Introduction

Chapter 1

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.

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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.

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.

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

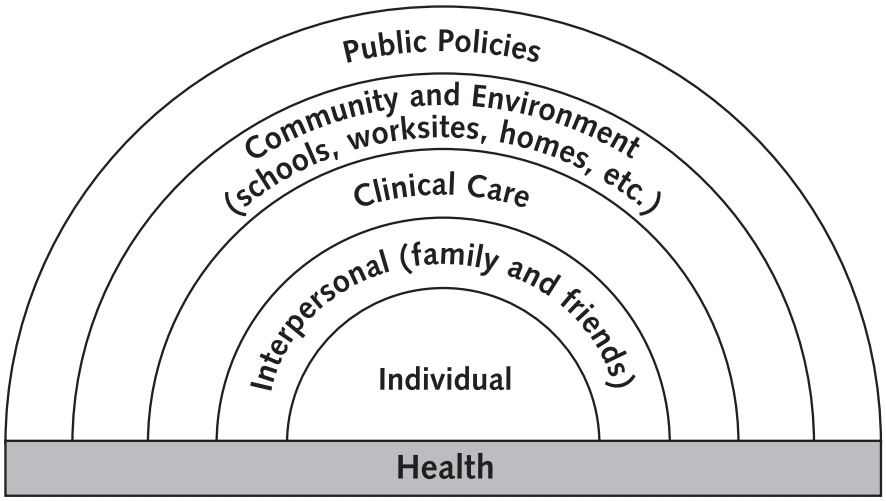
***Schools influence adolescent health*:** North Carolina is a national leader in and has a history of investing strongly in early childhood and post-secondary education. We are recognized as a leader in the field of early education and have one of the best public university systems in the country. However, 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
Socioecological Model of Health



Source: North Carolina Institute of Medicine

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,

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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.

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

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.

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.

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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 makes 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 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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