have had sex, reducing the frequency of sex and number of partners, and increasing condom and other contraceptive use. This approach recognizes the proportion of teenagers who initiate sex during middle and late adolescence, and the need to reduce the risk of pregnancy and STDs among this large group of young people.

Engagement in sexual activity among high school youth declined nationally and in North Carolina during the 1990s with increased attention to preventing teenage pregnancy and STDs. Unfortunately, this decline did not continue into this decade.^{6,7} In 2007, the percent of North Carolina high school students who reported having ever had sex was slightly higher than the national average (52.1% vs. 47.8% respectively).⁸ As expected, the prevalence of sexual experience among high school students increases by grade. (See Figure 9.1.) There are also differences in sexual experience by race and ethnicity; African American high school students are significantly more likely to report having ever had sex



^b Of the very young teenagers who have sexual intercourse, many have a history of sexual abuse as children. Furthermore, sex among the youngest teenagers is often non-consensual and with a partner who controls the decision-making power. Previous abuse experiences and unhealthy sexual relationships have complex influences on sexual development and decision-making, and efforts to prevent pregnancy and STDs should not overlook this very high-risk group (Boonstra, HD. The Case for a New Approach to Sex Education Mounts; Will Policymakers Heed the Message? Guttmacher Policy Review, 2007, Vol 10, No. 2. Spring).

than whites or Latinos. While a majority of high school students (52.1%) have engaged in sex in their lifetime, recent sexual activity is less common. Almost 40% of North Carolina high school students report engaging in sexual intercourse in the last three months; patterns by grade, sex, and race/ethnicity are similar to those observed for ever sexually active.⁹

Sexually Transmitted Diseases (STDs) and Human Immunodeficiency Virus (HIV)

Youth engagement in sexual activity is of particular concern if youth fail to use condoms to protect against STDs and contraceptives to protect against unintended pregnancies. STDs, including HIV, are illnesses and infections that are transmitted by direct sexual contact. STDs include both bacterial and viral infections, both of which can cause serious health problems, including damage to the reproductive or other internal organs, infertility, psychological distress, and cancer.¹⁰ A person may or may not exhibit symptoms depending upon the disease and the case; in fact, the vast majority of those with infection do not report symptoms. Regardless of whether symptoms are present, individuals with STDs or HIV can develop significant health problems and infect their sexual partners. The most prevalent reportable STDs^c in North Carolina include chlamydia, gonorrhea, and syphilis. North Carolina's youth are at particularly high risk—nearly half of all new STD infections in North Carolina occur in youth between the ages of 15-24.¹¹ Nationally, one in four new HIV infections occur among youth age 22 or younger.¹²

Nearly half of all new STD infections in North Carolina occur in youth between the ages of 15-24.

Unintended Pregnancy

In addition to being at risk for STDs and HIV, young people who are sexually active are also at risk for unintended pregnancy. Unintended pregnancies are those that are not planned or not wanted at the time of conception. Teenagers who become mothers are more likely to suffer adverse social and health consequences than women who become mothers after age 19. Teenage mothers are more likely to drop out of high school and remain single parents than older mothers. In addition to the social and health consequences for mothers, children of teenage mothers are more likely to have poor health, academic, and behavioral outcomes.¹³ Additionally, teen childbearing is estimated to cost North Carolina more than \$300 million dollars each year. In 2008, North Carolina's teenage pregnancy rate was 58.6 per 1,000, or 19,398 pregnancies to females aged 15-19.^{d,14} There are large disparities in teenage pregnancy rates. From 2000-2004, the teenage pregnancy rate for females ages 15-17 was 30.4 per 1,000 for white youth compared to 47.5 for Asian/Pacific Islander, 48.2 for American Indian, 57.0 for African-American, and 104.0 for Hispanic youth (the overall teenage pregnancy rate for females ages 15-17 during this time period was 38.6).¹⁵ In 2007 North Carolina ranked 37th (with 1 being the lowest) in

c NCGS 130A.134 and NCAC 41A .0101 require that certain sexually transmitted diseases be reported to the state. Reportable STDs include AIDS, chancroid, Chlamydia, gonorrhea, granuloma inguinale, HIV infection, lymphogranuloma venereum, nongonococcal urethritis, PID, and syphilis.

d Additionally, there were 376 pregnancies among females ages 10-14.

the nation on teen birth rate with 50 births per 1,000 teenagers ages 15-19 compared to the national rate of 42 births per 1,000.¹⁶

Contraceptive Use

In 2007, 61.5% of sexually active high school students reported using a condom at last sexual intercourse. This is comparable to the national prevalence of condom use among high school students.⁸ More male high school students report condom use at last sex (67%) than females (57%). Youth in 12th grade are less likely to report condom use at last sex (both male and female) as compared to youth in ninth grade.⁹ While condom use can be an effective means of protection against STDs, HIV, and unintended pregnancy, they are often used inconsistently and ineffectively, especially among youth.^{17,18} Among sexually active female youth, 20% report birth control pill use at last sex. As expected, among female youth, birth control pill use is highest among the 12th graders, the same group that reported lower condom use at last sex.⁹

Protective Factors

There are a number of factors that have been found to protect against youth engagement in sexual activity. A recent study found that having the support of non-parental adult role models, positive peer role models, spending time in religious activities, and having future aspirations were associated with youth never having sex as compared to their peers who did not have such assets.¹⁹ Other factors that have been found to be associated with youth never having sex include positive peer influences, adolescent-parent communication, talking to mothers about sex, and satisfaction with the maternal relationship.²⁰⁻²⁴

Policies, Programs, and Practices to Reduce Youth Engagement in Sexual Behaviors and Prevent Teen Pregnancy, STDs, and HIV

There are many programs, policies, and practices that have been shown to be effective in helping youth delay initiation and/or engage in responsible sexual activity. Implementation of these programs or policies can help prevent STDs, HIV, or unintended pregnancy. These initiatives can be offered through health care settings, schools, and in communities.

Clinical Settings

Counseling to prevent unintended pregnancy, STD, and HIV among youth can take place in clinical settings. Clinical settings may include traditional “medical homes,” primary care clinics, regular doctor’s offices, or health departments. Clinical sites may also include school-based or school-linked health centers (SBHC/SLHCs), or other clinics designed to serve the special needs of adolescents, prevent pregnancy, or provide STD-related care. Counseling and testing can also be offered in less traditional health care locations, such as churches, malls or other community settings. It is crucial that sexually active youth have access to health professionals and other trained health educators to ensure that they receive appropriate and effective methods of contraception, STD/HIV testing, and STD/HIV treatment.

It is crucial that sexually active youth have access to health professionals and other trained health educators to ensure that they receive appropriate and effective methods of contraception, STD/HIV testing, and STD/HIV treatment.

There are several clinical evidence-based strategies to reduce pregnancy and STDs/HIV. As described in detail in Chapter 4, most major health care professional organizations recommend that adolescents and young adults ages 11-21 see a health care professional for annual routine visits. These visits provide the opportunity for a health care professional to regularly assess and discuss, in a tailored, developmentally-appropriate manner, issues related to puberty, sexual development, romantic relationships, and sexual behaviors. As part of these visits, adolescents can be encouraged to delay sex, and adolescents who have had sex can be identified and receive appropriate counseling and services.

Preventing Teen Pregnancy

There are many effective methods of birth control which, when used effectively, dramatically reduce the risk of pregnancy (e.g. hormonal methods, intrauterine devices (IUD), Depo-Provera (injections), and condoms).²⁵ The most effective strategies to reduce risk of pregnancy among adolescents who are having sexual intercourse are to encourage the use of hormonal contraception and provide access to emergency contraception for those who do not use continuous hormonal contraception.²⁶ Health care professionals can prescribe hormonal contraception. They can also prescribe emergency contraception for adolescents under the age of 17 who cannot access emergency contraception without a prescription.²⁷

Preventing STDs and HIV

The US Preventive Service Task Force (USPSTF) recently recommended high-intensity behavioral counseling to prevent STDs for all sexually active adolescents and adults at increased risk for STDs.²⁸ This counseling should be delivered to adolescents who have been identified at increased risk for STDs during routine adolescent health care or during health care that is problem-focused, such as visits prompted by STD- or pregnancy-related concerns. The USPSTF and the CDC recommend that all female adolescents who have had sex receive routine annual testing for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* until age 25.²⁹ The CDC also recommends routine universal voluntary HIV screening for all sexually active youth beginning at age 13.³⁰ HIV testing of youth at high risk^e for HIV should be repeated at least once a year. Furthermore, adolescents at high risk warrant more complete STD testing.³⁰ Health care professionals should test sexually active adolescents for STD/HIV during routine adolescent health care visits (see **Recommendation 4.1**), and such screening should be available in other community settings targeted to reach high risk youth. For example, as part of the *Get Real. Get Tested.* campaign, testing is available at nontraditional settings such as churches, chain stores, and college campuses.³¹

Health care professionals should test sexually active adolescents for STD/HIV during routine adolescent health care visits, and such screening should be available in other community settings targeted to reach high risk youth.

^e High risk youth include those who engage in sex at an early age, young women and minorities that are sexually active, youth men who have sex with men (MSM), presence of STD, youth who engage in substance use, runaways and other homeless young people. <http://www.cdc.gov/hiv/resources/factsheets/PDF/youth.pdf>

The HPV vaccine prevents infection from the strains of HPV that are responsible for the vast majority of cervical cancer cases in the United States.

Vaccines are also available to prevent the transmission of certain STDs. The hepatitis B vaccine was the first available vaccine to prevent STDs. It is now available in clinic-based programs, and high rates of population-coverage have resulted in dramatic reductions in rates of hepatitis B infection in the US.³² More recently, a vaccine to prevent infection with some strains of genital human papillomaviruses (HPV) has been developed. HPV is the principal cause of genital warts and cervical cancer. There are 30 known strains of HPV. The HPV vaccine prevents infection from the strains of HPV that are responsible for the vast majority of cervical cancer cases in the United States.³³ The HPV vaccine is now recommended for all females ages 9 to 26 by the Advisory Committee on Immunization Practices of the CDC.³⁴ To prevent HPV, young women must be vaccinated before they are exposed to the virus, which is why current prevention efforts include vaccination of adolescent girls before they have initiated sex. The HPV vaccine was recently FDA approved for male adolescents, and CDC recommendations for use of this vaccine among males is expected in the very near future.³⁵ High rates of population-coverage are projected to lead to fewer cases of genital warts, lower health care costs associated with evaluation of abnormal Pap-test caused by HPV infection, and fewer cases of cervical cancer.³⁶ The prevalence of cervical cancer is higher in North Carolina than the national average, indicating the importance of efforts to prevent HPV in this state (in 1997 HPV rates were 9.3 per 100,000 for the entire North Carolina population vs. 7.7 per 100,000 for the United States).³⁷

Currently, North Carolina provides certain vaccines to health care professionals, free of charge, to administer to children regardless of insurance status. This allows the child to receive their recommended vaccines through their regular primary care provider. The provider is only allowed to charge patients a set fee for administering the vaccine. The state currently pays for the DTaP, HepA, Heb B, Hib, IPV, MMR, Tdap, and varicella vaccines for all children under the state's Universal Child Vaccine Distribution Program (UCVDP) program. The HPV vaccine is not one of the vaccines that is covered through the state's UCVDP. However, the federal government will pay for the HPV vaccines through the Vaccines for Children Program (VFC) for some children. This program is available to children who are eligible for Medicaid, uninsured, or underinsured (defined as having health insurance but one that does not cover the full cost of vaccinations), and American Indian or Alaskan Natives. The vaccines available in the VFC program are available through health departments, federally qualified health centers (FQHCs), rural health clinics, as well as most other private physician offices.

Privately insured patients may have more difficulty obtaining the HPV vaccine. Unlike the universal vaccine or the VFC program, providers must purchase vaccines for insured patients and then seek reimbursement after the vaccine is administered. Because the cost of the HPV vaccine is so great, some physicians have chosen not to purchase the vaccine and keep it on hand in the practice. Additionally, some insured families have to pay the full cost of the vaccine because they have not

yet met their deductible. Providers are not limited in what they charge for their administration fee if the vaccine is not covered through the universal or VFC programs. The current retail cost of the vaccine is approximately \$350, not including the administration fee. These costs may be prohibitive to families that do not have first-dollar coverage to pay for the cost of the vaccine.^f

The Division of Public Health (DPH) should conduct an outreach campaign to ensure that children and adolescents receive age-appropriate vaccinations, including the HPV vaccine. In addition, DPH should monitor immunization rates to determine whether the lack of coverage for the HPV vaccine under the state's UCVDP is adversely affecting the immunization rates. If so, DPH should seek additional funding to cover the HPV vaccine through the UCVDP or pursue other strategies to ensure that the vaccination is affordable and readily available in primary care offices.

Recommendation 9.1: Increase Immunization Rates for Vaccine-Preventable Diseases

- a) The North Carolina Division of Public Health (DPH) should aggressively seek to increase immunization rates for all vaccines recommended by the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP), including but not limited to the human papillomavirus (HPV) vaccine which is not currently covered through the state's universal childhood vaccine distribution program (UCVDP).
- b) All public and private insurers should provide first dollar coverage (no co-pay or deductible) for all CDC recommended vaccines that the state does not provide through the UCVDP, and should provide adequate reimbursement to providers to cover the cost and administration of the vaccines.
- c) Health care providers should offer and actively promote the recommended vaccines, including educating parents about the importance of vaccinations. The HPV vaccine should be made available to females ages 9 to 26; however, vaccine delivery should be targeted toward adolescents ages 11-12, as recommended by the CDC's Advisory Committee on Immunization Practices (ACIP).
- d) Parents should ensure that their children receive age appropriate vaccinations.
- e) DPH should monitor the vaccination rate for the HPV vaccine not currently covered through the UCVDP to determine whether the lack of coverage through the UCVDP leads to lower immunization rates. If so, the DPH should

^f First dollar coverage is health insurance coverage that covers the cost of treatment as soon as medical expenses are incurred, in this case a vaccine, effectively making the deductible zero. Without first dollar coverage, the insured must first pay out-of-pocket a specified deductible amount, and only when they meet their deductible will their health insurance policy begin to pay benefits.

seek recurring funds from the North Carolina General Assembly to cover the HPV vaccines through the UCVDP, work with insurers to ensure first dollar coverage and adequate reimbursement for recommended vaccines, or seek new financial models to cover vaccines for children not adequately covered through the UCVDP.

- f) DPH should conduct an outreach campaign to promote all the recommended childhood vaccines among all North Carolinians. The North Carolina General Assembly should appropriate \$1.5 million in recurring funds beginning in SFY 2011 to support this effort.

Youth who participate in comprehensive [sexuality education] programs are at a lower risk of STDs, HIV, and unintended pregnancy than their peers who are in abstinence-only programs.

School-Based Settings

In 1995 the North Carolina General Assembly passed GS §115C-81 requiring public schools to deliver an abstinence only curriculum for sexuality education. Although there were provisions for school districts that wished to provide more comprehensive reproductive health and safety education, most districts chose not to do so. During the 2009 legislative session, the North Carolina General Assembly enacted HB 88 (SL 2009-213), which amends GS §115C-81. Under the revised law, each school is required to offer a reproductive health and safety education program starting in the seventh grade that includes, but is not limited to, information about abstinence; skills to resist engaging in sexual activity; factually accurate biological and pathological information related to the human reproductive system; information on the effectiveness and safety of all FDA-approved methods of birth control and methods to reduce the risk of contracting STDs; information on local resources for testing and treatment of STDs; and awareness of sexual assault, sexual abuse, and risk reduction. In addition, the law states that materials used for sexuality education must be age-appropriate and that the information presented in class must be objective and based upon scientific evidence. Schools must provide health education that meets the requirements of the statute but can expand on the subject areas that are taught.

The new legislation is an important improvement over the prior law in that it expands the health topics to be covered and includes a requirement that the content be objective, based upon peer-reviewed scientific evidence, and accepted by professionals in the field of sexual health education. Examinations of the effectiveness of abstinence-only based programs as well as comparisons of abstinence-only versus comprehensive reproductive health and safety education curricula have consistently demonstrated that youth who participate in comprehensive programs are at a lower risk of STDs, HIV, and unintended pregnancy than their peers who are in abstinence-only programs.^{24,38-41} It is important to note that the evidence is very strong that comprehensive programs *do not* increase sexual behavior, even when they encourage condom or other contraceptive use.⁴² The American Psychological Association, American Medical Association, National Association of School Psychologists, Society for Adolescent Medicine, American Academy

of Pediatrics, and American Public Health Association maintain that sexuality education must be comprehensive to be effective.⁴³⁻⁴⁸ Effective curriculum-based programs have been found to have a set of key features including using needs assessment data to choose the program; using theory-based approaches

based on risk and protective factors; having clear health goals; lasting a sufficient amount of time; selecting leaders who believe in the program and are adequately trained; actively engaging participants and having them personalize the information; addressing peer pressure; teaching communication skills; reflecting the age, sexual experience, and culture of young people in the program; and being implemented with fidelity.⁴⁹

While the new law requires each public school to offer comprehensive reproductive health and safety education, it does not mandate that all students receive this education. Specifically, the new law does not change the part of the existing statute that requires each local board of education to adopt a policy to allow parents or legal guardians to consent or withhold consent for their student's participation in any of this education. School boards can choose to enact opt-out provisions, so that students will automatically receive the more comprehensive reproductive health and safety education unless the parents specifically signs a form to request that that their child not receive this education. Currently this is the process used to opt-out of sexuality education; 33% of middle schools and 42% of high schools report that a few parents opt-out of having their child attend sexuality education classes each semester.^g Alternatively, the school board can implement opt-in provisions, so that students only receive comprehensive reproductive health and safety education if the parent signs a consent form. An opt-out consent process would ensure that more young people in North Carolina receive evidence-based, effective sexuality education.

Comprehensive reproductive health and safety education that provides youth with information and life skills needed to modify their sexual behavior and protect themselves is integral to a comprehensive statewide approach to prevent pregnancy, STDs, and HIV among North Carolinians. To ensure that more students receive comprehensive reproductive health and safety education, the Task Force recommends:

Recommendation 9.2: Ensure Comprehensive Reproductive Health and Safety Education for More Young People in North Carolina

- a) **Local school boards should adopt an opt-out consent process to automatically enroll students in the comprehensive reproductive health and safety education**

^g Langer S. Project Coordinator, Physical Activity and Nutrition Branch, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. September 28, 2009.

program unless a parent or legal guardian specifically requests that their child not receive any or all of this education.

- b) The State Board of Education should require Local Education Authorities to report their consent procedures, as well as the number of students who receive comprehensive reproductive health and safety education, and those who receive more limited sexuality education. Information should be reported by grade level and by school.

Community-based programs can positively impact age of sexual initiation, condom use, contraceptive use, and pregnancy and birth rates.

Community-Based Settings

Research has shown that community-based programs can positively impact age of sexual initiation, condom use, contraceptive use, and pregnancy and birth rates.²⁴ These types of community-wide outreach activities have promise because of their ability to change social norms around sexual behaviors, prevention of an unintended pregnancy and STDs, and the need to be tested for STDs and HIV.

North Carolina supports community-based programs for pregnancy prevention through Teen Pregnancy Prevention Initiative (TPPI) grants. TPPI grants are administered by the Division of Public Health (DPH), and are used to support adolescent pregnancy prevention programs (APPP) and adolescent parenting programs (APP) in local communities across the state. APPP are aimed at preventing pregnancy among all at-risk adolescents and typically provide education, support academic achievement, encourage parent/teen communication, promote responsible citizenship, and build self-confidence. DPH requires grantees to implement APPP programs that have been shown through evaluation to be effective at delaying sexual debut, increasing contraceptive use, and/or reducing teenage pregnancy. APPs target first-time pregnant or parenting teenagers. The goals of the programs are to support school work to help the teenager graduate from high school, ensure appropriate health care use for the young woman and her child, enhance parenting skills, prepare the mother for employment, prevent a second pregnancy, and reduce the potential for abuse and neglect. Nationally, 33% of pregnant teens drop out; APP participants have a 4% dropout rate.^h In SFY 2008-2009, there were 27 local APPP programs and 29 local APP programs in North Carolina. Current grantees include health departments, departments of social services, local nonprofit organizations, schools, organizations providing health care, and others. In addition to state support for community-based programs, the Adolescent Pregnancy Prevention Campaign of North Carolina (APPCNC) helps local organizations identify evidence-based pregnancy prevention programs and supports APP and APPP sites in program design, development, and implementation.

^h Reeve R. Senior Advisor for Healthy Schools, North Carolina Healthy Schools, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. October 15, 2009.

Community-based STD and HIV prevention programs have often taken the form of mass media and social marketing campaigns. Mass media campaigns aim to increase community knowledge such as how STDs/HIV are transmitted or attitudes about being tested for STDs/HIV, while social marketing campaigns aim to change behaviors, such as increasing condom use. To date, much of the evaluation research on social marketing of condoms for STD and HIV prevention has taken place in developing countries but the evidence suggests that these programs can lead to increased condom use and a reduced number

of partners among youth.⁵⁰⁻⁵³ Less evaluation evidence exists from the United States. However, in 2006-2007, North Carolina's Department of Public Health launched a social marketing campaign called *Get Real. Get Tested.*, that increased HIV testing by 18% among those in high risk communities. The campaign included outreach in nontraditional sites, as well as radio and television commercials that promoted the testing messages.³¹ The success of *Get Real. Get Tested.* illustrates the potential of social marketing campaigns to change social norms around youth sexual behaviors.

Community-based pregnancy, STD, and HIV prevention programs are critical to ensuring that adolescents both in and out of school receive prevention messages and support. Therefore the Task Force recommends:

Recommendation 9.3: Expand Teen Pregnancy and STD Prevention Programs and Social Marketing Campaigns (PRIORITY RECOMMENDATION)

- a) The North Carolina Division of Public Health (DPH) should develop and disseminate an unintended pregnancy prevention campaign and expand the Teen Pregnancy Prevention Initiative to reach more adolescents. The North Carolina General Assembly should appropriate \$3.5 millionⁱ in recurring funds to DPH to support this effort.

- b) DPH should expand the *Get Real. Get Tested.* campaign for HIV prevention; create sexually transmitted disease prevention messages; and collaborate with local health departments to offer non-traditional testing sites to increase community screenings for STDs and HIV among adolescents, young adults, and high-risk populations. The North Carolina General Assembly should appropriate \$2.4 million^j in recurring funding to DPH to support this effort.

i The North Carolina Division of Public Health estimates it would cost \$3.5 million to develop and disseminate an unintended pregnancy prevention campaign and expand the Teen Pregnancy Prevention Initiative to reach more adolescents (Holliday J., Head, Women's Health Branch, Division of Public Health, North Carolina Department of Health and Human Services. Oral communication. May 14, 2009).

j The North Carolina Division of Public Health estimates it would cost \$2.4 million to expand the *Get Real. Get Tested.* campaign for HIV prevention; create sexually transmitted disease prevention messages; and collaborate with local health departments to offer nontraditional testing sites to increase community screenings for STDs and HIV among adolescents, young adults, and high-risk populations (Foust, EM. Head, HIV/STD Prevention and Care, Division of Public Health, North Carolina Department of Health and Human Services. Oral communication. May 14, 2009).

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From a population perspective, one of the most compelling justifications for investing in adolescent health is because of opportunities to favorably influence life-long trajectories of health. For example, effective efforts to prevent alcohol and other substance abuse, prevent or favorably influence chronic mental illness, prevent teen pregnancy, or prevent HIV infection during adolescence will pay off over many decades. Furthermore, investing in improving adolescent health provides the opportunity to reduce the risk of adult-onset disease, which again has payoff decades into the future.

This chapter focuses on what can be done during adolescence to reduce adult cardiovascular disease. The Task Force selected this focus to illustrate a life-span perspective for investing in adolescent health and because North Carolina has high rates of death from heart disease among adults; in 2005, North Carolina's age-adjusted heart disease death rate was 209.6 compared to 211.1 for the United States (ranking North Carolina 27th out of 50 states with 1 being the best).¹ Cardiovascular disease also accounts for high rates of stroke and chronic renal disease in our state.² The well-recognized risk factors for cardiovascular disease include family history of heart disease or stroke, tobacco use, obesity, high blood pressure, high cholesterol, and diabetes.

For many North Carolinians, modifiable risk factors for adult cardiovascular disease have clearly emerged by late adolescence. In 2007, 31% of young adults ages 18-24 reported being current smokers, 22% were obese (BMI > 30), 6% had been told at some time that they had high blood pressure, and 1% had been told that they had pre-diabetes or diabetes.³ Of note, some of these risk factors are interrelated; for example, individuals who are obese are also at higher risk of having high blood pressure, high cholesterol, and diabetes; weight loss and physical activity independently modify these risks.

There are three logical adolescent health-focused strategies to reduce rates of adult cardiovascular disease in North Carolina. The first is continuing to reduce rates of tobacco use among adolescents. Most adults who use tobacco began smoking before the age of 18, with the average age of initiation between ages 12 and 14 years.⁴ Smokers typically become addicted to nicotine before they reach age 20.⁵ In the first section of this chapter, we review tobacco use among adolescents; highlight the success we have had with a multifaceted, evidence-based approach to reducing tobacco use among young people; and present Task Force recommendations that will lead to continued reductions.

The second logical strategy is to reduce overweight and obesity among young people in North Carolina. This will, in turn, lead to reduced risk of high blood pressure, high cholesterol, diabetes, or adult cardiovascular disease. Success will require a multifaceted strategy using evidence-based approaches or promising practices when evidence-based strategies are not known. The second section of this chapter reviews adolescent nutrition and physical activity, and presents Task Force recommendations to reduce overweight and obesity among adolescents.



For many North Carolinians, modifiable risk factors for adult cardiovascular disease have clearly emerged by late adolescence.

Although one in five adolescents in North Carolina are still smoking, comprehensive prevention efforts aimed at young people have positively impacted youth smoking rates.

The third strategy is to assure that adolescents who have risk factors for adult cardiovascular disease are identified and receive high-quality, regular check-ups. Adolescents who are addicted to tobacco need treatment for tobacco cessation. Those with high blood pressure or diabetes should be identified and managed appropriately. Once identified, evidence-based clinical strategies to prevent and reduce obesity need to be available to adolescents. This strategy depends on adolescents having access to high-quality, evidence-based health care services as discussed more fully in Chapter 4.

Tobacco

Tobacco use is a major risk factor for cardiovascular disease, which, in turn, can lead to heart attacks and strokes.⁶ Smoking also causes nearly 90% of lung cancer deaths, at least 30% of all cancer deaths, and other cancers including oral, esophageal, pancreatic, cervical, bladder, stomach, and kidney cancer.⁷ As discussed above, almost all adults who smoke became addicted to nicotine during their adolescent years. In North Carolina, 15.7% of high school students and 27.1% of middle school students who have ever smoked report smoking their first cigarette by age 11.⁸

North Carolina youth are less likely to smoke than youth nationwide (19.0% vs. 19.7% among high school students and 4.5% vs. 6.3% among middle school students).^a Although one in five adolescents in North Carolina are still smoking, comprehensive prevention efforts aimed at young people have positively impacted youth smoking rates. Smoking rates among high school students declined 40% from 1999 to 2007 (from 31.6% to 19.0%). Similarly, smoking rates among middle school students declined by 70% (from 15.0% to 4.5%).^{8,9} These declines in youth smoking rates resulted in 34,000 fewer youth smokers in North Carolina in 2007 when compared to 2003. In the long run, declines in youth smoking will positively impact the state in respect to fewer smoking-related deaths and future savings in health care costs.¹⁰ In fact, overall smoking rates among adults in North Carolina have dropped since 1997. Nonetheless, North Carolina's adult smoking rates consistently remain above the vast majority of other states, ranking 14th highest in smoking prevalence in the nation. In 2008, 20.9% of adults in North Carolina reported that they smoked compared to 18.4% of adults nationally.¹¹ However, there has been less progress made among college-age students ages 18-24 years. This group of young adults is the most likely to smoke. In 2007, 31.3% of 18-24 year olds reported that they were current smokers, although this number declined to 26.1% by 2008. More work is needed to further reduce smoking among adolescents and young adults so that fewer adults will be addicted in the future.

^a Placona M. Evaluation Specialist, Surveillance and Evaluation Team, Tobacco Prevention and Control Branch, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. May 27, 2009.

The Centers for Disease Control and Prevention (CDC) promotes the implementation of comprehensive, statewide tobacco control programs as the best way to reduce smoking rates, tobacco-related deaths, and diseases caused by smoking. There are five components of comprehensive tobacco control programs, including state and community interventions, health communications interventions, cessation interventions, surveillance and intervention, and administration and management. This model combines evidence-based interventions aimed at changing social norms, affecting clinical practice, improving the community and environment, and strengthening public policies to reduce smoking and the negative health effects of smoking.¹²

Over the last eight years North Carolina foundations, governmental entities, health care professionals, insurers, and other community partners have worked together to implement a multifaceted, evidence-based campaign to reduce youth tobacco use. The campaign works to change social norms using multimedia and other initiatives, expand access to counseling and tobacco cessation services, change community and organizational policies to support tobacco prevention or cessation efforts, and pass new laws to reduce youth smoking and exposure to second-hand smoke. The Health and Wellness Trust Fund (HWTF) and the Tobacco Prevention and Control Branch (TPCB) of the North Carolina Division of Public Health have been the state leaders in promoting tobacco prevention among youth and young adults.^b For example, the HWTF funded “TRU” (or Tobacco.Reality.Unfiltered), a media campaign aimed at changing social norms among youth to help prevent tobacco use.^c The HWTF, TPCB, and other groups have also worked together to expand access to smoking cessation services. The HWTF and TPCB have helped fund North Carolina Quitline, a toll-free hotline that provides support and counseling for individuals who want to quit smoking.^d The HWTF also launched “Call It Quits,” a multimedia campaign aimed at promoting QuitLine services to young adults ages 18-24, parents, and others whose behavior influences teen tobacco use.¹³ Due to legislation passed in 2008, nicotine replacement therapy (NRT) may be supplied free-of-charge to callers through Quitline.^e In addition, most health insurers now provide some coverage of tobacco cessation services, although, as described more fully below, the required cost sharing may still be prohibitive to many individuals.

In addition to the social marketing campaign and expanded access to counseling and medications, there have also been significant changes at the community and policy levels that support tobacco prevention or cessation efforts. Starting in 2001, then Governor Hunt initiated a campaign to reduce tobacco use in public schools (grades K-12). This initiative to make schools 100% tobacco-free

Over the last eight years North Carolina foundations, governmental entities, health care professionals, insurers, and other community partners have worked together to implement a multifaceted, evidence-based campaign to reduce youth tobacco use.

b Other organizations have taken a leadership role in promoting healthy workplaces and hospitals, including The Duke Endowment, NC Prevention Partners, and NC Alliance for Health.

c TRU uses emotional testimony of young North Carolinians whose health has been severely impacted from tobacco use to help prevent tobacco use among youth.

d The Quitline, 1-800-Quit-Now, is free and confidential for the caller and is available daily from 8 a.m. to 2 a.m.

e NCGS §90-18.6

Implementation of these multifaceted evidence-based strategies has helped to reduce tobacco use among youth. However, more is needed, particularly among college-aged students ages 18-24.

started as a voluntary effort, supported by the HWTF with technical assistance provided by the TPCB. The General Assembly later enacted a law requiring *all* elementary, middle, and high schools to be 100% tobacco-free beginning no later than August 1, 2008.^f The HWTF also provided two rounds of grant funding in 2005 and 2007 to support tobacco-free college campuses.

In addition to the changes in state laws requiring all schools to be 100% tobacco-free, the North Carolina General Assembly has also implemented other laws which support prevention efforts. For example, the General Assembly raised the tobacco tax by 30 cents in 2005-2006, and by another 10 cents in 2009. In 2007, the General Assembly passed a law which required all dorms and other buildings on campuses of the University of North Carolina system to be smoke-free, and allowed UNC campuses to prohibit smoking on their grounds.^g The General Assembly gave community college campuses the authority to go smoke-free in 2008.^h According to the HWTF, 17 community colleges and nine private colleges and universities went 100% tobacco-free as of September 2009. Four of the UNC campuses have gone smoke-free (within 100 feet of the perimeter). Additionally, in 2009, the General Assembly enacted legislation to prohibit smoking in restaurants and bars.ⁱ

Implementation of these multifaceted evidence-based strategies has helped to reduce tobacco use among youth. (See Figure 10.1.) However, more is needed, particularly among college-aged students ages 18-24. Given the proven negative impact of tobacco use on health and well-being and on North Carolina, the Task Force has developed a recommendation supporting a continuing comprehensive approach to youth tobacco use prevention. The recommendation includes further increases in the tobacco taxes, providing adequate funding for a comprehensive tobacco control program, enacting comprehensive smoke-free policies, and further strengthening cessation services including coverage of counseling and appropriate medications.

Comprehensive Tobacco Control Program Funding

The CDC recommends that states fund a comprehensive tobacco control program at levels based on the evidence as documented in *Best Practices for Comprehensive Tobacco Control Programs* (2007).¹² Based on North Carolina's population, smoking prevalence, and other factors, the CDC recommends

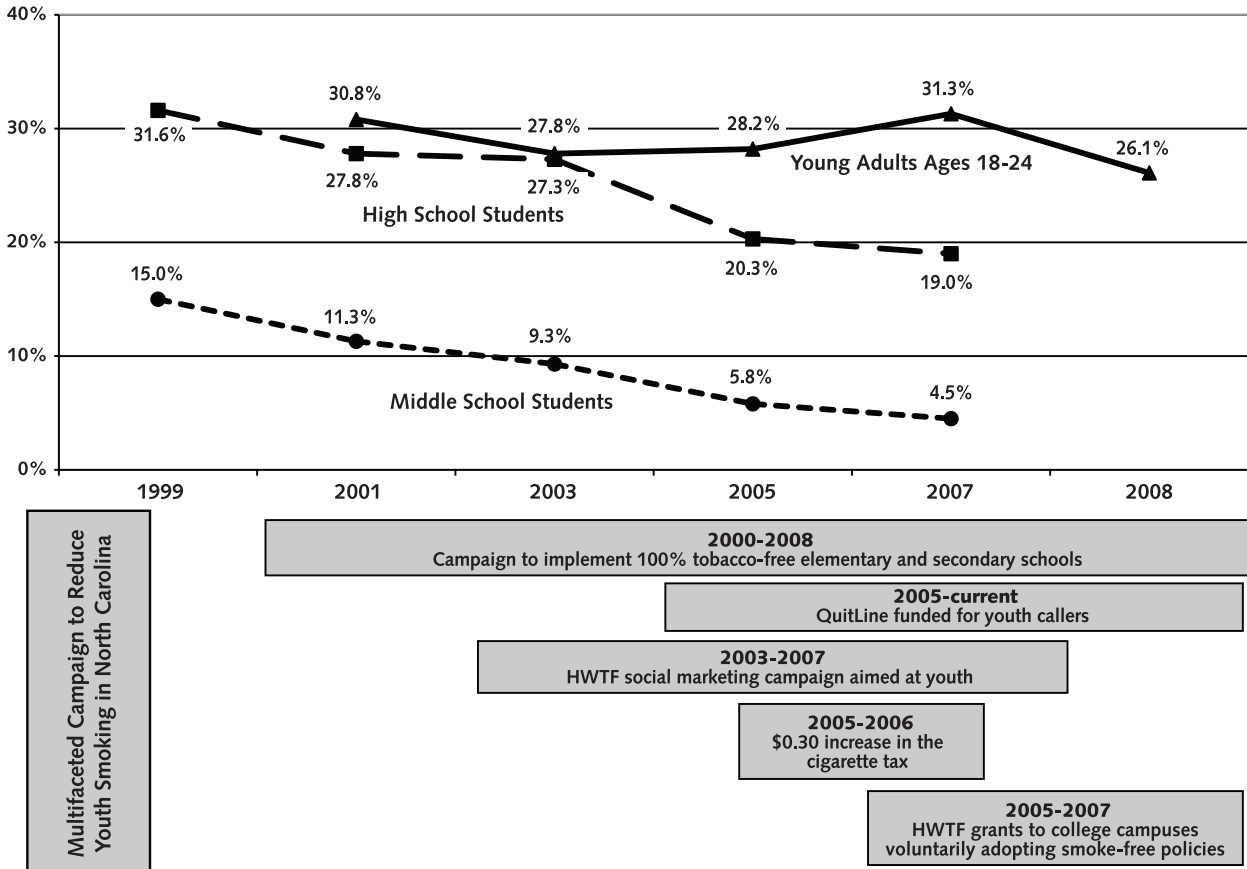
^f Session Law 2007-236.

^g Session Law 2007-114. All buildings and residential dorm rooms on UNC system campuses were required to be smoke-free as of the 2008-2009 school year. (NCGS §143-596-597.) Under current law, UNC system campuses were also given the authority to prohibit smoking on other grounds and within 100 feet of a building. The law provides an exception to all grounds and walkways of the UNC Health Care system and of the East Carolina University School of Medicine, Health Sciences Complex, and Medical Faculty Practice Plan, and each of these facilities prohibits all tobacco products on their grounds. While the law does not address the prohibition of other tobacco products, universities are allowed to prohibit all tobacco products use within 100 feet of their buildings. (Martin, J. Director of Policy and Programs, NC Tobacco Prevention and Control Branch. Written (email) communication. October 5, 2009.)

^h Session Law 2008-95.

ⁱ Session Law 2009-27.

Figure 10.1
North Carolina's Multifaceted Campaign to Reduce Youth Smoking is Working



Source: Tobacco Prevention and Control Branch, Division of Public Health, North Carolina Department of Health and Human Services. Youth Tobacco Survey. 2003, 2005. <http://www.tobaccopreventionandcontrol.ncdhhs.gov/data/factarchives.htm>. Published September 2, 2009. Accessed September 21, 2009. North Carolina State Center for Health Statistics. Behavioral Risk Factor Surveillance System. 2000-2008. <http://www.schs.state.nc.us/SCHS/data/brfss.cfm>. Published June 22, 2009. Accessed September 21, 2009.

an annual state appropriation for North Carolina of \$106.8 million for comprehensive tobacco control programs.^{j,12} A practical approach would be to incrementally work toward the full amount, which would allow the state time to build the capacity and infrastructure needed to successfully support and sustain initiatives and efforts within the five best practice areas.

In theory, most or all of the funding recommended by the CDC could come from Tobacco Master Settlement Agreement (MSA) funds. In North Carolina, only 25% of MSA funds were allocated specifically for population health improvement.

^j Comprehensive tobacco control programs are coordinated efforts to establish smoke-free policies and social norms in all populations and age groups, to help all tobacco users to quit, and to prevent the initiation of tobacco use in young people.

North Carolina spends far less than the amount recommended by the CDC on tobacco control funding and has insufficient resources to reach everyone who wants help with tobacco cessation.

These funds were allocated to the HWTF.^k This funding has been primarily focused on reducing tobacco use among teens and young adults up to age 24. For FY 2008-2009, the HWTF's funding for tobacco prevention and cessation initiatives was \$19.2 million, less than one-fifth the amount recommended by the CDC. However, the HWTF will have less money available to support tobacco prevention and cessation or other health promotion activities in the future. In 2004, the North Carolina General Assembly scheduled the HWTF to pay \$350 million in bonds the state issued to support capital construction unrelated to prevention and cessation services. Due to this debt service burden, the HWTF will have significantly less money to put towards tobacco prevention and cessation. HWTF funding for these activities is expected to decrease to below \$15 million starting in FY 2010-2011 as it begins to pay for the debt service at the highest level under the 2004 legislation.¹³

The CDC is the other primary source of current funding for tobacco prevention and control in North Carolina. In FY 2009-2010, the TPCB received \$1.7 million from CDC grants.¹ This funding provides infrastructure for the Division of Public Health's evidence-based tobacco control efforts. Combining all sources of tobacco prevention and control funding, North Carolina's total funding amount for FY 2008-2009 is \$19.2 million, which the CDC considers "minimal reach," reaching less than 10% of the total population.¹² Total funding for FY 2009-2010 is expected to be below \$17.8 million due to the decrease in funding to the HWTF.

North Carolina spends far less than the amount recommended by the CDC on tobacco control funding and has insufficient resources to reach everyone who wants help with tobacco cessation. Data from the Youth Tobacco Survey show that of those who are current smokers, 53.2% of high school students and 57.0% of middle school students have tried to quit at least once in the past year; yet, only 7.6% of high school students and 13.9% of middle school students have ever participated in a program to help them quit using tobacco.⁸

State and Community Interventions

Evidence-based comprehensive state and community tobacco prevention and cessation policies are an important component of a state's comprehensive tobacco control program. Such policies help all tobacco users quit, prevent young people from starting to use tobacco products, and protect everyone from the dangers of secondhand smoke. Three of the five most significant actions the CDC recommends are policy changes: levying effective tobacco taxes on all tobacco products, enacting smoke-free laws, and reducing out-of-pocket costs for effective cessation therapies.¹⁴

^k In 2000, the North Carolina General Assembly created the Health and Wellness Trust Fund. With its funding (25% of the Tobacco Master Settlement Agreement), the HWTF invests in programs and partnerships to help all North Carolinians achieve better health. The HWTF invests in a wide array of prevention activities, including teen tobacco use and prevention and cessation (\$19.2 million in FY 2008-2009), obesity prevention (\$3.4 million in FY 2008-09), health disparities reduction (\$5.0 million in 2008-09), and other prevention activities (\$1.0 million in FY 2008-09).

¹ Jim D. Martin, Director of Policy and Programs, N.C. Tobacco Prevention and Control Branch. Written (email) communication. June 29, 2009.

Tobacco Taxes: The CDC recommends increasing the tax on tobacco products as a primary method for states to reduce tobacco use and improve public health.¹² Prior to 2005, North Carolina only had a \$0.05 cigarette tax, the second lowest in the country. The General Assembly increased the rate by \$0.30 in 2005-2006, and another \$0.10 this last session (2009). However, even with this increase, North Carolina still has the 7th lowest cigarette tax in the country (as of August 12, 2009). Furthermore, the state's tax on other tobacco products (OTP), which is 12.8% of the wholesale price, is among the lowest in the country.¹⁵ A United States Surgeon General's report states that youth who use OTP are more likely to use cigarettes.¹⁶

Research shows that youth are more price sensitive to the cost of tobacco products than adults; a 10% price increase on a pack of cigarettes results in a 4%-7% decrease in the number of youth who smoke.^{14,17} In February 2009, the federal tax on cigarettes was increased to \$0.62 with the federal reauthorization of the Children Health Insurance Program (CHIP) (making the federal taxes on cigarettes \$1.02 per pack).^{m,18} It is estimated that increasing North Carolina's state cigarette tax to the national average of \$1.32 (as of August 21, 2009) would reduce North Carolina's youth smoking rate by 14.0% and prevent more than 73,700 children in North Carolina from becoming adult smokers.¹⁹ In addition, enacting an OTP tax comparable to the cigarette tax, which would be 55.0% of the wholesale price, would discourage the use of OTPs as an alternative by individuals who are quitting or reducing their cigarette consumption. According to the Campaign for Tobacco-Free Kids, it is estimated that increasing North Carolina's OTP tax to 55% would lead to an overall OTP consumption youth use decline of 14.8%.^{n,20} Therefore, implementing these tax increases at the same time would have a dramatic impact on the number of youth using tobacco products.

Based on research findings and experiences of other states, the Task Force determined that raising North Carolina's tobacco taxes is one of the most effective ways to reduce initiation of tobacco use by young people and encourage all tobacco users to quit. In addition, North Carolina can show continued commitment to protecting public health and saving lives from tobacco use and secondhand smoke exposure by maintaining a cigarette tax rate that always meets or exceeds the current national average.

Smoke-Free Policies: The CDC recommends smoking bans and restrictions to decrease exposure to secondhand smoke.¹² Secondhand smoke contains more

The CDC recommends increasing the tax on tobacco products as a primary method for states to reduce tobacco use and improve public health... North Carolina still has the 7th lowest cigarette tax in the country.

m Pub L No.111-003

n Campaign For Tobacco-Free Kids is a nonprofit 501(c)(3) based in Washington, DC, that is dedicated to being a leader in reducing tobacco use and its consequences. Major funders include the American Cancer Society, the Robert Wood Johnson Foundation, the American Legacy Foundation, the American Heart Association, and GlaxoSmithKline Consumer Health care. Numerous professional associations including the American Academy of Family Physicians, the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, the American Dental Association, and the American Medical Association are partner organizations. For more information, visit <http://www.tobaccofreekids.org>.

**Comprehensive
statewide smoke-
free laws to
eliminate exposure
to secondhand
smoke in *all*
worksites and
public places
would save more
lives in North
Carolina.**

than 250 toxic chemicals. Of these, more than 50 of them are cancer-causing agents. There is no safe level of exposure to secondhand smoke. Even exposure for a short duration is harmful to health.²¹ According to a recent report by the Institute of Medicine, exposure to secondhand smoke can increase the risk of coronary heart disease and heart attacks, and bans on smoking can reduce this risk.²² Youth are uniquely affected by secondhand smoke. Children's lung development is hindered by secondhand smoke exposure, and exposure can also lead to acute respiratory infections and ear problems, and exacerbate asthma, causing more severe and frequent attacks.²³ In addition, smoking bans are effective in reducing cigarette consumption and in increasing the number of people who quit smoking.¹⁴ Studies have shown that enactment of smoking bans in workplaces and in public places have led to a reduction in the number of hospitalizations due to acute coronary syndrome and are associated with a decrease in acute myocardial infarction incidence.²⁴⁻²⁷

In May 2009, North Carolina passed Session Law 2009-27 banning smoking in restaurants and most bars. The law goes into effect January 2, 2010.^o Effective January 2, 2010, local governments will have expanded authority to regulate smoking on local government grounds and in public places. Local governments will have the ability to further restrict smoking in enclosed public places such as theaters and retail stores. Counties, municipalities, and boards of health may take action under the new authority. However, the law requires that if a local board of health adopts a rule after January 2, 2010, the rule will not be effective until the board of county commissioners adopts an ordinance approving the rule.²⁸ While this new law is a step forward and marks progress in protecting North Carolinians from secondhand smoke, North Carolina still does not have comprehensive smoke-free laws that protect all North Carolinians from secondhand smoke exposure by prohibiting smoking in *all* worksites and public places. Venues that are currently not covered by smoke-free law at the state level in North Carolina include private workplaces, retail stores, and recreational/cultural facilities.²⁹

Comprehensive statewide smoke-free laws to eliminate exposure to secondhand smoke in *all* worksites and public places would save more lives in North Carolina.

Cessation Services: Only about 4%-7% of individuals who try to quit using tobacco are successful. Quitting is difficult due to the addictive nature of tobacco and the inability for some people to access affordable counseling and medications. Consistent and effective tobacco intervention in the health care delivery system requires the involvement of providers, health care systems, insurers, and purchasers of health insurance.³⁰

^o Session Law 2009-27 exempts cigar bars and private clubs.

Many North Carolinians lack health insurance that provides “first-dollar” coverage for evidence-based clinical services. First-dollar coverage would ensure that people could access needed counseling and medications without first meeting a deductible, or paying coinsurance and copayments. Cessation counseling and appropriate medications, when offered together, have proven effective in smoking cessation.³⁰ While the major insurance plans in North Carolina all offer some coverage of tobacco cessation products or services, out-of-pocket costs for individuals still remain.³¹ These costs can be quite significant depending on the plan and an individual’s ability to pay, and may even discourage people from seeking help. The CDC recommends reducing out-of-pocket costs for effective cessation therapies to increase the use of effective therapies, the number of people who attempt to quit, and the number of people who successfully quit.¹⁴

Although there is less research on smoking cessation among adolescents, evidence shows that health care providers who advise their adult patients to quit can help motivate people to quit. Provider counseling can increase successful quit rates by 5%-10%.³² For example, eight counseling sessions in addition to medication increases quit rates to 32.5%, while simple advice from a physician can increase quit rates to 10%.³⁰ Moreover, cessation success (or abstinence) is directly related to the length, number, and intensity of counseling sessions. Research shows that as these factors increase, so do long-term quit rates.³⁰ Yet, nearly 28.5% of adult smokers in the state reported they had not been advised within the last 12 months by their provider to quit.³³ Appropriate medication is another effective method for treating tobacco dependence. However, in 2007, 61.6% of adult smokers in North Carolina reported that their health care provider did not “recommend or discuss medication to assist them with quitting smoking.”³³

One early intervention used to reduce substance use is the Screening, Brief Intervention, and Referral into Treatment (SBIRT) model. SBIRT has been studied for more than 20 years in different settings and populations and has shown to be effective in reducing tobacco, alcohol, and other drug use among adults and adolescents.³⁴ Primary care providers who treat adolescents screen them to determine if they are using or thinking about using tobacco. Individuals who are identified through screening tools to be at risk, or who are using tobacco, should be offered counseling. (See **Recommendation 7.6.**)

In the past ten years, North Carolina has implemented many components of a comprehensive tobacco control program and, subsequently, has seen dramatic declines in youth smoking. However, North Carolina can still do more to implement a comprehensive tobacco control program as recommended by the CDC. Given the success of this approach over the past ten years, the Task Force recommends:

Quitting is difficult due to the addictive nature of tobacco and the inability for some people to access affordable counseling and medications.

Recommendation 10.1: Support the Implementation of North Carolina's Comprehensive Tobacco Control Program (PRIORITY RECOMMENDATION)

- a) The North Carolina General Assembly (NCGA) should adopt measures to prevent and decrease adolescent smoking. As part of this effort, the NCGA should:
 - 1) Increase the tax on tobacco products and new revenues should be used for a broad range of prevention activities including preventing and reducing dependence on tobacco, alcohol, and other substances.
 - a. The NCGA should increase the tax on a pack of cigarettes to meet the current national average. The cigarette tax should be regularly indexed to the national average whenever there is a difference of at least 10% between the national average cost of a pack of cigarettes (both product and taxes) and the North Carolina average cost of a pack of cigarettes.
 - b. The NCGA should increase the tax on all other tobacco products to be comparable to the current national cigarette tax average, which would be 55% of the product wholesale price.
 - 2) The NCGA should support the state's Comprehensive Tobacco Control Program by
 - a. Protecting the North Carolina Health and Wellness Trust Fund's (HWTF) ability to continue to prevent and reduce tobacco use in North Carolina by
 - i. Ensuring that no additional funds are diverted from HWTF's share of the Master Settlement Agreement.
 - ii. Releasing HWTF from its obligation to use over 65% of its annual MSA receipts to underwrite debt service for State Capital Facilities Act, 2004.
 - b. The NCGA should better enable the Division of Public Health (DPH) and North Carolina Health and Wellness Trust Fund (HWTF) to prevent and reduce tobacco use in North Carolina by appropriating \$26.7 million in recurring funds in SFY 2011 to support implementation of the Comprehensive Tobacco Control program. The NCGA should appropriate other funds as necessary until state funding, combined with HWTF's annual allocation for tobacco prevention (based on provision A), reaches the Centers for Disease Control and Prevention recommended amount of \$106.8 million by 2020.

- c. DPH should work collaboratively with the HWTF and other stakeholders to ensure that the funds are spent in accordance with best practices as recommended by the Centers for Disease Control and Prevention. A significant portion of this funding should be targeted towards youth.
- 3) The NCGA should amend current smoke-free laws to mandate that all worksites and public places are smoke-free.
 - 4) In the absence of a comprehensive state smoke-free law, local governments, through their Boards of County Commissioners should adopt and enforce ordinances, board of health rules, and policies that restrict or prohibit smoking in public places, pursuant to NCGS §130A-497.
- b) Comprehensive evidence-based tobacco cessation services should be available for all youth.
 - 1) Insurers, payers, and employers should cover comprehensive, evidence-based tobacco cessation services and benefits including counseling and appropriate medications.
 - 2) Providers should deliver comprehensive, evidence-based tobacco cessation services including counseling and appropriate medications.

Obesity

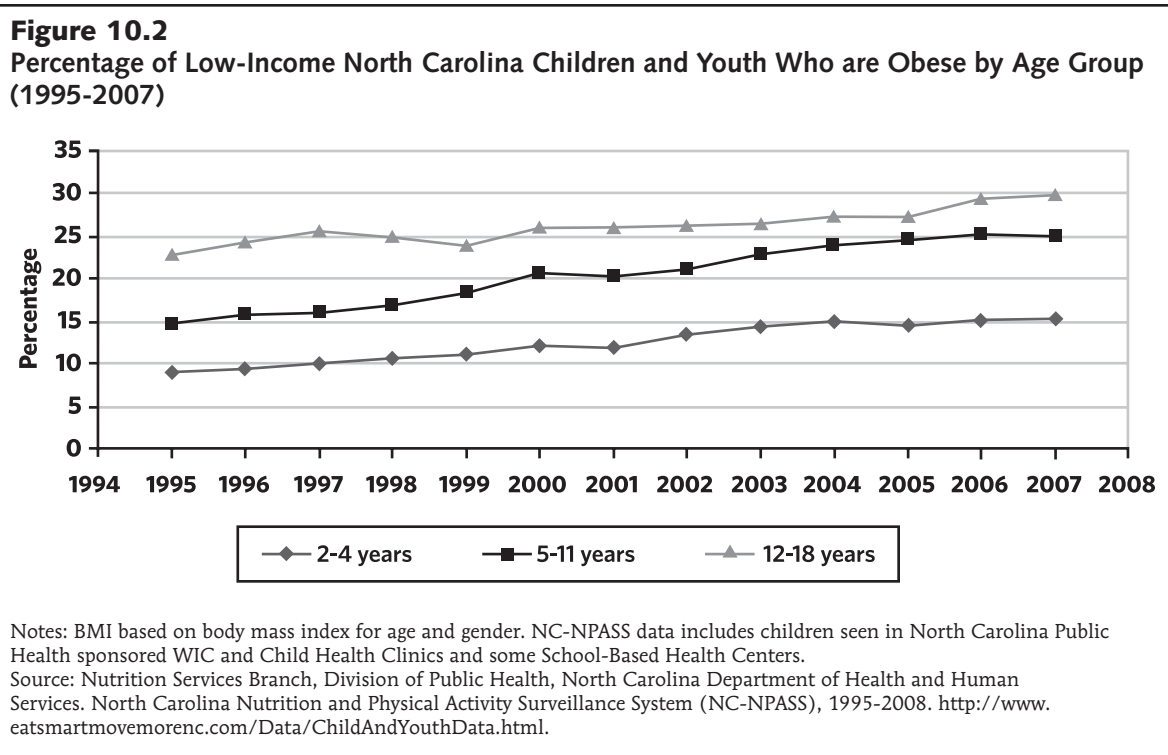
In addition to tobacco use, a major risk factor for adult cardiovascular disease is being overweight or obese. Overweight or obese children have higher risks than healthy weight children for developing high blood pressure, high cholesterol, and Type 2 diabetes during adolescence and later on in life. Overweight or obese children are also more likely to become overweight or obese adults.³⁵ In North Carolina, a large proportion of youth are overweight or obese. (See Figure 10.2.) According to Trust for America's Health, North Carolina youth ages 10-17 ranked 14th highest in the country for overweight and obesity.³⁶ In 2008, 17.5% of North Carolina adolescents ages 12-18 were overweight, and 28.5% were obese.^{p,q,37}

Youth gain weight when they consume more calories than are needed for their level of physical activity. Aside from the large role that the environment and behavior play, genes and metabolism also affect body weight.³⁵ Given the variety of factors affecting weight gain, there is no one cause or solution to the obesity

Overweight or obese children have higher risks than healthy weight children for developing high blood pressure, high cholesterol, and Type 2 diabetes during adolescence and later on in life.

p The Nutrition Services Branch, North Carolina Division of Public Health, maintains the North Carolina Nutrition and Physical Activity Surveillance System (NC-PASS) and notes that "NPASS data are limited to children seen in North Carolina Public Health Sponsored WIC and Child Health Clinics and some School Based Health Centers."

q Overweight is defined as BMI \geq 85th percentile but $<$ 95th percentile. Obesity is defined as BMI \geq 95th percentile.



epidemic. However, prevention interventions at the behavioral and environmental level within schools, the community, and clinical settings offer the greatest opportunity for action.³⁸

Schools

Schools can play an important role in helping youth develop healthy eating habits and patterns of physical activity (for more information about improving physical education and physical activity in schools, see Chapter 5).³⁹

Improving School Nutrition in Middle and High Schools

Good nutrition is vital for adolescents in achieving and maintaining optimal health. Promoting healthy eating patterns among children is particularly important since unhealthy eating habits established during adolescence tend to be carried into adulthood.⁴⁰ Schools can play an important role in helping youth develop lifelong healthy eating habits since youth spend a significant amount of time in the school environment. Making healthy food available, while also reducing access to unhealthy foods, is one strategy schools can use to promote healthy eating among students.⁴¹

^r Food and beverages are typically sold in schools in three ways: as meals that qualify for reimbursement in the National School Lunch Program, through a la carte food and beverage sales in the school cafeteria, and/or through vending machines. A la carte items are foods or beverages sold separately from reimbursable school meals in school cafeterias. More information about the National School Lunch Program is available online at <http://www.fns.usda.gov/cnd/Lunch/>.

Over the last 20 years, there have been many federal- and state-level efforts to improve the nutritional profile of foods and beverages served in North Carolina schools. The latest federal effort, the Child Nutrition and WIC Reauthorization Act of 1995, required that all meals qualifying for federal reimbursement meet the 1995 Dietary Guidelines for Americans.^s The Child Nutrition Reauthorization ACT is being reviewed and revised again in 2009-2010. Since 1995, the Dietary Guidelines for Americans have been updated twice with new guidelines coming out every five years. In 2005, the North Carolina General Assembly passed legislation directing the State Board of Education (SBE) to adopt new nutrition standards for schools (that were stricter than the federal dietary guidelines) to be implemented in elementary schools by the end of the 2008 school year.^{t,u}

The SBE, in collaboration with the Division of Public Health and Child Nutrition Administrators in the school districts, developed nutrition standards which were pilot tested in 124 elementary schools from January to May 2005.^v A majority of the schools involved in the pilot test lost money implementing the new standards, in part due to the removal of profitable unhealthy *à la carte* items^w (high in fat, sugar, and/or calories) without replacement. Unfortunately, profits from these unhealthy *à la carte* items provided substantial revenue that schools relied upon to subsidize school meal programs. As districts reduced the availability of less healthful *à la carte* items, the school nutrition program operating budgets suffered.⁴² While the termination of *a la carte* items often leads to increases in the sale of school meals, overall revenues still suffer because federal reimbursement for school meals is inadequate.^x Since 2005, a number of schools nationally have implemented nutrition standards. Thus far, few data exist from longer term studies to substantiate the concern that changes in nutrition standards in schools lead to a loss in total revenue.⁴³ While it is common to lose money initially, many schools have protected revenue by substituting healthier *à la carte* items and vending items and using social marketing with stakeholders.⁴⁴

In 2005, the North Carolina General Assembly passed legislation directing the SBE to adopt new nutrition standards for schools ... to be implemented in elementary schools by the end of the 2008 school year.

s More information on the Dietary Guidelines developed jointly by the US Department of Health and Human Services and the US Department of Agriculture is available online at <http://www.health.gov/DietaryGuidelines/>.

t § 115C-264.3.

u The implementation of the new nutrition standards in elementary schools (to be followed by middle and high schools) has been delayed.

v The nutrition standards for elementary schools promote gradual changes to increase fruits and vegetables, increase whole grain products, and decrease foods high in total fat, trans fat, saturated fat, and sugar

w *A la carte* items are foods or beverages sold separately from reimbursable school meals in school cafeterias.

x Sackin B. B. Sackin and Associates. Personal Communication. September 25, 2008.

To support healthy growth and proper development, all middle and high schools should make available healthy foods and beverages.

To offset losses due to the implementation of the improved nutrition standards in elementary schools, two-thirds of North Carolina's school districts have returned to the sale of unhealthy, high-fat, high-sugar, and high-calorie foods and beverages in middle and high schools.⁴² As a result of the pilot study, the North Carolina General Assembly has ultimately delayed mandatory implementation of the new nutrition standards in all schools.^y

Although some school districts have reverted back to practices that encourage unhealthy food promotion, some progress has been made in restricting the sale of less nutritious foods and beverages. The percentage of public secondary schools in North Carolina in which students could not purchase candy or salty snacks from school vending machines or school stores, canteens, or snack bars increased from 26.4% to 51.8% from 2002-2008, while the percentage of public secondary schools in which students could not purchase soda pop or sports drinks also increased from 2006-2008. This progress notwithstanding, the CDC recently noted that "greater efforts are needed to ensure that all foods and beverages offered or sold outside of school meal programs meet nutrition standards."⁴⁵

To support healthy growth and proper development, all middle and high schools should make available healthy foods and beverages. Continued implementation of nutrition standards in schools requires additional state funding support. Maintaining the financial integrity of child nutrition programs will enable districts to ensure child nutrition standards are being met in all North Carolina middle and high schools. Therefore, the Task Force recommends:

Recommendation 10.2: Improve School Nutrition in Middle and High Schools (PRIORITY RECOMMENDATION)

North Carolina funders should develop a competitive request for proposal to fund a collaborative effort between North Carolina Department of Public Instruction and other partners to test the potential for innovative strategies to deliver healthy meals in middle and high schools while protecting/maintaining revenue for the child nutrition program. Funders should require grant recipients to conduct an independent rigorous evaluation that includes the cost of implementing healthy meals.

Joint-Use Agreements to Increase Opportunities for Physical Activity

Physical activity is a key component of a healthy lifestyle and an important part of preventing overweight and obesity.⁴⁶ It is recommended that children get at least 60 minutes of moderate to vigorous physical activity every day of

^y During the 2007 and 2008 legislative sessions, the NC State Board of Education requested recurring state funds (\$20 million) to support the implementation of the State Board of Education-adopted nutrition standards in all elementary schools in North Carolina. The North Carolina General Assembly has not appropriated funds for this purpose.

the week.⁴⁷ Unfortunately, not enough children in North Carolina are meeting this recommendation. Only 55% of middle school students and 44.3% of high school students in North Carolina report being physically active for at least 60 minutes per day on five or more of the past seven days.⁴⁸ To address physical inactivity in North Carolina, schools and communities should increase access to park and recreational facilities to encourage regular physical activity within communities.

Recreational facilities exist on school property within many communities; however, these facilities are often not available for use by school children and their families after school hours. Creating additional recreational facilities requires funding and land—one or both of which are limited in many communities in North Carolina. Joint-use agreements, whereby communities establish partnerships with schools to provide community access to school facilities during after-school hours and on weekends, are a potential solution to this predicament. Research shows that although school administrators are generally open to the idea, it is only sporadically done. Some of the most common reasons given by administrators for not opening their facilities to the public include concerns of supervision, safety, liability, and overuse.⁴⁹

Preliminary evidence also shows elevated rates of physical activity for youth who are able to use school facilities on evenings and weekends.⁵⁰ Fayetteville-Cumberland County Parks and Recreation and the Cumberland County School System have relied on joint-use agreements for approximately 40 years. The parks and recreation department has joint use of facilities at more than 60 schools in the county and 12 recreation centers located on school property. In addition, Parks and Recreation has been able to expand infrastructure and program capacity beyond what would have been possible without such agreements, and the school system has physical education facilities it would not otherwise have.

In order to increase access to facilities for physical activity, North Carolina should support joint use agreements among schools, parks and recreation, and other community organizations. Therefore, the Task Force recommends:

Recommendation 10.3: Establish Joint-Use Agreements for School and Community Recreational Facilities

- a) The North Carolina School Boards Association should work with state and local organizations including, but not limited to, the North Carolina Recreation and Park Association, Local Education Agencies, North Carolina Association of Local Health Directors, North Carolina County Commissioners Association, North Carolina League of Municipalities, North Carolina High School Athletic Association, and Parent Teacher Associations to encourage collaboration among local schools, parks and recreation, faith-based organizations, and/or other community groups to expand the use of school facilities for after-hours community physical activity. These groups should examine successful

To address physical inactivity in North Carolina, schools and communities should increase access to park and recreational facilities to encourage regular physical activity within communities.

local initiatives and identify barriers, if any, which prevent other local school districts from offering the use of school grounds and facilities for after-hour physical activity and develop strategies to address these barriers. In addition, this collective group should examine possibilities for making community facilities available to schools during school hours, develop model joint-use agreements, and address liability issues.

- b) The State Board of Education should encourage the School Planning Section, Division of School Support, North Carolina Department of Public Instruction to do the following:
 - 1) Provide recommendations for building joint-use park and school facilities.
 - 2) Include physical activity space in the facility needs survey for 2010 and subsequent years.

Due to the overwhelmingly high rates of overweight and obesity, this generation of youth may be sicker and die younger than their parents, for the first time in history.

Community-Based Initiatives

Approximately 30% of North Carolina's youth are overweight or obese.⁵¹ Due to the overwhelmingly high rates of overweight and obesity, this generation of youth may be sicker and die younger than their parents, for the first time in history.⁵² To address the growing obesity epidemic, many North Carolina communities are implementing strategies and practices to improve nutrition and increase physical activity. However, long-term, sustainable community-level efforts are needed statewide in order to reach all North Carolinians; creating local capacity is integral to this approach.

To help communities address overweight and obesity, *Eat Smart, Move More* (ESMM) has created *North Carolina's Plan to Prevent Overweight, Obesity, and Related Chronic Diseases*. The plan includes strategies and recommendations for individuals and families, communities, and schools, as well as model public policies that should be implemented. Choosing healthy drinks, preparing and eating more meals at home, controlling portion size, breastfeeding, consuming more fruits and vegetables, decreasing screen time, and increasing physical activity are just some of the key messages included in the *Eat Smart, Move More* plan. These messages are consistent with health behavior messages promoted by the CDC. In addition, the plan recommends creating worksite interventions for the prevention and treatment of obesity, making screening and prevention services part of the routine for health exams, increasing access to community gardens and farmers' markets, providing economic incentives for the production and distribution of healthy foods, and building new paths and sidewalks for bikers and walkers.⁵³

Given the need to have sustainable interventions at the community and state level, North Carolina should provide appropriated funds for programs aimed at

reducing overweight and obesity among adolescents. Therefore the Task Force recommends:

Recommendation 10.4: Fund Demonstration Projects in Promoting Physical Activity, Nutrition, and Healthy Weight^z

The North Carolina Division of Public Health, along with its partner organizations, should fully implement the *Eat Smart, Move More North Carolina Obesity Plan* for combating obesity in selected local communities and identify best practices for improving nutrition and increasing physical activity that will ultimately be adopted across the state. As part of this project, the North Carolina General Assembly should appropriate \$500,000 in non-recurring funds for six years beginning in SFY 2011 to the North Carolina Division of Public Health for pilot programs of up to \$100,000 per year to reduce overweight and obesity among adolescents. Funded programs should be evidence-based or promising practices and should include an evaluation of their effectiveness. If shown to be effective, programs should be expanded statewide.

Clinical Initiatives

Medical expenditures for physical inactivity and overweight in youth cost North Carolina approximately \$75 million in 2006.⁵² In light of the obesity epidemic in North Carolina and its impact on children, Community Care of North Carolina (CCNC) is conducting a two-year pilot project to develop systems of care for the prevention of obesity in Medicaid-enrolled children. CCNC is a Medicaid program offering coordinated health care through a network of medical homes. This Childhood Obesity Prevention Initiative is being piloted with 187 primary care practices in four of the 14 CCNC networks reaching 102,000 children ages 2-18.^{aa} The project's objectives are "to promote practice-based standardized screening with prevention messages for all children, to increase provider self-efficacy in treating childhood obesity, and to develop effective linkages between the child's primary care provider and existing community recourses."⁵⁴

Through the pilot, primary care providers receive practice toolkits to use with their patient. In addition, participating providers receive trainings on motivational interviewing and implementation of clinical guidelines to prevent obesity. Patients and families receive education about nutrition, and both patients and practices are linked to community resources. Targeted case management and

CCNC is conducting a two-year pilot project to develop systems of care for the prevention of obesity in Medicaid-enrolled children.

^z This is one part of a recommendation that is being adopted by the Prevention Task Force and the legislatively created Obesity Task Force. The full recommendation is for \$10.5 million Division of Public Health to allow full implementation of the *Eat Smart, Move More North Carolina* state plan for obesity in selected local communities and to identify best practices for improving nutrition and increasing physical activity that will ultimately be adopted across the state.

^{aa} The pilot project is supported by the Kate B. Reynolds Charitable Trust and has in-kind support from the Office of Rural Health and Community Care and the North Carolina Foundation for Advanced Health Programs. Access II Care of Western NC, Southern Piedmont Community Care Plan, Carolina Community Health Partnership, Partnership for Health Management, and Community Care of Wake and Johnston Counties are the participating networks.

participation incentives are also part of the pilot project.⁵⁴ The project is being evaluated through chart audits and by the percent of practices that are trained in the use of obesity screening tools, that are using body mass index (BMI) screening, and that have established linkages to community resources. The intervention project will end December 2009.

Given the prevalence of childhood obesity in North Carolina and among Medicaid-enrolled children, North Carolina should support research and the dissemination of obesity-reduction clinical initiatives. Therefore, the Task Force recommends:

Recommendation 10.5: Expand the CCNC Childhood Obesity Prevention Initiative

If shown to be successful through program evaluations, Community Care of North Carolina (CCNC) should continue expansion of the Childhood Obesity Prevention Initiative including the dissemination and use of already developed clinical initiatives aimed at obesity reduction for Medicaid-enrolled and other children and their families. The North Carolina General Assembly should appropriate one-time funding of \$174,000 in SFY 2011 to the North Carolina Office of Rural Health and Community Care to support this effort.

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During adolescence many of the behaviors and health habits that affect lifelong health trajectories are established. Thus, investing in the health and well-being of adolescents can have far-reaching benefits. Although adolescence is traditionally a time of robust physical health, data show that far too many North Carolina youth put themselves at risk for death and serious health problems by engaging in risky health behaviors. Engagement in such risk behaviors can have serious short- and long-term health consequences. Fortunately, behaviors are modifiable, and investments to reduce youth engagement in risky health behaviors can have both immediate and long-term health benefits. Furthermore, improving adolescent health can also positively impact academic success and social and emotional well-being. Therefore it is critical that adolescents develop the skills and knowledge needed to make decisions that lead them to engage in health-promoting, rather than health-compromising, behaviors. Adolescents need support—at home, at school, in clinics, in the community—to help them develop the skills and knowledge needed to be healthy adolescents, healthy adults, and productive members of society in the future.

The environment created by parents, health professionals, schools, communities, and policymakers contributes to the health and well-being of youth. A positive environment for youth development provides support and opportunities to increase youth strengths and positive assets while also working to reduce risk factors. Research shows that multifaceted strategies to reduce youth risk behaviors work. North Carolina’s coordinated campaign to reduce youth smoking involved using evidence-based strategies to change individual behaviors and community norms; change state and local policies; and increase supports and services for youth trying to quit smoking. In five years the campaign was able to reduce smoking among high school students by 30% and among middle school students by 52%.^a This type of multifaceted, coordinated approach is needed to address other youth risk behaviors. Investments made today to improve the health and well-being of North Carolina’s youth will help ensure the state’s future prosperity.

The North Carolina Metamorphosis Project (NCMP), funded by The Duke Endowment, asked the North Carolina Institute of Medicine to convene the Task Force on Adolescent Health to develop a 10-year plan to improve the health and well-being of North Carolina’s adolescents. Specifically, the Task Force was asked to produce evidence-based recommendations to improve services, programs, and policies to address the high-priority health needs of North Carolina’s adolescents between 10 and 20 years of age over the next decade. This final report provides a roadmap for investments in adolescent health over the next decade.

Below is an abridged list of the Task Force recommendations, along with the agency or organization charged with addressing the recommendation. A list of the complete Task Force recommendations can be found in Appendix A. Ten of the 32 recommendations were considered by the Task Force to be priority recommendations. However, all the recommendations are important.



Investments made today to improve the health and well-being of North Carolina’s youth will help ensure the state’s future prosperity.

^a Shah V. North Carolina initiatives to reduce tobacco use: partII. Presented to the North Carolina Institute of Medicine Task Force on Prevention; May 8, 2008; Cary, NCC. Access June 29, 2009.

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
Strengthening Adolescent Health Leadership and Infrastructure and Improving the Quality of Youth Policies, Programs, and Services Recommendations						
<p>3.1: Establish an Adolescent Health Resource Center</p> <p>An Adolescent Health Resource Center should be established within the Women and Children’s Health Section of the Division of Public Health. The Center should support adolescent health around the state by coordinating health initiatives; expanding the use of evidence-based programs, practices, and policies; and providing adolescent health resources for youth, parents, and service providers. The North Carolina General Assembly should appropriate \$300,000 in recurring funds to support this effort.</p>	✓ \$300,000 (SFY 2011) (R)		✓ DPH			✓
<p>3.2: Fund Evidence-Based Programs that Meet the Needs of the Population Being Served (PRIORITY RECOMMENDATION)</p> <p>Public and private funders supporting adolescent health initiatives in North Carolina should place priority on funding evidence-based programs, including validation of the program’s fidelity to the proven model, to address adolescent health behaviors across multiple protective and risk factors. Program selection should take into account the racial/ethnic, cultural, geographic, and economic diversity of the population being served.</p>	✓ \$25,000 (SFY 2011) (R)	✓	✓			✓ NC Found, CFLC
<p>3.3: Support Multifaceted Adolescent Health Demonstration Projects</p> <p>The North Carolina General Assembly should provide \$1.5 million annually for five years beginning in 2011 to the Division of Public Health to support four multicomponent, locally-implemented adolescent health demonstration projects aimed at improving health outcomes for at-risk adolescents. To qualify for funding, the demonstration project should have evidence-based components and involve families, adolescents, health care providers (which may include school-based health centers), schools, Juvenile Crime Prevention Councils, and local community organizations. DPH should contract for an independent evaluation of the demonstration projects.</p>	✓ \$1.5 M (SFY 2011) (R)	✓ DPI, SCHA	✓ DPH	✓		✓ JCPC, CBO, CCNC

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
Improving Adolescent Health Care Recommendations						
<p>4.1: Cover and Improve Annual High-Quality Well Visits for Adolescents up to Age 20</p> <p>All public and private health insurers should cover annual well visits for adolescents that meet the quality of care guidelines of the US Preventive Services Task Force, Centers for Disease Control and Prevention, American Academy of Pediatrics/Bright Futures, and Advisory Committee on Immunization Practices. Community Care of North Carolina (CCNC), Area Health Education Centers (AHEC) Program, and the Division of Public Health should develop and pilot tools and strategies to help primary care providers deliver high quality adolescent health checks. North Carolina’s foundations should provide \$500,000 over three years to support and evaluate this effort.</p>	<p>✓</p> <p>\$500,000 (SFY 2011) (R)</p>		<p>✓</p> <p>DMA</p>	<p>✓</p>	<p>✓</p> <p>PI, SHP</p>	<p>✓</p> <p>CCNC, AHEC</p>
<p>4.2: Expand Health Insurance Coverage to More People</p> <p>In the absence of everyone having access to high-quality, affordable health insurance, the North Carolina General Assembly (NCGA) should begin expanding coverage to groups that have the largest risk of being uninsured, including children and adolescents, ages 0-20, with family incomes up to 300% of the federal poverty guidelines. Additionally the NCGA should require insurance companies to offer parents the option to continue dependent coverage until the child reaches age 26, regardless of student status.</p>	<p>✓</p> <p>(Funding TBD)</p>		<p>✓</p> <p>DMA</p>		<p>✓</p> <p>PI, SHP</p>	
<p>4.3: Fund School-Based Health Services in Middle and High Schools (PRIORITY RECOMMENDATION)</p> <p>The Department of Public Instruction and the Division of Public Health should work together to improve school-based health services in middle and high schools. The North Carolina General Assembly should appropriate \$7.8 million in recurring funds in SFY 2011, \$13.1 million in recurring funds in SFY 2012, and additional funding in future years to support school-based health services, including school based- and school-linked health centers, school nurses, and Child and Family Support Teams in</p>	<p>✓</p> <p>\$7.8M (SFY 2011) (R), \$13.1 M (SFY 2012) (R)</p>	<p>✓</p> <p>DPI</p>	<p>✓</p> <p>DPH</p>			<p>✓</p> <p>SBLHC, NC Found</p>

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
middle and high schools. North Carolina foundations should fund evaluations of the effectiveness of these initiatives.						
<p>4.4: Develop a Sixth Grade School Health Assessment</p> <p>The Women and Children’s Health Section of the Division of Public Health should convene a working group to develop a plan to operationalize a sixth grade health assessment for all students.</p>		✓ DPI	✓ DPH	✓		✓ CCNC
Improving Adolescent Health through Education Recommendations						
<p>5.1: Increase the High School Graduation Rate (PRIORITY RECOMMENDATION)</p> <p>The North Carolina State Board of Education and the North Carolina Department of Public Instruction should expand efforts to support and further the academic achievement of middle and high school students with the goal of increasing the high school graduation rate. The SBE and DPI should work with others to examine the experiences of other states and develop cost estimates to implement initiatives to increase the high school graduation rates and present this information to the North Carolina General Assembly by April 2010.</p>	✓ Funding TBD	✓ SBE, DPI				
<p>5.2: Enhance North Carolina Healthy Schools (PRIORITY RECOMMENDATION)</p> <p>The North Carolina School Health Forum should be reconvened and expanded to ensure implementation of the coordinated school health approach and expansion of the North Carolina Healthy Schools Partnership (NCHSP). The Department of Public Instruction (DPI) should expand the NCHSP to include a local healthy schools coordinator in each local education agency (LEA). The North Carolina General Assembly should appropriate \$1.64 million in recurring funds beginning in SFY 2011, increased by an additional \$1.64 in recurring funds in each of the following six years (SFY 2012-2017), for a total of \$11.5 million recurring funds to support these positions. The NCGA should appropriate \$225,000 in recurring funds to NCHSP to provide monitoring, evaluation, and technical assistance to the LEAs through the local healthy schools coordinators.</p>	✓ \$1.64 M (SFY 2011) (R), \$1.64 M (SFY 2012) (R)	✓ SBE, DPI, LEA, SHAC, PTA, NCHSP	✓ DPH			✓ NCSHF

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
<p>5.3: Actively Support the Youth Risk Behavior Survey and School Health Profiles Survey</p> <p>The North Carolina State Board of Education should support and promote the participation of Local Education Agencies in the Youth Risk Behavior Survey and the School Health Profiles Survey.</p>		✓ SBE, LEA				
<p>5.4: Revise the Healthful Living Standard Course of Study</p> <p>The North Carolina General Assembly (NCGA) should require the State Board of Education (SBE) to require schools to use evidence-based curricula when available to teach the objectives of the Healthful Living Standard Course of Study and to phase in over five years an increase in the Healthful Living requirements so that students would receive 225 minutes per week of Healthful Living instruction in middle schools and 2 units for high schools. The NCGA should appropriate \$1.15 million in recurring funding beginning in SFY 2011 to the North Carolina Department of Public Instruction (DPI) to provide grants to Local Education Agencies (LEAs) to implement evidence-based curricula. The SBE should encourage DPI to develop healthful living electives beyond the required courses.</p>	✓ \$1.15M (SFY 2011) (R)	✓ SBE, DPI, LEA, NCHSP				
Preventing Unintentional Injury Recommendations						
<p>Recommendation 6.1: Improve Driver's Education (PRIORITY RECOMMENDATION)</p> <p>The North Carolina General Assembly should continue funding driver education through the North Carolina Department of Transportation (DOT). The DOT should work to improve the comprehensive training program for young drivers. Pilot programs to improve driver education should be developed, implemented, evaluated, and, if shown to be successful, expanded.</p>	✓	✓				✓ DOT, GHSP
<p>6.2: Strengthen Driving While Intoxicated (DWI) Prevention Efforts</p> <p>All North Carolina state and local law enforcement agencies with traffic responsibilities should actively enforce DWI laws throughout the year. The North Carolina General Assembly (NCGA) should</p>	✓ \$750,000 (SFY 2011) (R)		✓ DPH			✓ State and Local Law Enforcement, GSHP, HSRC

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
increase the reinstatement fee for DWI offenders by \$25. Funds from the increased DWI fees should be used to support DWI programs The NCGA should appropriate \$750,000 in recurring funding in SFY 2011 to the North Carolina Division of Public Health to develop and implement an evidence-based dissemination plan for the existing <i>Booze It & Lose It</i> campaign. The plan should focus on reaching adolescents and young adults.						
6.3: Fund Injury Prevention Educators The North Carolina General Assembly should appropriate \$300,000 in recurring funds to the University of North Carolina Injury Prevention Research Center for the dissemination of evidence-based injury prevention programs and policies to schools and youth sports clubs across the state.	✓ \$300,000 (SFY 2011) (R)					✓ IPRC
Reducing Substance Use and Improving Mental Health for Adolescents and Young Adults Recommendations						
7.1: Review Substance Abuse and Mental Health Prevention and Services in Educational Settings The North Carolina General Assembly should direct the State Board of Education, Office of Non-Public Education, North Carolina Community College System, and University of North Carolina System to review their existing substance abuse and mental health prevention plans, programs, and policies, and the availability of substance abuse and mental health screening and treatment services and to report a description of their prevention plans to the North Carolina General Assembly biennially beginning in 2011.	✓	✓ SBE, DPI Office of Non-Public Education, UNC, NCCCS	✓ DMHD DSAS			
7.2: Support the North Carolina Youth Suicide Prevention Plan The North Carolina Youth Suicide Prevention Task Force along with the Division of Public Health’s Injury and Violence Prevention Branch should implement the recommendations in North Carolina’s Plan to Prevent Youth Suicide. The North Carolina General Assembly should appropriate \$112,500 in recurring funds in SFY 2011 to support this effort.	✓ \$112,500 (SFY 2011) (R)		✓ DPH			✓ NC Youth Suicide Prevention Task Force

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
<p>7.3 Develop and Implement a Comprehensive Substance Abuse Prevention Plan</p> <p>The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should develop a comprehensive substance abuse prevention plan for use at the state and local levels. The plan should increase the capacity at the state level and within local communities to implement a comprehensive substance abuse prevention system, prioritizing efforts to reach children, adolescents, young adults, and their parents. Priority should be given to evidence-based prevention programs that have shown to have positive impacts on multiple outcomes, including but not limited to preventing or reducing substance use, improving emotional well-being, reducing youth violence, and/or reducing teen pregnancy. The North Carolina General Assembly should appropriate \$1.95 million in SFY 2011 and \$3.72 million in SFY 2012 in recurring funds to DMHDDSAS to pilot these prevention plans in six counties or multi-county efforts and to evaluate these efforts. If successful, the comprehensive prevention plans should be implemented statewide.</p>	<p>✓</p> <p>\$1.95 M (SFY 2011) (R) \$3.72 M (SFY 2012) (R)</p>	<p>✓</p> <p>LEA, C&U</p>	<p>✓</p> <p>DMHDDSAS, LME, LHD</p>			<p>✓</p> <p>CBO, Others</p>
<p>7.4: Increase Alcohol Taxes</p> <p>The North Carolina General Assembly should index the excise taxes on malt beverages and wine to the consumer price index so they can keep pace with inflation. The increased fees should be used to fund effective prevention and treatment efforts for alcohol, tobacco, and other drugs.</p>	<p>✓</p>					
<p>7.5: Drinking Age Remain 21</p> <p>The North Carolina General Assembly should not lower the drinking age to less than age 21.</p>	<p>✓</p>					
<p>7.6: Integrate Behavioral Health into Health Care Settings</p> <p>The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should work with the Office of Rural Health and Community Care (ORHCC), Governors Institute on Alcohol and Substance Abuse, and Area Health Education Centers (AHEC) to expand the use of</p>	<p>✓</p> <p>\$2.25 M (SFY 2011) (R)</p>		<p>✓</p> <p>DMHDDSAS, ORHCC</p>	<p>✓</p>		<p>Gov. Inst., CCNC, ICARE</p>

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
Screening, Brief Intervention and Referral into Treatment (SBIRT) to increase the early identification and referral into treatment of patients with problematic substance use. A similar evidence-based model for screening, brief intervention, and referral to treatment should be identified and expanded to increase the early identification and referral of patients with mental health concerns. ORHCC should lead efforts to support and expand co-location in primary care practices of licensed health professionals trained in providing mental health and substance abuse services. The North Carolina General Assembly should appropriate \$2.25 million in recurring funds in SFY 2011 to support these efforts.						
<p>7.7: Ensure the Availability of Substance Abuse and Mental Health Services for Adolescents (PRIORITY RECOMMENDATION)</p> <p>The North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should develop a plan for a comprehensive system that is available and accessible across the state to address adolescents' substance abuse treatment needs.</p>			✓ DMHDDSAS	✓		
Preventing Youth Violence Recommendations						
<p>8.1: Enhance Injury and Violence Surveillance</p> <p>The North Carolina General Assembly should amend the Public Health Act § 130A-1.1 to include injury and violence prevention as an essential public health service and appropriate \$175,000 in recurring funds in SFY 2011 to the Division of Public Health to develop an enhanced intentional and unintentional injury surveillance system with linkages between data systems. The Department of Juvenile Justice and Delinquency Prevention should collect gang activity data each year.</p>	✓ \$175,000 (SFY 2011) (R)		✓ DPH DMHDDSAS OCME	✓		✓ DJJDP, DOT, GHSP, CPC
<p>8.2: Support Evidence-Based Prevention Programs in the Community (PRIORITY RECOMMENDATION)</p> <p>The Department of Juvenile Justice and Delinquency Prevention should strongly encourage Juvenile Crime Prevention Councils</p>					✓	✓ DJJDP, JCPC

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
to fund evidence-based juvenile justice prevention and treatment programs, including prevention of youth violence and substance use, and community-based alternatives to incarceration.						
8.3: Raise the Age of Juvenile Court Jurisdiction The North Carolina General Assembly should enact legislation to raise the age of juvenile court jurisdiction from 16 to 18.	✓					✓ DJJDP
Reducing Teenage Sexual Activity and Preventing Sexually Transmitted Diseases and Teenage Pregnancies Recommendations						
9.1: Increase Immunization Rates for Vaccine-Preventable Diseases The North Carolina Division of Public Health (DPH) should aggressively seek to increase immunization rates for all vaccines recommended by the Centers for Disease Control (CDC) and Prevention Advisory Committee on Immunization Practices, including but not limited to the human papillomavirus (HPV) vaccine which is not currently covered through the state’s universal childhood vaccine distribution program. The North Carolina General Assembly should appropriate \$1.5 million in recurring funds in SFY 2011 to support this effort. All public and private insurers should provide first dollar coverage for all CDC recommended vaccines that the state does not provide through the Universal Child Vaccine Distribution Program.	✓ \$1.5 M (SFY 2011) (R)		✓ DPH	✓	✓ PI, SHP	✓ Parents
9.2: Ensure Comprehensive Reproductive Health and Safety Education for More Young People in North Carolina Local school boards should adopt an opt-out consent process to automatically enroll students in the comprehensive reproductive health and safety education program unless a parent or legal guardian specifically requests that their child not receive any or all of this education.		✓ SBE, LEA, Local School Boards				
9.3: Expand Teen Pregnancy and STD Prevention Programs and Social Marketing Campaigns (PRIORITY RECOMMENDATION) The North Carolina General Assembly should appropriate \$5.9 million in recurring funds to the North Carolina Division of Public	✓ \$5.9 M (SFY 2011) (R)		✓ DPH			

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
Health to develop and disseminate an unintended pregnancy prevention campaign, expand the Teen Pregnancy Prevention Initiative, and expand the <i>Get Real. Get Tested.</i> Campaign for HIV prevention to include other STDs and reach more adolescents.						
Preventing Adult-Onset Disease Recommendations						
<p>10.1: Support the Implementation of North Carolina's Tobacco Control Program (PRIORITY RECOMMENDATION)</p> <p>The North Carolina General Assembly (NCGA) should adopt measures to prevent and decrease adolescent smoking. As part of this effort, the NCGA should increase tobacco taxes to the national average; support the state's Comprehensive Tobacco Control Program; amend current smoke-free laws to mandate that all worksites and public places are smoke-free; and ensure comprehensive evidence-based tobacco cessation services are available for all youth. The increase in revenue from new taxes should be used to support the Comprehensive Tobacco Control program. The NCGA should appropriate \$26.7 million in recurring funds in 2011 to support implementation of the Comprehensive Tobacco Control program. The NCGA should appropriate other funds as necessary until we reach the Center for Disease Control and Prevention recommended level of funding.</p>	<p>✓</p> <p>\$26.7 M (SFY 2011) (R)</p>	<p>✓</p>	<p>✓</p> <p>DMA</p>	<p>✓</p>	<p>✓</p> <p>PI, SHP</p>	<p>✓</p> <p>HWTF, local governments, Employers</p>
<p>10.2: Improve School Nutrition in Middle and High Schools (PRIORITY RECOMMENDATION)</p> <p>North Carolina funders should develop a competitive request for proposal to fund a collaborative effort between North Carolina Department of Public Instruction and other partners to test and evaluate innovative strategies to deliver healthy meals in middle and high schools while protecting/maintaining revenue for the child nutrition program.</p>			<p>✓</p> <p>DPI</p>			<p>✓</p> <p>NC Found CBO</p>
<p>10.3: Establish Joint-Use Agreements for School and Community Recreational Facilities</p> <p>Local governmental agencies, including schools, parks and recreation, health departments, county commissioners and municipalities, and other relevant organizations should work</p>		<p>✓</p> <p>SBE, DPI, NCSBO</p>	<p>✓</p> <p>LHD</p>			<p>✓</p> <p>NCRPA, NCCCA, NCLM, NCHSAA, PTA, Local governments, DPH CBO</p>

	NCGA	Education	DHHS	Health Professionals and Organizations	Insurers	Others
together to develop joint-use agreements that would expand the use of school facilities for after-hours community physical activity and make community facilities available to schools.						
<p>10.4: Fund Demonstration Projects in Promoting Physical Activity, Nutrition, and Healthy Weight</p> <p>The North Carolina Division of Public Health (DPH) along with its partner organizations should fully implement the <i>Eat Smart, Move More North Carolina Obesity Plan</i> for combating obesity in selected local communities and, if shown to be effective, should expand efforts statewide. As part of this project, the North Carolina General Assembly should appropriate \$500,000 in nonrecurring funds for six years beginning in SFY 2011 to DPH for pilot programs of up to \$100,000 per year to reduce overweight and obesity among adolescents.</p>	<p>✓</p> <p>\$500,000 (SFY 2011-2016) (NR)</p>		<p>✓</p> <p>DPH</p>			<p>✓</p> <p>CBO</p>
<p>10.5: Expand the CCNC Childhood Obesity Prevention Initiative</p> <p>If shown to be successful through program evaluations, Community Care of North Carolina (CCNC) should continue expansion of the Childhood Obesity Prevention Initiative including the dissemination and use of already developed clinical initiatives aimed at obesity reduction for Medicaid-enrolled and other children and their families. The North Carolina General Assembly should appropriate \$174,000 in nonrecurring funds in SFY 2011 to the North Carolina Office of Rural Health and Community Care to support this effort.</p>	<p>✓</p> <p>\$174,000 (SFY 2011) (NR)</p>	<p>✓</p> <p>ORHCC</p>				<p>✓</p> <p>CCNC</p>

* Funding shown for state fiscal years 2011, 2012

AHEC	North Carolina Area Health Education Centers Program
CBO	Community Based Organizations
CCNC	Community Care of North Carolina
CFLC	Child and Family Leadership Council
CPC	Carolinas Poison Center
C&U	Colleges and Universities
DHHS	North Carolina Department of Health and Human Services
DJJDP	North Carolina Department of Juvenile Justice and Delinquency Prevention
DMA	North Carolina Division of Medical Assistance
DMHDDSAS	North Carolina Division of Mental Health, Developmental Disabilities and Substance Abuse Services
DOT	North Carolina Department of Transportation
DPH	North Carolina Division of Public Health
DPI	North Carolina Department of Public Instruction
GHSP	Governor's Highway Safety Program
Gov. Inst.	Governor's Institute on Alcohol and Substance Abuse
HSRC	UNC Highway Safety Research Center
HWTF	Health and Wellness Trust Fund
IPRC	UNC Injury Prevention Research Center
JCPC	Juvenile Crime Prevention Council
LEA	Local Education Agency
LHD	Local Health Department
LME	Local Management Entity
OCME	North Carolina Office of the Chief Medical Examiner
NCCCA	North Carolina County Commissioners Association
NCCCS	North Carolina Community College System
NC Found.	North Carolina Foundations
NCGA	North Carolina General Assembly
NCHSAA	North Carolina High School Athletic Association
NCHSP	North Carolina Healthy Schools Partnership
NCLM	North Carolina League of Municipalities
NCRPA	North Carolina Recreation and Parks Association
NCSBO	North Carolina School Boards Association
NCSHF	North Carolina School Health Forum
ORHCC	North Carolina Office of Rural Health and Community Care
PI	Private Insurers
PTA	Parent Teachers Association
SBE	State Board of Education
SBLHC	School-Based or School-Linked Health Centers
SCHA	North Carolina School Community Health Alliance
SHAC	School Health Advisory Council
SHP	State Health Plan
TBD	To Be Determined

Task Force on Adolescent Health

Chapter 3: Strengthening Adolescent Health Leadership and Infrastructure and Improving the Quality of Youth Policies, Programs, and Services

Recommendation 3.1: Establish an Adolescent Health Resource Center

An Adolescent Health Resource Center should be established within the Women and Children's Health Section of the Division of Public Health. The Center should be staffed by an Adolescent Health Director, an Adolescent Health Data Analyst, and an Adolescent Health Program Manager. Center staff should be responsible for supporting adolescent health around the state by coordinating the various health initiatives; expanding the use of evidence-based programs, practices, and policies; and providing adolescent health resources for youth, parents, and service providers. As part of its work, the Center should create and maintain a website that serves as a gateway to resources on adolescent health in North Carolina as well as provide links to relevant national resources. The North Carolina General Assembly should appropriate \$300,000^a in recurring funds beginning in SFY 2011 to support this effort.

Recommendation 3.2: Fund Evidence-Based Programs that Meet the Needs of the Population Being Served (PRIORITY RECOMMENDATION)

Public and private funders supporting adolescent initiatives in North Carolina should place priority on funding evidence-based programs to address adolescent health behaviors, including validation of the program's fidelity to the proven model. Program selection should take into account the racial, ethnic, cultural, geographic, and economic diversity of the population being served. When evidence-based programs are not available for a specific population, public and private funders should give funding priority to promising programs and to those programs that are theory-based and incorporate elements identified in the research literature as critical elements of effective programs.

^a The Division of Public Health estimates it would cost \$300,000 in salary and benefits to support a health director, data analyst, and program manager for the Adolescent Health Resource Center. (Petersen R. Chief, Chronic Disease and Injury Section, Division of Public Health, North Carolina Department of Health and Human Services. Oral communication. March, 25, 2009.)

- a) The North Carolina General Assembly should amend the purpose of the North Carolina Child and Family Leadership Council^b (Council) to include increasing coordination between North Carolina Departments that provide funding, programs, and/or services to youth. Whenever possible the North Carolina Child and Family Leadership Council should encourage departments and agencies to adopt common evidence-based community prevention programs that have demonstrated positive outcomes for adolescents across multiple protective and risk behaviors, and to share training and monitoring costs for these programs. This initiative should focus on evidence-based strategies that have demonstrated positive outcomes for adolescents in reducing substance use, teen pregnancies, violence, and improving mental health and school outcomes. To facilitate this work:
- 1) The Council should work to identify a small number of evidence-based programs that have demonstrated positive outcomes across multiple criteria listed above. As part of this work, the Council should collaborate with groups that have already done similar work to ensure coordinated efforts. All youth-serving agencies should agree to place a priority on funding the evidence-based programs identified. Each agency should dedicate existing staff to provide technical assistance and support to communities implementing one of the chosen evidence-based programs.
 - 2) Agencies should identify state and federal funds that can be used to support these initiatives. Each agency should work to redirect existing funds into evidence-based programs and to use new funds for this purpose as they become available. Agencies can support programs individually or blend their funding with funds from other agencies.
 - 3) Funding should be made available to communities on a multiyear and competitive basis. Funding priority should be given to communities that are high-risk based on the behaviors listed above. Communities could apply to use a best or promising program or practice if they can demonstrate why existing evidence-based programs and practices will not meet the needs of their community. In such cases, a program evaluation should be required to receive funding.

The North Carolina General Assembly should appropriate \$25,000^c in recurring funds beginning in SFY 2011 to the Council to support their work.

- b) The agencies and other members of the Alliance for Evidence-Based Family

b The North Carolina Child and Family Leadership council includes the Secretary of the Department of Health and Human Services, the Superintendent of the Department of Public Instruction, the Chair of the State Board of Education, the Secretary of the Department of Juvenile Justice and Delinquency Prevention, the Director of the Administrative Office of the Courts, and others as appointed by the Governor.

c \$25,000 would be used to support 1/3 of a full-time employee at the Department of Administration to provide administrative support to the North Carolina Child and Family Leadership Council.

Strengthening Programs should identify funds that could be blended to support family strengthening programs that focus on families of adolescents.

- c) North Carolina foundations should fund pilots and evaluations of existing evidence-based parent-focused interventions. If found to be effective, the North Carolina General Assembly and North Carolina foundations should support statewide program dissemination and implementation. Pilot programs should include those targeted for specific health domains that are aimed at universal and selected populations.

Recommendation 3.3: Support Multifaceted Health Demonstration Projects

The North Carolina General Assembly should provide \$1.5 million annually for five years beginning in 2011 to the Division of Public Health to support four multicomponent, locally-implemented adolescent health demonstration projects. Funds should be made available on a competitive basis.

- a) To qualify for funding, the demonstration project should involve families, adolescents, primary health care providers (which may include school-based health centers), schools, Juvenile Crime Prevention Councils, and local community organizations. Projects must include evidence-based components designed to improve health outcomes for at-risk adolescent populations and increase the proportion of adolescents who receive annual well visits that meet the quality of care guidelines of the US Preventive Services Task Force, Centers for Disease Control and Prevention, American Academy of Pediatrics/Bright Futures, and the Advisory Committee on Immunization Practices.
- b) Priority will be given to projects that recognize and comprehensively address multiple adolescent risk factors and to counties that have greater unmet health or educational needs, including but not limited to counties that have graduation rates below the state average, demonstrated health disparities or health access barriers, or high prevalence of adolescent risky health behaviors.

Demonstration projects will be selected and provided with technical assistance in collaboration with the Department of Public Health (DPH), Department of Public Instruction, Community Care of North Carolina, and the NC School Community Health Alliance. These groups will work collaboratively to identify appropriate outcome indicators, which will include both health and education measures. As part of this project, DPH should contract for an independent evaluation of the demonstration projects.

Chapter 4: Improving Adolescent Health Care

Recommendation 4.1: Cover and Improve Annual High-Quality Well Visits for Adolescents up to Age 20

- a) The Division of Medical Assistance (DMA) should:
 - 1) Implement the DMA Adolescent Health Check Screening Assessment policy.
 - 2) Review and update the DMA Adolescent Health Check Screening Assessment policy at least once every five years.
- b) Other public and private health insurers, including the State Health Plan, should cover annual well visits for adolescents that meet the quality of care guidelines of the US Preventive Services Task Force, Centers for Disease Control and Prevention, American Academy of Pediatrics/Bright Futures, and Advisory Committee on Immunization Practices.
- c) Community Care of North Carolina (CCNC), Area Health Education Centers (AHEC) Program, and the Division of Public Health should pilot tools and strategies to help primary care providers deliver high quality adolescent health checks. Strategies could include:
 - 1) Trainings and other educational opportunities around the components of the Adolescent Health Check including dental screening, laboratory tests as clinically indicated (e.g. STD/HIV, dyslipidemia, pregnancy test, etc.), nutrition assessment, health risk screen and developmentally-appropriate psychosocial/behavioral & alcohol/drug use assessments, physical exam, immunizations, anticipatory guidance and follow-up/referral, and, for female adolescents, a family planning component.
 - 2) The development and implementation of a quality improvement model for improving adolescent health care.

North Carolina's foundations should provide \$500,000 over three years to support this effort.

Recommendation 4.2: Expand Health Insurance Coverage to More People

The Task Force believes that everyone should have health insurance coverage. In the absence of such, the North Carolina General Assembly should begin expanding coverage to groups that have the largest risk of being uninsured. Such efforts could include, but not be limited to:

- a) Provide funding for the Division of Medical Assistance to do the following:
 - 1) Expand outreach efforts and simplify the eligibility determination and recertification process to identify and enroll children and adolescents who are already eligible for Medicaid or NC Health Choice.
 - 2) Expand Medicaid income eligibility levels for adolescents 19-20 up to 200% of the federal poverty guidelines (FPG) or higher if the income limits are raised for younger children.
- b) Expand publicly subsidized coverage to children and adolescents with incomes up to 300% FPG on a sliding scale basis.
- c) Change state laws to require insurance companies to offer parents the option to continue dependent coverage until the child reaches age 26, regardless of student status.

Recommendation 4.3: Fund School-Based Health Services in Middle and High Schools (PRIORITY RECOMMENDATION)

- a) The Department of Public Instruction and the Division of Public Health should work together to improve school-based health services in middle and high schools. The North Carolina General Assembly (NCGA) should appropriate \$7.8 million in recurring funds in SFY 2011, \$13.1 million in recurring funds in SFY 2012, and additional funding in future years to support school-based health services, including:
 - 1) \$2.5 million^d in recurring funds beginning in SFY 2011 to support school-based and school-linked health centers (SBLHC) and provide funding for five new SBLHCs.
 - 2) \$5.3 million in recurring funds each year from SFY 2011-2015 (for a total cost of \$26.8 million^e) to the Division of Public Health to achieve the recommended statewide ratio of 1 school nurse per 750 middle and high school students.

d \$2.5 million is the estimated cost to fund 5 new school-based or school-linked health centers. (Tyson CF. School Health Unit Manager, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. March 23, 2009).

e \$26.8 million is the estimated cost to achieve the recommended 1:750 ratio in middle and high schools. (Tyson CF. School Health Unit Manager, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. March 30, 2009).

- 3) The NCGA should continue to support the Child and Family Support Teams (CFST) pilot and evaluation. If CFSTs are shown to improve health and educational outcomes for youth, they should be fully funded to allow for statewide implementation.

Priority in funding should be given to schools and communities with higher populations of at-risk youth and/or greater identified need.

- b) North Carolina foundations should fund evaluations of the effectiveness of these initiatives.

Recommendation 4.4: Developing a Sixth Grade School Health Assessment

The Women and Children's Health Section of the Division of Public Health should convene a working group to develop a plan to operationalize a sixth grade health assessment. The working group should include the Department of Public Instruction, Division of Medical Assistance, the North Carolina Pediatric Society, North Carolina Academy of Family Physicians, Community Care North Carolina (CCNC), representatives from local health departments, and other health professionals as needed. The plan should be presented to North Carolina School Health Forum and the North Carolina General Assembly by the beginning of the 2011 Session.

Chapter 5: Improving Adolescent Health through Education

Recommendation 5.1: Increase the High School Graduation Rate (PRIORITY RECOMMENDATION)

- a) The North Carolina State Board of Education (SBE) and the North Carolina Department of Public Instruction (DPI) should expand efforts to support and further the academic achievement of middle and high school students with the goal of increasing the high school graduation rate. The SBE should implement evidence-based or best and promising policies, practices, and programs that will strengthen interagency collaboration (community partnerships), improve student attendance rates/decrease truancy, foster a student-supportive school culture and climate that promotes school connectedness, explore and implement customized learning options for students, and more fully engage students in learning. Potential evidence-based or promising policies, practices, and programs might include, but are not limited to:

- 1) Learn and Earn partnerships between community colleges and high schools.
 - 2) District and school improvement interventions to help low-wealth or underachieving districts meet state proficiency standards.
 - 3) Alternative learning programs for students who have been suspended from school that will support continuous learning, behavior modifications, appropriate youth development, and increased school success.
 - 4) Expansion of the North Carolina Positive Behavior Support Initiative to include all schools in order to reduce short- and long-term suspensions and expulsions.
 - 5) Raising the compulsory school attendance age.
- b) The SBE should work with appropriate staff members in DPI, including curriculum and finance representatives, and staff from the North Carolina General Assembly (NCGA) Fiscal Research Division, to examine the experiences of other states and develop cost estimates for the implementation of the initiatives to increase the high school graduation rate. These cost estimates should be reported to the research division of the NCGA and the Education Oversight Committee by April 1, 2010 so that they can appropriate recurring funds.

Recommendation 5.2: Enhance North Carolina Healthy Schools Partnership (PRIORITY RECOMMENDATION)

- a) The North Carolina School Health Forum should be reconvened to ensure implementation of the coordinated school health approach and expansion of the North Carolina Healthy Schools Partnership (NCHSP).
- b) The North Carolina School Health Forum should develop model policies in each of the eight components of a Coordinated School Health System. This would include reviewing and modifying existing policies as well as identifying additional school-level policies that could be adopted by schools to make them healthier environments for students. When available, evidence-based policies should be adopted. The North Carolina School Health Forum and NCHSP should develop a system to recognize schools that adopt and fully implement model policies in each of the eight components.

- c) The Department of Public Instruction (DPI) should expand the NCHSP to include a local healthy schools coordinator in each local education agency (LEA). The North Carolina General Assembly should appropriate \$1.64 million in recurring funds beginning in SFY 2011 increased by an additional \$1.64 million in recurring funds in each of the following six years (SFY 2012-2017) for a total of \$11.5 million^f recurring to support these positions.
- 1) The North Carolina School Health Forum should identify criteria to prioritize funding to LEAs during the first five years. The criteria should include measures to identify LEAs with the greatest unmet adolescent health and educational needs.
 - 2) In order to qualify for state funding the LEA must show that new funds will supplement existing funds through the addition of a local healthy schools coordinator and will not supplant existing funds or positions. To maintain funding, the LEA must show progress towards implementing evidence-based programs, practices, and policies in the eight components of the Coordinated School Health System.
 - 3) Local healthy schools coordinators will work with the School Health Advisory Council (SHAC), schools, local health departments, primary care and mental health providers, and community groups in their LEA to increase the use of evidence-based practices, programs, and policies to provide a coordinated school health system and will work towards eliminating health disparities.
- d) The NCHSP should provide monitoring, evaluation, and technical assistance to the LEAs through the local healthy schools coordinators. The NCGA should appropriate \$225,000^g in recurring funds beginning in SFY 2011 to DPI to support the addition of three full-time employees to do this work. Staff would be responsible for:
- 1) Implementing the monitoring system (including gathering data, measuring compliance, and reporting to the State Board of Education) for the Healthy Active Children Policy.

f This level of funding (\$100,000 per LEA for 115 LEAs) would support one local healthy schools coordinator in each district as well as provide funding for travel, materials, and administrative support.

g Each full-time employee estimated to cost \$75,000 in salary and benefits. The NC Healthy Schools Section believes that 3 staff members would be needed to handle the new responsibilities. Gardner, D. Section Chief, North Carolina Healthy Schools, Department of Public Instruction; and Reeve R. Senior Advisor for Healthy Schools, North Carolina Healthy Schools, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication. October 15, 2009.)

- 2) Implementing the monitoring system (including gathering data, measuring compliance, and reporting to the State Board of Education) for the Youth Risk Behavior Survey (YRBS) and School Health Profiles Survey (Profiles).^h
- 3) Providing technical assistance and professional development to LEAs for coordinated school health system activities and implementing evidence-based programs and policies with fidelity.
- 4) Implementing, analyzing, and disseminating the YRBS and Profiles survey, including reporting on school-level impact measures (SLIMs).
- 5) Working with the North Carolina PTA and other partners as appropriate to develop additional resources and education materials for parents of middle and high school students for the Parent Resources section of the NCHSP website. Materials should include information for parents on how to discuss material covered in the Healthful Living Standard Course of Study with their children as well as evidence-based family intervention strategies when available. Information on how to access the materials should be included in the Student Handbook.

Recommendation 5.3: Actively Support the Youth Risk Behavior Survey and School Health Profiles Survey

The North Carolina State Board of Education (SBE) should support and promote the participation of Local Education Agencies (LEAs) in the Youth Risk Behavior Survey (YRBS) and the School Health Profiles Survey (Profiles). As part of this effort, the SBE should:

- a) Identify strategies to improve participation in the YRBS and the Profiles survey. Options should include, but not be limited to, training for superintendents and local school boards, changing the time of year the survey(s) are administered, financial incentives, giving priority for grant funds to schools that participate, a legislative mandate, convening a clearinghouse to reduce duplicative surveys of youth risk behaviors and other school health surveys.
- b) Expect any LEA randomly selected by the Centers for Disease Control and Prevention to participate in the YRBS and/or the Profiles survey to implement both surveys in their entirety unless a waiver to not participate is requested by the LEA and granted by the SBE.

^h Note: The School Health Profiles are the way to monitor whether LEAs are making progress on their Coordinated LEA Health Action Plan.

- c) Develop policies addressing the ability of schools, parents, and students to opt out of the YRBS and Profiles surveys, over-sampling for district-level data, and any additional data that needs to be added to the surveys.

Recommendation 5.4: Revise the Healthful Living Standard Course of Study

- a) The North Carolina General Assembly (NCGA) should require schools to use evidence-based curricula when available to teach the objectives of the Healthful Living Standard Course of Study.
- b) The NCGA should appropriate \$1.15 millionⁱ in recurring funding beginning in SFY 2011 to the North Carolina Department of Public Instruction (DPI) to provide grants to Local Education Agencies (LEAs) to implement evidence-based curricula. To implement this provision, the North Carolina Healthy Schools Partnership (NCHSP) should identify 3-5 evidence-based curricula that demonstrate positive change in behavior across multiple health risk behaviors (i.e. substance use, violence, sexual activity) and provide grants (of up to \$10,000 per LEA) for implementation and technical assistance to ensure curricula are implemented with fidelity.
- c) The State Board of Education (SBE) and DPI should work together to ensure that middle and high schools are effectively teaching the Healthful Living standard course of study objectives.
 - 1) The NCHSP should coordinate trainings^j for local school health professionals on the Centers for Disease Control and Prevention's Health Education Curriculum Assessment Tool (HECAT) and the Physical Education Curriculum Assessment Tool (PECAT) so that they are able to assess and evaluate health and physical education programs and curricula.
 - 2) SBE should require every LEA to complete the HECAT and PECAT for middle and high schools every 3 years beginning in 2013 and submit them to the North Carolina Healthy Schools Section. The Superintendent should ensure the involvement of the Healthful Living Coordinator and the School Health Advisory Council.
 - 3) Tools to assess the implementation of health education should be developed as part of the DPI's Accountability and Curriculum Reform Effort (ACRE).

ⁱ \$1.15 million in funding would provide \$10,000 per local education agency to support the adoption of evidence-based curricula. Typically there are training and materials costs to adopting evidence-based curricula.

^j The CDC provides trainings on using these tools free of charge. Would need funding to cover substitutes, food and facilities for trainings- would be a one-time cost.

- d) The NCGA should require SBE to implement a five-year phase-in requirement of 225 minutes of weekly “Healthful Living” in middle schools and 2 units of “Healthful Living” as a graduation requirement for high schools. The new requirements should require equal time for health and physical education. SBE shall be required to annually report to the Joint Legislative Education Oversight Committee regarding implementation of the physical education and health education programs and the Healthy Active Children Policy. SBE should work with appropriate staff members in DPI, including curriculum and finance representatives, and NCGA fiscal research staff, to examine the experiences of other states and develop cost estimates for the five-year phase-in, which will be reported to the research division of the NCGA and the Joint Legislative Education Oversight Committee by April 1, 2010.
- e) The SBE should encourage DPI to develop healthful living electives beyond the required courses, including, but not limited to, academically rigorous honors-level courses. Courses should provide more in-depth coverage of Healthful Living Course of Study Objectives. DPI and health partners should identify potential courses and help schools identify evidence-based curricula to teach Healthful Living electives.

Chapter 6: Preventing Unintentional Injuries

Recommendation 6.1: Improve Driver Education (PRIORITY RECOMMENDATION)

The North Carolina General Assembly should continue funding driver education through the North Carolina Department of Transportation (DOT). The DOT should work to improve the comprehensive training program for young drivers. The revised driver education program should include the following components:

- a) The Governor’s Highway Safety Program (GHSP) should work with the Center for the Study of Young Drivers at the University of North Carolina (and other appropriate groups) to conduct research to determine effective strategies for enhancing the quality of driver training and to develop pilot programs to improve driver education. The GHSP should work with the Department of Public Instruction to implement a large-scale trial of the program through the current driver education system in public schools. Any program developed should include materials to involve parents appropriately and effectively in young driver training. Materials should help educate parents as to what types of information, skills, and knowledge are critical to effectively teach their adolescents to drive.

- b) The DOT should fund an independent evaluation of the pilot projects. Evaluation should include collecting data on the driving records of those exposed to the program and those exposed to traditional driver education. If the pilot programs are shown to be successful, they should be expanded statewide.

Recommendation 6.2: Strengthen Driving While Intoxicated (DWI) Prevention Efforts

- a) All North Carolina state and local law enforcement agencies with traffic responsibilities should actively enforce DWI laws throughout the year and should conduct highly-publicized checking stations. State and local law enforcement agencies should report at the beginning of each biennium their efforts to increase enforcement of DWI to the North Carolina House and Senate Appropriations Subcommittees on Justice and Public Safety.
- b) The North Carolina General Assembly should increase the reinstatement fee for DWI offenders by \$25. Funds from the increased DWI fees should be used to support DWI programs, including training, maintenance of checking station vehicles and equipment, expanding the operation of DWI checking stations to additional locations and times, and expanding dissemination of the existing *Booze It & Lose It* campaign.
- c) The North Carolina General Assembly should appropriate \$750,000^k in recurring funding beginning in SFY 2011 to the North Carolina Division of Public Health to work with the Governor's Highway Safety Program, the UNC Highway Safety Research Center, and other appropriate groups to improve the effectiveness of checking stations and to develop and implement an evidence-based dissemination plan for the existing *Booze It & Lose It* campaign. The plan should focus on reaching adolescents and young adults.

Recommendation 6.3: Fund Injury Prevention Educators

- a) The University of North Carolina Injury Prevention Research Center should hire three full-time employees for the dissemination of evidence-based injury prevention programs and policies to schools and youth sports clubs across the state. Staff would:

^k The North Carolina Department of Transportation estimates it would cost \$750,000 to improve the effectiveness of checking stations and to develop and implement an evidence-based dissemination plan for the existing *Booze It & Lose It* campaign. (Nail D. Assistant Director, Governor's Highway Safety Program, North Carolina Department of Transportation. Written (email) communication. June 12, 2009.)

- 1) Train coaches and other youth athletic staff/volunteers and employees of local Parks and Recreation Departments on how to implement evidence-based programs proven to reduce youth sports and recreation injuries, such as those developed by staff at the University of North Carolina Injury Prevention Research Center.
 - 2) Develop and distribute materials targeting parents to increase awareness of the frequency of sports and recreation injuries and to provide information on how to prevent the most common sports and recreation injuries.
 - 3) Implement injury prevention programs in schools and youth sports leagues and monitor compliance.
- b) The North Carolina General Assembly should appropriate \$300,000¹ in recurring funds beginning in SFY 2011 to support this effort.

Chapter 7: Reducing Substance Use and Abuse and Improving Mental Health for Adolescents and Young Adults

Recommendation 7.1: Review Substance Use and Mental Health Prevention and Services in Educational Settings

- a) The North Carolina General Assembly should direct the State Board of Education, Office of Non-Public Education, North Carolina Community College System, and University of North Carolina System to review their existing substance abuse and mental health prevention plans, programs, and policies, as well as the availability of substance abuse and mental health screening and treatment services, in order to ensure that these educational institutions offer comprehensive substance abuse and mental health prevention, early intervention, and treatment services to students enrolled in their schools. These institutions should submit a description of their prevention plans, programs, and policies; procedures for early identification of students with substance abuse or mental health problems; and information on screening, treatment, and referral services to the Education Cabinet, Joint Legislative Oversight Committee on Mental Health, Developmental Disabilities, and Substance Abuse Services, the Appropriations Subcommittee on Education, and Education Committees upon the convening of the legislative session every other year beginning in 2011.

¹ The UNC Injury Prevention Research Center estimates it would cost \$300,000 in salary and benefits to support three full-time employees for the dissemination of evidence-based injury prevention programs and policies to schools and youth sports clubs across the state..

- b) The Department of Public Instruction, North Carolina Community College System, and University of North Carolina system should coordinate their prevention efforts with the other prevention activities led by the Division of Mental Health, Developmental Disabilities, and Substance Abuse Services to ensure the development of consistent messages and optimization of prevention efforts. Prevention efforts should employ evidence-based programs that focus on intervening early and at each stage of development with age-appropriate strategies to reduce risk factors and strengthen protective factors before problems develop.

Recommendation 7.2: Support the North Carolina Youth Suicide Prevention Plan

The North Carolina Youth Suicide Prevention Task Force along with the Division of Public Health's Injury and Violence Prevention Branch should implement the recommendations in *Saving Tomorrows Today: the North Carolina Plan to Prevent Youth Suicide*. The North Carolina General Assembly should appropriate \$112,500^m in recurring funds beginning in SFY 2011 to the Division of Public Health's Injury and Violence Prevention Branch for 1.5 full-time employees to support this effort.

Recommendation 7.3: Develop and Implement a Comprehensive Substance Abuse Prevention Plan

- a) The North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should develop a comprehensive substance abuse prevention plan for use at the state and local levels. The plan should increase the capacity at the state level and within local communities to implement a comprehensive substance abuse prevention system, prioritizing efforts to reach children, adolescents, young adults, and their parents. The goal of the prevention plan is to prevent or delay the onset of use of alcohol, tobacco, or other drugs, reduce the use of addictive substances among users, identify those who need treatment, and help them obtain services earlier in the disease process.
 - 1) The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services should pilot test this prevention plan in six counties or multicounty areas and evaluate its effectiveness. DMHDDSAS should develop a competitive process and select at least one rural pilot and one urban pilot in the three DMHDDSAS regions across the state. DMHDDSAS should provide technical assistance to the selected communities. If effective, the prevention plans should be implemented statewide.

^m The Injury and Violence Prevention Branch estimates it would cost \$112,500 in salary and benefits to support the one 1.5 full-time employees needed to oversee implementation of the recommendations in *Saving Tomorrows Today: the North Carolina Plan to Prevent Youth Suicide*.

- 2) The pilot projects should involve multiple community partners, including but not limited to, Local Management Entities, primary care providers, health departments, local education agencies (LEAs), 2- and 4-year colleges, universities, and other appropriate groups.
 - 3) The pilots should incorporate evidence-based programs, policies, and practices that include a mix of strategies including universal and selected populations. Priority should be given to evidence-based programs that have been demonstrated to yield positive impacts on multiple outcomes, including but not limited to: preventing or reducing substance use, improving emotional well-being, reducing youth violence or delinquency, and reducing teen pregnancy.
- b) The North Carolina General Assembly should appropriate \$1.95 million in SFY 2010 and \$3.72 million in SFY 2011 in recurring funds to the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services to support and evaluate these efforts.ⁿ

Recommendation 7.4: Increase Alcohol Taxes

The North Carolina General Assembly should index the excise taxes on malt beverages and wine to the consumer price index so they can keep pace with inflation. The increased fees should be used to fund effective prevention and treatment efforts for alcohol, tobacco, and other drugs.

Recommendation 7.5: Drinking Age Remain 21

The North Carolina General Assembly should not lower the minimum drinking age below age 21.

Recommendation 7.6: Integrate Behavioral Health into Health Care Settings

- a) The Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should work with the Office of Rural Health and Community Care, Governors Institute on Alcohol and Substance Abuse, and Area Health Education Centers (AHEC) to expand the use of Screening, Brief Intervention, and Referral into Treatment (SBIRT) in Community Care of North Carolina (CCNC) networks and other healthcare settings to increase the early identification and referral into treatment of patients with problematic substance use. A similar evidence-based model for screening, brief intervention, and referral to treatment should be identified and expanded to increase the early identification and referral of patients with mental health concerns.

ⁿ The appropriation requests were developed by the North Carolina Division of Mental Health, Developmental Disabilities and Substance Abuse Services as part of the North Carolina Institute of Medicine Task Force on Substance Abuse Services.

- b) The North Carolina Office of Rural Health and Community Care should work in collaboration with the DMHDDSAS, the Governors Institute on Alcohol and Substance Abuse, the ICARE partnership, and other professional associations to support and expand co-location in primary care practices of licensed health professionals trained in providing mental health and substance abuse services.
- c) The North Carolina General Assembly should appropriate \$2.25 million in recurring funds beginning in SFY 2011 to support these efforts, allocating \$1.5 million to DMHDDSAS and \$750,000 to the North Carolina Office of Rural Health and Community Care.^o

Recommendation 7.7: Ensure the Availability of Substance Abuse and Mental Health Services for Adolescents (PRIORITY RECOMMENDATION)

- a) The North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) should develop a plan for a comprehensive system that is available and accessible across the state to address adolescents' substance abuse treatment needs. In developing this plan, DMHDDSAS should:
 - 1) Ensure a comprehensive array of local or regional substance abuse services and supports.
 - 2) Develop performance based contracts to ensure timely engagement, active participation in treatment, retention, and program completion.
 - 3) Ensure effective coordination of care between substance abuse providers and other health professionals, such as primary care providers, emergency departments or school health professionals.
 - 4) Identify barriers and strategies to increase quality and quantity of mental health and substance abuse providers in the state.
 - 5) Immediately begin expanding capacity of adolescent substance abuse treatment services.
 - 6) Include identification of co-occurring disorders and dual diagnoses, including screening all adolescents with mental health disorders for substance use and abuse and vice versa.

^o These appropriation requests were developed by the North Carolina Division of Mental Health, Developmental Disabilities and Substance Abuse Services and the North Carolina Office of Rural Health and Community Care, respectively, as part of the North Carolina Institute of Medicine Task Force on Substance Abuse Services.

- b) DMHDDSAS should review the availability of mental health treatment services for adolescents among public and private providers.

Chapter 8: Preventing Youth Violence

Recommendation 8.1: Enhance Injury Surveillance Evaluation

- a) The Department of Juvenile Justice and Delinquency Prevention should collect gang activity data from schools each year.
- b) The North Carolina General Assembly should amend the Public Health Act § 130A-1.1 to include injury and violence prevention as an essential public health service.
- c) The North Carolina General Assembly should appropriate \$175,000 in recurring funds beginning in SFY 2011 to the Department of Public Health to develop an enhanced intentional and unintentional injury surveillance system with linkages. This work should be led by the State Center for Health Statistics and the Injury and Violence Prevention Branch and done in collaboration with the North Carolina Medical Society, North Carolina Pediatric Society, North Carolina Hospital Association, North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, Governor's Highway Safety Program within the North Carolina Department of Transportation, Carolinas Poison Center (state poison control center) at Carolinas Medical Center, North Carolina Office of the Chief Medical Examiner, Department of Juvenile Justice and Delinquency Prevention, and others as appropriate. The collaborative should examine the need and feasibility for linkages to electronic health records and enhanced training in medical record coding using E codes (injury) and ICD-9/10 codes (disease).

Recommendation 8.2: Support Evidence-Based Prevention Programs in the Community (PRIORITY RECOMMENDATION)

The Department of Juvenile Justice and Delinquency Prevention (DJJDP) should strongly encourage Juvenile Crime Prevention Councils (JCPC) to fund evidence-based juvenile justice prevention and treatment programs, including prevention of youth violence and substance use, and community-based alternatives to incarceration. Additionally, DJJDP should strongly encourage JCPC-funded programs to address multiple health domains in addition to violence prevention.

- b) DJJDP should restructure JCPC funding grants to allow grants of longer than one year duration so that programs have the resources and commitment to implement and support evidence-based programs with fidelity.

Recommendation 8.3: Raise the Age of Juvenile Court Jurisdiction

The North Carolina General Assembly should enact legislation to raise the age of juvenile court jurisdiction from 16 to 18. Full implementation of the increased age for juvenile court jurisdiction should be delayed two years to enable the Youth Accountability Planning Task Force of the North Carolina Department of Juvenile Justice and Delinquency Prevention to report back recommendations on implementation and costs to the General Assembly.

Chapter 9: Reducing Adolescent Sexual Activity and Preventing Sexually Transmitted Diseases and Teenage Pregnancies

Recommendation 9.1: Increase Immunization Rates for Vaccine-Preventable Diseases

- a) The North Carolina Division of Public Health (DPH) should aggressively seek to increase immunization rates for all vaccines recommended by the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP), including but not limited to the human papillomavirus (HPV) vaccine which is not currently covered through the state's universal childhood vaccine distribution program (UCVDP).
- b) All public and private insurers should provide first dollar coverage (no co-pay or deductible) for all CDC recommended vaccines that the state does not provide through the UCVDP, and should provide adequate reimbursement to providers to cover the cost and administration of the vaccines.
- c) Health care providers should offer and actively promote the recommended vaccines, including educating parents about the importance of vaccinations. The HPV vaccine should be made available to females ages 9 to 26; however, vaccine delivery should be targeted toward adolescents ages 11-12, as recommended by the CDC's Advisory Committee on Immunization Practices (ACIP).
- d) Parents should ensure that their children receive age appropriate vaccinations.

- e) DPH should monitor the vaccination rate for the HPV vaccine not currently covered through the UCVDP to determine whether the lack of coverage through the UCVDP leads to lower immunization rates. If so, the DPH should seek recurring funds from the North Carolina General Assembly to cover the HPV vaccines through the UCVDP, work with insurers to ensure first dollar coverage and adequate reimbursement for recommended vaccines, or seek new financial models to cover vaccines for children not adequately covered through the UCVDP.
- f) DPH should conduct an outreach campaign to promote all the recommended childhood vaccines among all North Carolinians. The North Carolina General Assembly should appropriate \$1.5 million in recurring funds beginning in SFY 2011 to support this effort.

Recommendation 9.2: Ensure Comprehensive Reproductive Health and Safety Education for More Young People in North Carolina

- a) Local school boards should adopt an opt-out consent process to automatically enroll students in the comprehensive reproductive health and safety education program unless a parent or legal guardian specifically requests that their child not receive any or all of this education.
- b) The State Board of Education should require Local Education Authorities to report their consent procedures, as well as the number of students who receive comprehensive reproductive health and safety education, and those who receive more limited sexuality education. Information should be reported by grade level and by school.

Recommendation 9.3: Expand Teen Pregnancy and STD Prevention Programs and Social Marketing Campaigns (PRIORITY RECOMMENDATION)

- a) The North Carolina Division of Public Health (DPH) should develop and disseminate an unintended pregnancy prevention campaign and expand the Teen Pregnancy Prevention Initiative to reach more adolescents. The North Carolina General Assembly should appropriate \$3.5 million^p in recurring funds to DPH to support this effort.

^p The North Carolina Division of Public Health estimates it would cost \$3.5 million to develop and disseminate an unintended pregnancy prevention campaign and expand the Teen Pregnancy Prevention Initiative to reach more adolescents (Holliday J., Head, Women's Health Branch, Division of Public Health, North Carolina Department of Health and Human Services. Oral communication. May 14, 2009.

- b) DPH should expand the *Get Real. Get Tested.* campaign for HIV prevention; create sexually transmitted disease prevention messages; and collaborate with local health departments to offer non-traditional testing sites to increase community screenings for STDs and HIV among adolescents, young adults, and high-risk populations. The North Carolina General Assembly should appropriate \$2.4 million^q in recurring funding to DPH to support this effort.

Chapter 10: Preventing Adult-Onset Diseases

Recommendation 10.1: Support the Implementation of North Carolina's Comprehensive Tobacco Control Program (PRIORITY RECOMMENDATION)

- a) The North Carolina General Assembly (NCGA) should adopt measures to prevent and decrease adolescent smoking. As part of this effort, the NCGA should:
 - 1) Increase the tax on tobacco products and new revenues should be used for a broad range of prevention activities including preventing and reducing dependence on tobacco, alcohol, and other substances.
 - a. The NCGA should increase the tax on a pack of cigarettes to meet the current national average. The cigarette tax should be regularly indexed to the national average whenever there is a difference of at least 10% between the national average cost of a pack of cigarettes (both product and taxes) and the North Carolina average cost of a pack of cigarettes.
 - b. The NCGA should increase the tax on all other tobacco products to be comparable to the current national cigarette tax average, which would be 55% of the product wholesale price.
 - 2) The NCGA should support the state's Comprehensive Tobacco Control Program by
 - a. Protecting the North Carolina Health and Wellness Trust Fund's (HWTF) ability to continue to prevent and reduce tobacco use in North Carolina by

^q The North Carolina Division of Public Health estimates it would cost \$2.4 million to expand the *Get Real. Get Tested.* campaign for HIV prevention; create sexually transmitted disease prevention messages; and collaborate with local health departments to offer non-traditional testing sites to increase community screenings for STDs and HIV among adolescents, young adults, and high-risk populations (Foust, EM. Head, HIV/STD Prevention and Care, Division of Public Health, North Carolina Department of Health and Human Services. Oral communication. May 14, 2009).

- i. Ensuring that no additional funds are diverted from HWTF's share of the Master Settlement Agreement.
 - ii. Releasing HWTF from its obligation to use over 65% of its annual MSA receipts to underwrite debt service for State Capital Facilities Act, 2004.
 - b. The NCGA should better enable the Division of Public Health (DPH) and North Carolina Health and Wellness Trust Fund (HWTF) to prevent and reduce tobacco use in North Carolina by appropriating \$26.7 million in recurring funds in SFY 2011 to support implementation of the Comprehensive Tobacco Control program. The NCGA should appropriate other funds as necessary until state funding, combined with HWTF's annual allocation for tobacco prevention (based on provision A), reaches the Centers for Disease Control and Prevention recommended amount of \$106.8 million by 2020.
 - c. DPH should work collaboratively with the HWTF and other stakeholders to ensure that the funds are spent in accordance with best practices as recommended by the Centers for Disease Control and Prevention. A significant portion of this funding should be targeted towards youth.
- 3) The NCGA should amend current smoke-free laws to mandate that all worksites and public places are smoke-free.
- 4) In the absence of a comprehensive state smoke-free law, local governments, through their Boards of County Commissioners should adopt and enforce ordinances, board of health rules, and policies that restrict or prohibit smoking in public places, pursuant to NCGS §130A-497.
- b) Comprehensive evidence-based tobacco cessation services should be available for all youth.
 - 1) Insurers, payers, and employers should cover comprehensive, evidence-based tobacco cessation services and benefits including counseling and appropriate medications.
 - 2) Providers should deliver comprehensive, evidence-based tobacco cessation services including counseling and appropriate medications.

Recommendation 10.2: Improve School Nutrition in Middle and High Schools (PRIORITY RECOMMENDATION)

North Carolina funders should develop a competitive request for proposal to fund a collaborative effort between North Carolina Department of Public Instruction and other partners to test the potential for innovative strategies to deliver healthy meals in middle and high schools while protecting/maintaining revenue for the child nutrition program. Funders should require grant recipients to conduct an independent rigorous evaluation that includes the cost of implementing healthy meals.

Recommendation 10.3: Establish Joint-Use Agreements for School and Community Recreational Facilities

- a) The North Carolina School Boards Association should work with state and local organizations including, but not limited to, the North Carolina Recreation and Park Association, Local Education Agencies, North Carolina Association of Local Health Directors, North Carolina County Commissioners Association, North Carolina League of Municipalities, North Carolina High School Athletic Association, and Parent Teacher Associations to encourage collaboration among local schools, parks and recreation, faith-based organizations, and/or other community groups to expand the use of school facilities for after-hours community physical activity. These groups should examine successful local initiatives and identify barriers, if any, which prevent other local school districts from offering the use of school grounds and facilities for after-hour physical activity and develop strategies to address these barriers. In addition, this collective group should examine possibilities for making community facilities available to schools during school hours, develop model joint-use agreements, and address liability issues.
- b) The State Board of Education should encourage the School Planning Section, Division of School Support, North Carolina Department of Public Instruction to do the following:
 - 1) Provide recommendations for building joint-use park and school facilities.
 - 2) Include physical activity space in the facility needs survey for 2010 and subsequent years.

Recommendation 10.4: Fund Demonstration Projects in Promoting Physical Activity, Nutrition, and Healthy Weight^r

The North Carolina Division of Public Health, along with its partner organizations, should fully implement the *Eat Smart, Move More North Carolina Obesity Plan* for combating obesity in selected local communities and identify best practices for improving nutrition and increasing physical activity that will ultimately be adopted across the state. As part of this project, the North Carolina General Assembly should appropriate \$500,000 in non-recurring funds for six years beginning in SFY 2011 to the North Carolina Division of Public Health for pilot programs of up to \$100,000 per year to reduce overweight and obesity among adolescents. Funded programs should be evidence-based or promising practices and should include an evaluation of their effectiveness. If shown to be effective, programs should be expanded statewide.

Recommendation 10.5: Expand the CCNC Childhood Obesity Prevention Initiative

If shown to be successful through program evaluations, Community Care of North Carolina (CCNC) should continue expansion of the Childhood Obesity Prevention Initiative including the dissemination and use of already developed clinical initiatives aimed at obesity reduction for Medicaid-enrolled and other children and their families. The North Carolina General Assembly should appropriate one-time funding of \$174,000 in SFY 2011 to the North Carolina Office of Rural Health and Community Care to support this effort.

^r This is one part of a recommendation adopted by the Prevention Task Force and the legislatively created Obesity Task Force. The full recommendation is for \$10.5 million Division of Public Health to allow full implementation of the *Eat Smart, Move More North Carolina* state plan for obesity in selected local communities and to identify best practices for improving nutrition and increasing physical activity that will ultimately be adopted across the state.



Organization Name, Description and Website	Prevention Areas	Population Studied	Evaluation of Research
Governmental Organizations			
<p>Agency for Healthcare Research and Quality US Preventive Services Task Force (USPSTF) Sponsored by the Agency for Healthcare Research and Quality, USPSTF assesses and recommends preventative clinical services routinely offered to populations in primary care settings. http://www.dhrq.gov/CLINIC/uspstf/fix.htm</p>	<p>Preventive clinical services (ie screening tests, counseling, immunizations, and preventive medications)</p>	<p>Different age groupings, race, ethnicity, gender, SES, rural/urban, disabilities, chronic and end of life care</p>	<p>Recommends preventative services based on: research design, internal validity, generalizability and applicability, consistency of results, and overall effectiveness of services.</p>
<p>Centers for Disease Control and Prevention Guide to Community Preventive Services (Community Guide) Developed by the US Task Force on Community Preventive Services, the Community Guide recommends evidence-based interventions to improve public health. http://www.thecommunityguide.org/index.html</p>	<p>Adolescent health, alcohol, mental health, chronic conditions, HIV/AIDS, injury and violence prevention, cancer, tobacco, and obesity prevention.</p>	<p>Different age groupings, race, ethnicity, gender, medical conditions</p>	<p>The Community Guide evaluates interventions based on: the quality each study, body of evidence, applicability, barriers to implementation, cost and benefits to society, and economic efficiency. The Community Guide then defines each intervention as recommended, recommended against, or insufficient evidence.</p>
<p>Adolescent Health Registries of Programs Effective in Reducing Youth Risk Behaviors A resource guide developed by the Centers for Disease Control and Prevention that identifies effective youth-related programs for reducing youth risk behaviors. http://www.cdc.gov/HealthyYouth/AdolescentHealth/registries.htm</p>	<p>Mental health promotion, substance abuse prevention, alcohol, criminal/juvenile justice, diet and nutrition, physical activity, sun safety, HIV/AIDS, homelessness, suicide prevention, tobacco/smoking, and violence prevention</p>	<p>Different age groupings (ranging from early childhood to older adults), race, ethnicity, gender, urban/rural, different intervention settings (home, schools, worksite, outpatient, and other community settings)</p>	<p>The CDC evaluates these youth-related programs based on: expert opinion, study design, and research evidence.</p>

Organization Name, Description and Website	Prevention Areas	Population Studied	Evaluation of Research
<p>Model Programs Guide (MPG) A program of the US Department of Justice Office of Juvenile Justice and Delinquency Prevention that maintains an online database of evidence-based programs for youth in the juvenile justice system. http://www2.dsgonline.com/mpg/</p>	<p>Substance abuse, mental health, behavioral problems, violence prevention, and education outcomes</p>	<p>Adolescents, different race, ethnicities, gender, problem behaviors, offender status (ie first time, mentally ill, serious, and/or sex offenders), rural/urban, interventions settings (school, community-based, group homes, juvenile justice, and residential treatment centers)</p>	<p>MPG rates programs effectiveness based on: conceptual framework, fidelity, evaluation design, and empirical evidence supporting effectiveness of program. Program effectiveness is also categorized as exemplary, effective, or promising.</p>
<p>National Registry of Evidence-Based Programs and Practices (NREPP) A program of the US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration that maintains an online registry for evidence-based mental health and substance abuse interventions. http://www.nrepp.samhsa.gov/find.asp</p>	<p>Mental health promotion, substance abuse prevention, alcohol, criminal/juvenile justice, HIV/AIDS, homelessness, suicide prevention, tobacco/smoking, and violence prevention</p>	<p>Different age groupings (ranging from early childhood to older adults), race, ethnicity, gender, urban/rural, different intervention settings (ie home, schools, worksite, outpatient, and other community settings)</p>	<p>NREPP rates the evaluation studies based on: reliability and validity of measures, fidelity, missing data, confounding variables, and quality of data analysis. Also includes an assessment of the ability to replicate and disseminate similar interventions in other settings.</p>
<p>Research Tested Intervention Programs (RTIPs) A program of the National Cancer Institute and the Substance Abuse and Mental Health Services Administration that maintains a searchable database of cancer control interventions and program materials and is designed to provide program planners and public health practitioners easy and immediate access to research-tested materials. http://rtips.cancer.gov/rtips/index.do</p>	<p>Preventive clinical and community services programs for breast cancer screening, diet/nutrition, sun safety, cervical cancer screening, colorectal cancer screening, physical activity, and tobacco control</p>	<p>Different age groupings, race, ethnicity, gender, medical conditions</p>	<p>RTIPs reviews studies that meet the following criteria: developed and tested through a peer-reviewed research grant; outcomes of the intervention are published in a peer-reviewed journal; and includes messages, materials, and other intervention components that can be applied in a community or clinical setting.</p>

Organization Name, Description and Website	Prevention Areas	Population Studied	Evaluation of Research
<p>Teaching our Youngest A report by the US Department of Education that is a scientifically based research guide for preschool teachers, child care, and family providers. http://www.ed.gov/teachers/how/early/teachingouryoungest/index.html</p>	<p>Early childhood education (language development, listening and speaking skills, and building thinking skills)</p>	<p>Children ages 0-5, different genders</p>	<p>N/A</p>
<p>What Works Clearing House (WWC) A program of the US Department of Education's Institute of Education Sciences that produces, assesses, and develops evidence-based educational interventions. http://ies.ed.gov/ncee/wwc/</p>	<p>Educational outcomes (adolescent literacy, beginning reading, middle school math, elementary school math, early childhood education, dropout prevention, English language learners, character education), behavioral problems, substance abuse and violence prevention</p>	<p>Different age groupings (early childhood, elementary, middle, and high school ages), race, ethnicity, gender, SES, and different intervention school settings (location, type, SES, class size, school size, student characteristics, and teacher characteristics)</p>	<p>WWC rates interventions based on: study design, evidence of effectiveness, reliability and validity of measures, attrition, confounding factors, and equivalence (intervention and comparison groups are alike).</p>
Non-governmental Organizations			
<p>The Best Evidence Encyclopedia Project of the Johns Hopkins University School of Education's Center for Data-Driven Reform in Education (CDDRE) that presents reliable, unbiased information on high-quality evaluations of educational programs.</p>	<p>Education (reading, math, comprehensive school reform)</p>	<p>Students in grades K-12.</p>	<p>The Best Evidence Encyclopedia rates programs according to the overall strength of the evidence support in their effects.</p>
<p>Blueprint for Violence Prevention (Blueprints) Project of the Center for Study and Prevention Violence at the University of Colorado that identifies and evaluates violence prevention programs. http://www.colorado.edu/cspv/blueprints/</p>	<p>Violence prevention and substance abuse</p>	<p>Different age groupings (ranging from early-to late adolescents), gender, family structures, at-risk youth, foster youth, juvenile offenders, SES, different intervention settings (community-based, schools, homes, clinics, juvenile courts)</p>	<p>Blueprints evaluates program effectiveness based on: evidence of deterrent effect, research design, sustained effects, multiple site replication, mediating factors, and cost-effectiveness.</p>

Organization Name, Description and Website	Prevention Areas	Population Studied	Evaluation of Research
<p>Child Welfare Information Gateway Website that identifies resources that evaluate effectiveness child abuse prevention programs. http://www.preventchildabusenc.org/resourcecenter/evb/index_html</p>	<p>Child abuse and neglect, domestic violence, family support services, substance abuse, and sexual abuse prevention.</p>	<p>Different age groupings, gender, race, ethnicity, culture, and disadvantaged areas</p>	<p>N/A</p>
<p>Child Trends What Works Child Trends What Works identifies and evaluates promising programs for children of all ages. http://www.childtrends.org/index.cfm</p>	<p>Academic achievement, mentoring, civic engagement, and employment programs</p>	<p>Different age groupings, gender, race, ethnicity, culture, program characteristics, outcomes</p>	<p>N/A</p>
<p>National Resource Center for Health and Safety in Child Care and Early Education Program of the American Academy of Pediatrics that publishes “Caring for our Children: National Health and Safety Performance Standards for Out-of-home Child Care.” http://nrc.uchsc.edu/CFOC/index.html</p>	<p>Health promotion in childcare, infectious disease prevention, child abuse and neglect, primary care (immunization schedule, nutrition and physical activity guidelines)</p>	<p>Different age groupings (infants, young children, and school aged children), gender, developmental needs, and cultures.</p>	<p>Programs evaluated are based on: individual needs of child, have written policies and procedures, confidentiality of records.</p>
<p>Prevention Resource Center Website maintained by the Prevent Child Abuse North Carolina that lists evidence-based and promising programs for the prevention of child abuse and maltreatment. http://www.preventchildabusenc.org/resourcecenter/evb/index_html</p>	<p>Child abuse and maltreatment, and emotional/behavioral disorders</p>	<p>Parents and children, different interventions settings (home, school, and group)</p>	<p>N/A</p>
<p>Promising Practices Network A RAND Corporation program that provides information on evidence-based practices for improving the lives of children, youth, and families. http://www.promisingpractices.net/programs_outcome_area.asp?outcomeid=4</p>	<p>Adolescent behavioral problems, child abuse and neglect, school performance, juvenile justice, mental and physical health, substance abuse, teen pregnancy, and violence prevention</p>	<p>Different age groupings (early childhood, middle childhood, and adolescence), different intervention settings (school, home, and child care), different service types (family and instructional support, mentoring, parent</p>	<p>PPN evaluates programs based on: outcomes, impact size, statistical significance, comparison groups, sample size, and availability of program evaluation documentation.</p>

Organization Name, Description and Website	Prevention Areas	Population Studied	Evaluation of Research
<p>Social Programs that Work Website maintained by the Coalition for Evidence-Based Policy that identifies social interventions shown in rigorous studies to produce sizable, sustained benefits to participants and/or society http://evidencebasedprograms.org/wordpress/</p>	<p>Early childhood, education, youth development, crime/violence prevention, substance abuse prevention and treatment, mental health, and employment and welfare.</p>	<p>education, risk prevention, and youth development) Different age groupings, genders, and cultures.</p>	<p>Social Programs that Work includes interventions that have been shown, in well-designed and implemented randomized controlled trials, preferably conducted in typical community settings, to produce sizeable, sustained benefits to participants and/or society.</p>
<p>UNC Center of Excellence for Training and Research Translation (Center TRT) Program of the UNC Center for Health Promotion and Disease Prevention that provides best practices for preventing obesity, heart disease, stroke, and other chronic conditions. http://www.center-trt.org/</p>	<p>Obesity prevention, heart disease and stroke, and prevention of chronic diseases</p>	<p>Different age groupings, gender, and intervention settings (childcare, school, worksite, healthcare, and community setting)</p>	<p>Center TRT reviews and evaluates interventions based on: effectiveness, public health impact, feasibility, dissemination readiness, and implementation protocols.</p>



Table 1. North Carolina Youth Risk Behavior Survey High School Data, 2007

	Gender		Race/Ethnicity						
	Total	Male	Female	White	African American	Hispanic	American Indian	Asian or Pacific Islander	Multiple Races
Positive Youth Development									
Ate dinner at home with family 4+ times in past 7 days	56.2%	60.1%	52.3%*	59.3%	48.9%*	62.4%	67.6%	56.0%	58.9%
Participate in extracurricular activities at school	62.4%	64.1%	60.9%	66.2%	58.1%	46.6%*	72.1%	47.3%*	66.3%
Agree that they feel good about themselves	75.3%	79.9%	70.7%*	73.6%	80.2%*	67.5%*	70.3%	76.0%	70.3%
Substance Use and Mental Health									
Alcohol									
Had first drink before 13	19.7%	23.5%	15.7%*	18.0%	20.2%	31.7%*	18.8%	25.5%	17.0%
Used in past 30 days	37.7%	37.8%	37.6%	43.0%	27.2%*	38.7%	48.9%	39.9%	37.4%
Bought alcohol in store or gas station	6.3%	9.2%	3.3%*	4.1%	10.9%*	9.9%	33.6%	0.5%*	3.4%
Drank on school property	4.7%	6.2%	3.3%*	4.4%	3.8%	9.2%	9.1%	14.2%	2.2%
Binge Drinking	21.1%	22.1%	19.9%	26.4%	10.1%*	23.9%	33.1%	28.5%	16.7%
Marijuana									
Ever had marijuana	36.4%	37.9%	34.7%	34.5%	38.8%	36.3%	39.5%	33.2%	49.6%
Used before age 13	8.3%	10.6%	5.9%*	7.2%	8.3%	12.5%*	10.3%	22.0%	10.8%
Used in past 30 days	19.1%	20.2%	17.9%	19.1%	19.7%	14.5%	29.2%	20.4%	20.3%
Used on school property	4.3%	6.1%	2.4%*	3.8%	4.5%	5.9%	8.1%	7.8%	5.1%
Other Drugs (lifetime use)									
Sniffed glue/aerosol/paints/sprays to get high	13.8%	13.3%	14.2%	14.8%	10.0%*	17.3%	19.6%	21.9%	18.3%
Cocaine	7.0%	7.9%	5.8%*	8.1%	1.9%*	15.6%	5.2%	20.1%	7.3%
Heroin	2.8%	3.8%	1.5%*	2.7%	1.1%*	6.5%*	4.3%	11.2%	4.7%
Methamphetamines	4.7%	5.8%	3.4%*	5.4%	1.5%*	7.9%	5.4%	15.3%	5.2%
Ecstasy	6.4%	7.1%	5.4%	7.7%	1.6%*	10.6%	11.4%	12.7%	16.7%
Steroids	3.9%	5.2%	2.4%*	3.9%	1.7%*	6.6%	3.6%	18.7%	9.0%
Injected drugs	2.5%	3.0%	2.0%	2.3%	1.4%	5.9%*	4.1%	14.0%	3.4%
Prescription drugs without prescription (e.g. OxyContin, Percocet, Demerol, Adoral, Ritalin, or Zanax)	17.0%	17.1%	16.8%	22.9%	4.6%*	15.4%*	25.9%	20.4%	22.2%

Table 1.
North Carolina Youth Risk Behavior Survey High School Data, 2007

	Total	Gender		Race/Ethnicity					
		Male	Female	White	African American	Hispanic	American Indian	Asian or Pacific Islander	Multiple Races
Drugs at School									
Offered/sold drugs on school property (past 12 months)	28.5%	33.4%	23.5%*	28.7%	26.5%	32.5%	31.7%	24.4%	31.9%
Think that drugs are a problem at school	52.9%	48.7%	57.3%*	55.1%	51.0%	44.1%*	67.4%	51.5%	51.8%
Mental Health									
Agree that they feel alone in their life	20.4%	19.6%	21.2%	18.0%	23.2%	21.7%	20.1%	35.6%*	36.2%
Felt sad or hopeless almost daily for 2 weeks (past 12 months)	26.9%	21.5%	32.4%*	26.6%	24.8%	32.3%	39.4%	33.9%	48.1%
Disordered Eating (past 30 days)									
Took diet pills/powders/liquids to lose weight	8.1%	8.6%	7.5%	7.6%	7.7%	11.6%*	7.0%	11.0%	5.9%
Vomited/took laxatives to lose weight	4.9%	4.2%	5.7%	4.8%	4.8%	4.0%	7.4%	8.9%	2.7%
Suicide (past 12 months)									
Seriously considered suicide	12.5%	9.2%	15.8%*	13.2%	8.9%*	17.0%	24.5%	20.8%	26.6%
Made a plan about how to attempt suicide	9.5%	7.8%	11.2%*	9.7%	7.7%	9.0%	24.9%	20.2%	24.5%
Actually attempted suicide	13.3%	12.8%	13.8%	12.5%	12.6%	18.3%	19.0%	18.3%	22.4%
Violence									
Bullying									
Bullied on school property (past 12 months)	22.3%	19.6%	24.8%*	24.2%	15.9%*	29.9%	18.1%	33.2%	22.4%
Think bullying is problem at school	43.3%	38.6%	47.9%*	41.2%	45.7%	44.8%	51.1%	49.9%	50.0%
School Safety									
Carried weapon on school property (past 30 days)	6.8%	11.0%	2.6%*	6.3%	6.5%	8.5%	3.4%	16.5%	6.0%
Threatened/injured with weapon at school (past 12 months)	6.6%	8.2%	4.9%*	5.2%	7.2%	13.7%*	9.2%	11.2%	12.1%
Fought on school property (past 12 months)	10.4%	13.1%	7.6%*	8.8%	11.4%	13.7%	10.7%	19.6%	21.1%
Car/clothing/books stolen at school (past 12 months)	26.9%	28.5%	25.3%*	28.0%	24.2%	26.9%	48.5%*	29.6%	35.0%
Missed school because felt unsafe on the way to or from school (past 30 days)	7.0%	7.0%	7.0%	5.3%	8.3%	11.3%*	14.5%	10.6%	5.0%

Table 1.
North Carolina Youth Risk Behavior Survey High School Data, 2007

	Total	Gender		Race/Ethnicity						
		Male	Female	White	African American	Hispanic	American Indian	Asian or Pacific Islander	Multiple Races	
Dating/Sexual Violence										
Hit/slapped by boyfriend or girlfriend (past 12 months)	13.2%	14.9%	11.4%*	11.6%	15.4%	14.4%	22.0%	17.4%	17.9%	
Forced to have sex when they did not want to (lifetime)	9.3%	6.4%	12.3%*	8.1%	9.8%	8.9%	26.5%	21.5%	26.6%	
Other Violence										
In a physical fight (past 12 months)	30.1%	38.5%	21.7%*	26.9%	33.5%*	36.2%*	29.4%	35.9%	37.4%	
Fought and injured and had to be treated by a doctor (past 12 months)	3.7%	4.8%	2.4%*	3.2%	3.4%	6.6%	1.7%	11.5%	8.8%	
Carried weapon (past 30 days)	21.2%	32.4%	9.8%*	22.7%	17.3%*	19.7%	15.5%	27.8%	33.2%	
Unintentional Injury										
Bicycle										
Never/rarely wore bicycle helmet	88.8%	90.6%	86.1%*	85.9%	94.1%*	94.6%*	100.0%*	81.2%	84.1%	
Car										
Never/rarely wore seat belt as passenger	7.9%	10.4%	5.2%*	6.4%	9.3%	12.1%	5.5%	14.7%	7.5%	
Rode as passenger with drinking driver	24.7%	25.8%	23.6%	23.6%	24.9%	28.4%	45.4%*	27.4%	30.1%	
Drove after drinking alcohol	9.2%	11.1%	7.2%*	10.3%	5.4%*	12.7%	22.9%	23.1%	7.0%	
Sexual Health										
Had sex ever	52.1%	54.0%	50.3%	44.5%	67.8%*	51.2%	60.3%	36.3%	55.2%	
Had sex before age 13 years	8.3%	12.0%	4.4%*	4.1%	15.4%*	11.6%*	4.1%	11.4%	11.4%	
Had sex with one or more people in past 3 months	37.5%	36.3%	38.5%	33.6%	46.9%*	29.3%	51.3%	35.1%	36.3%	
Used condom during last time	61.5%	67.2%	56.7%*	61.0%	64.2%	54.0%	37.0%	78.1%*	49.8%	
Used birth control pills before last time	17.4%	14.1%	20.5%*	22.9%	10.6%*	4.2%*	3.2%*	17.6%	24.9%	
Used alcohol or drugs before last time	20.7%	24.3%	17.4%*	24.2%	13.4%*	32.2%	48.9%	33.5%	31.1%	
Had sex with 4+ people in lifetime	16.1%	18.4%	13.7%*	10.8%	26.2%*	16.9%	27.5%	12.3%	19.6%	

Table 1.
North Carolina Youth Risk Behavior Survey High School Data, 2007

	Gender			Race/Ethnicity					
	Total	Male	Female	White	African American	Hispanic	American Indian	Asian or Pacific Islander	Multiple Races
Chronic Illness									
Preventive Health (past 12 months)									
Had check-up/physical exam	60.2%	60.2%	60.3%	60.9%	62.0%	48.7%*	60.2%	52.0%	60.5%
Had dental check-up	66.5%	65.3%	67.9%	73.3%	59.2%*	47.5%*	79.5%	46.9%*	62.0%
Health Problems									
Limited in any activities due to health problem	13.0%	12.6%	13.4%	11.6%	13.7%	11.9%	24.9%	22.7%	17.3%
Trouble learning due to health problem	16.0%	16.9%	15.0%	15.3%	15.6%	13.2%	28.2%	24.3%	27.7%
Overweight and Obesity									
Nutrition									
Ate 5+ fruits/vegetables per day in past 7 days	14.8%	15.1%	14.3%	13.1%	17.5%	18.4%	23.5%	22.7%	10.0%
Physical Activity									
Active for 60 minutes/day on 5+ of past 7 days	44.3%	54.0%	34.8%*	48.4%	39.0%*	34.5%*	40.8%	48.4%	54.2%
Screen Time									
Watched 3+ hours of TV on school day	35.3%	36.5%	34.1%	23.6%	56.5%*	39.3%*	48.8%*	43.2%*	25.6%
Played video games 3+ hours on school day	21.2%	23.8%	18.5%*	19.5%	24.4%	20.0%	6.3%*	35.9%*	19.7%
Asthma									
Ever told by doctor/nurse they had asthma	20.3%	20.1%	20.6%	18.6%	23.1%	14.4%	37.1%	28.5%	28.3%
Currently have asthma	9.5%	6.4%	12.6%	8.6%	11.7%	3.9%	10.0%	16.8%	15.4%

* Denotes statistically significant difference at the p<.05 level for males relative to females or whites relative to specified race/ethnicity.
 Note: Indented indicators denote a denominator different from the entire sample. For example 21.1% of students who drank alcohol in the past 30 days engaged in binge drinking in the past 30 days.

Source: North Carolina Institute of Medicine. Analysis of the North Carolina Youth Risk Behavior Survey, 2007.

Table 2.
North Carolina Youth Risk Behavior Survey Middle School Data, 2007

	Gender		Race/Ethnicity						
	Total	Male	Female	White	African American	Hispanic	American Indian	Asian or Pacific Islander	Multiple Races
Positive Youth Development									
Ate dinner at home with family 4+ times in past 7 days	76.8%	77.9%	75.8%	79.0%	72.4%*	78.6%	81.8%	68.8%*	78.0%
Participate in extracurricular activities at school	66.9%	69.8%	63.9%*	71.8%	63.0%*	52.6%*	67.6%	52.0%*	66.6%
Agree that they feel good about themselves	74.8%	79.1%	70.4%*	73.4%	78.8%*	71.8%	66.1%	72.8%	77.3%
Substance Use and Mental Health									
Alcohol									
Ever had alcohol	33.6%	35.7%	31.5%	31.2%	35.6%	41.0%*	36.4%	26.1%	37.6%
Had first drink before 11	15.9%	18.4%	13.5%*	13.5%	17.6%	23.0%*	19.4%	9.4%	19.8%
Bought alcohol in store or gas station (past 30 days)	1.6%	1.9%	1.2%	0.8%	2.8%*	1.0%	0.0%*	4.8%	0.2%
Marijuana									
Ever had marijuana	11.9%	13.6%	10.0%*	9.2%	15.9%*	13.6%	25.2%	14.7%	13.5%
Used before age 11	3.6%	3.9%	3.2%	2.8%	3.8%	4.8%	16.3%	10.3%*	3.0%
Used in past 30 days	5.7%	6.7%	4.6%	4.2%	7.2%	5.6%	19.2%*	4.6%	9.1%
Used on school property	2.5%	3.1%	2.0%*	2.3%	1.8%	5.7%*	11.5%	3.5%	4.0%
Other Drugs (lifetime use)									
Sniffed glue/aerosol/paints/sprays to get high	13.6%	12.1%	15.3%	14.1%	12.6%	13.2%	34.2%*	8.9%*	14.3%
Cocaine	3.4%	3.6%	3.1%	3.2%	2.4%	5.4%*	12.7%	4.8%	7.2%
Steriods	3.0%	2.8%	3.1%	2.5%	3.0%	3.9%	16.3%	2.4%	6.5%
Prescription drugs without prescription (e.g. OxyContin, Percocet, Demerol, Adoral, Ritalin, or Zanax)	7.9%	7.1%	8.6%	8.6%	5.3%	10.6%	20.9%	4.6%	10.7%
Drugs at School									
Offered/sold drugs on school property (past 12 months)	11.4%	12.1%	10.6%	10.6%	11.8%	15.8%*	22.0%	4.8%	11.8%
Think that drugs are a problem at school	32.1%	32.8%	31.1%	25.9%	39.6%*	39.0%*	36.6%	49.9%*	28.0%

Table 2.
North Carolina Youth Risk Behavior Survey Middle School Data, 2007

	Gender			Race/Ethnicity					
	Total	Male	Female	White	African American	Hispanic	American Indian	Asian or Pacific Islander	Multiple Races
Mental Health									
Feel alone in their life	21.2%	19.6%	22.7%	19.9%	21.9%	26.0%	22.8%	22.3%	20.5%
Felt sad or hopeless almost daily for 2 weeks (past 12 months)	22.7%	17.3%	28.4%*	22.0%	22.5%	25.3%	14.1%	36.6%*	22.5%
Disordered Eating (past 30 days)									
Ate less food/fewer calories to lose weight	16.4%	12.3%	20.9%	15.1%	20.7%	12.9%	32.8%	14.3%	19.9%
Took diet pills/powders/liquids to lose weight	9.2%	7.7%	10.7%*	9.7%	7.3%	13.1%	18.2%	6.8%	7.9%
Vomited/took laxatives to lose weight	7.8%	6.8%	8.9%	7.7%	7.4%	9.7%	4.9%	8.9%	13.2%
Suicide (past 12 months)									
Seriously considered suicide	22.0%	18.9%	25.3%*	20.3%	21.8%	31.5%*	44.8%*	24.3%	19.4%
Made a plan about how to attempt suicide	15.5%	13.2%	17.9%*	14.0%	15.8%	22.3%*	24.8%	12.3%	14.2%
Violence									
Bullying									
Bullied on school property (past 12 months)	27.1%	24.3%	30.0%*	30.9%	20.5%*	26.3%	42.0%	33.3%	34.1%
Think bullying is problem at school	54.1%	50.8%	57.5%*	54.6%	52.7%	53.2%	54.1%	68.3%	58.8%
School Safety									
Carried weapon on school property (past 30 days)									
Threatened/injured with weapon at school (past 12 months)	7.6%	8.9%	6.1%*	7.0%	8.4%	8.4%	23.5%*	9.0%	5.3%
Car/clothing/books stolen at school (past 12 months)	27.8%	26.9%	28.7%	28.7%	25.1%	29.4%	26.6%	27.9%	26.1%
Missed school because felt unsafe on the way to or from school (past 30 days)	5.7%	4.8%	6.6%	5.4%	5.3%	7.6%	6.7%	12.5%	8.2%
Other Violence (ever)									
In a physical fight	56.5%	70.1%	42.3%*	50.3%	67.8%*	55.4%	60.5%	55.8%	58.6%
Fought and injured and had to be treated by a doctor	5.3%	6.7%	3.9%*	4.8%	5.4%	5.6%	18.6%	11.1%	11.1%
Carried weapon	37.2%	53.4%	20.1%*	42.7%	29.7%*	30.3%*	51.5%	33.0%	40.6%

Table 2.
North Carolina Youth Risk Behavior Survey Middle School Data, 2007

	Gender		Race/Ethnicity						
	Total	Male	Female	White	African American	Hispanic	American Indian	Asian or Pacific Islander	Multiple Races
Unintentional Injury									
Bicycle									
Never/rarely wore bicycle helmet	77.3%	79.5%	74.7%	70.7%	88.8%*	79.6%*	77.4%	85.7%*	78.7%
Car									
Never/rarely wore seat belt as passenger	12.4%	14.5%	10.1%*	10.1%	12.7%	21.1%*	25.6%	13.5%	11.6%
Rode as passenger with drinking driver	26.9%	27.5%	26.2%	26.5%	27.1%	25.7%	36.9%	18.8%	26.6%
Chronic Illness									
Preventive Health (past 12 months)									
Had check-up/physical exam	51.6%	50.9%	52.4%	56.0%	46.6%*	41.2%*	49.1%	35.9%*	50.1%
Had dental check-up	57.2%	56.8%	57.6%	64.2%	49.1%*	47.0%*	39.2%*	50.6%*	56.6%
Health Problems									
Limited in any activities due to health problem	12.4%	12.4%	12.4%	10.8%	15.2%	11.2%	25.5%	14.0%	14.3%
Trouble learning due to health problem	17.8%	18.8%	16.7%	17.5%	17.7%	16.9%	33.3%	6.8%	27.7%
Overweight and Obesity									
Physical Activity									
Active for 60 minutes/day on 5+ of past 7 days	55.0%	60.5%	49.1%*	59.3%	49.7%*	49.3%*	58.4%	42.7%*	54.1%
Screen Time									
Watched 3+ hours of TV on school day	43.5%	43.2%	43.9%	35.1%	58.6%*	40.9%	33.3%	54.0%*	45.9%
Played video games 3+ hours on school day	25.0%	28.7%	21.0%*	22.9%	28.2%*	23.5%	28.4%	23.5%	30.4%
Asthma									
Ever told by doctor/nurse they had asthma	20.3%	21.8%	18.7%	20.0%	22.2%	14.1%*	29.3%	18.0%	19.9%

* Denotes statistically significant difference at the p<.05 level for males relative to females or whites relative to specified race/ethnicity.

Note: Indented indicators denote a denominator different from the entire sample. For example 15.9% of students who have ever had alcohol had their first drink before age 11.

Source: North Carolina Institute of Medicine. Analysis of the North Carolina Youth Risk Behavior Survey, 2007.

Table 3.
Local Management Entities (LMEs) Services to Youth and Adolescents* (CY 2008)

	Substance Abuse Services for Adolescents			Mental Health for Children/ Adolescents		
	Services to Persons in Need*	SA Visits: 2 in 14 days**	SA Visits: 4 in 45 days**	Services to Persons in Need*	MH Visits: 2 in 14 days**	MH Visits: 4 in 45 days**
SFY Performance Standard	7.0%			38.0%		
Statewide Average	4.8%	55.9%	42.1%	51.5%	51.1%	36.3%
Alamance-Caswell-Rockingham	3.8%	27.3%	15.2%	42.6%	44.0%	29.1%
Albemarle	5.8%	46.7%	28.9%	64.9%	51.7%	39/5%
Beacon Center	3.5%	52.0%	36.0%	63.7%	50.9%	35.2%
Center Point	7%	48.9%	29.8%	44.6%	52.6%	37.96%
Crossroads	6.0%	54.1%	37.8%	38.3%	42.1%	26.0%
Cumberland	3.7%	58.3%	36.1%	51.8%	39.2%	25.4%
Durham	6.0%	57.9%	44.7%	69.7%	56.0%	44.2%
ECBH	5.3%	56.3%	41.4%	76.6%	57.0%	44.6%
Eastpointe	4.7%	26.2%	19.0%	62.1%	51.1%	32.5%
Five County	7.2%	51.6%	26.6%	61.7%	47.8%	33.2%
Guilford	3.7%	59.8%	40.2%	43.3%	56.2%	42.9%
Johnston	4.5%	53.8%	46.2%	43.2%	41.0%	25.5%
Mecklenburg	4.3%	53.9%	49.2%	39.7%	52.2%	39.5%
Mental Health Partners	6.8%	58.0%	50.9%	49.6%	44.8%	29.0%
Onslow-Carteret	2.7%	49.2%	34.4%	38.8%	45.2%	27.4%
Orange-Person-Chatham	2.8%	88.9%	55.6%	37.4%	49.6%	36.0%
Pathways	6.4%	59.3%	47.7%	62.9%	47.5%	34.1%
Piedmont	n/a	n/a	n/a	n/a	n/a	n/a
Sandhills Center	4.9%	75.0%	61.5%	49.9%	53.4%	35.7%
Smoky Mountain	5.5%	57.9%	42.8%	60.7%	48.9%	31.2%
Southeastern Center	4.9%	55.9%	35.3%	57.4%	50.6%	35.3%
Southeastern Regional	5.4%	62.5%	50.0%	82.6%	59.6%	47.8%
Wake	2.9%	55.3%	42.3%	33.9%	56.7%	44.1%
Western Highlands	6.0%	57.1%	52.0%	57.7%	54.3%	37.4%

* Data for people with mental health disorders are for adolescents aged 10-20. Data for substance abuse disorders are for adolescents aged 12-20. Mental health data for young adults (18-20) assume the same prevalence as adults overall (age 18+), or 5.4%. Note: This is a conservative estimate of need, and therefore may suggest a higher treated prevalence than is true. Children ages 10-17 are estimated to have a 12% prevalence. If we used the larger estimate of mental health disorders, then the LMEs would, on average, only be treating 43.1% of the need (rather than 51.5%). From 3rd Quarter Community Systems Progress Report, Measure 2.2 and 2.6. Persons with both MH and SA disabilities are counted in each disability category (duplicated).

**Unduplicated numbers for Calendar Year 2008. Timely Initiation and Engagement of Individuals in Services in Community MH/DD/SAS services. Quality Management Team, Community Policy Management Section, Division of Mental Health, Developmental Disabilities and Substance Abuse Services. June 5, 2008. Timely engagement defined as 2 visits within 14 days of initial service. Engagement means four visits within 45 days.

Source: Timely Initiation and Engagement and Treated Prevalence for Individuals Ages 10-20 in Community Mental Health and Substance Abuse Services. Calendar Year 2008. Quality Management Team, Community Policy Management Section, Division of Mental Health, Developmental Disabilities and Substance Abuse Services. July 23, 2009.