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]

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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

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.

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]

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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://ayp.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]

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

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

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.

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

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.

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]

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.

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]

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

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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.nchealthyschools.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'sRecommended Standards For Physical Activity In School*. North Carolina DHHS, Division of Public Health, Raleigh, NC; 2005. http://www.opi.state.mt.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'sRecommended Standards For Physical Activity In School*. North Carolina DHHS, Division of Public Health, Raleigh, NC; 2005. http://www.opi.state.mt.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

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.

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.

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 received 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]

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

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).

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

o Information about School Health Advisory Councils is available at: http://www.nchealthyschools.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/slimstips.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.**

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 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.

Effective Health Education and Physical Education in Schools

Healthful Living Standard Course of Study

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

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.

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.

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

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.)

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.

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.

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.

ah 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.

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