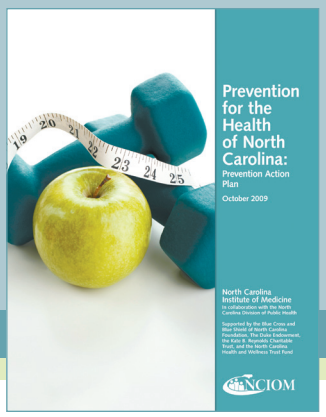


Issue Brief

Prevention for the Health of North Carolina

A Prevention Action Plan

October 2009 (Revised July 2010)

The burden of chronic diseases and other preventable conditions in our state is high and increasing steadily. North Carolina is 36th in overall health and 38th in premature death.[a,1] Further, North Carolina ranks poorly on many other health indicators, including health outcomes, health behaviors, access to care, and socioeconomic measures.

Why Prevention?

The most practical approach to address such conditions—from both a health and an economic perspective—is to prevent them from occurring in the first place. However, health care spending is drastically skewed toward paying for therapeutic procedures to manage or treat acute and chronic health problems, and not toward prevention. Reorienting our health system, as well as our overall society, towards a prevention focus represents a fundamental paradigm shift involving all members of our society. In addition to individual personal responsibility for health, health care providers, employers, schools, communities, businesses, and other institutions also play a critical role in ensuring the long-term health of our state. We must all invest in prevention before the burden on individuals, their families, employers, and the broader community becomes too great.

North Carolina Ranks Poorly on Most of the Major Health Indicators[a]

Indicator	North Carolina	United States	National Rank
Adults who are current smokers (2008)	20.9%	18.4%	37th
Obese adults (2008)	29.5%	26.7%	41st
Physically active adults (2007)	44.0%	49.5%	46th
Incidence of new STD cases (syphilis, gonorrhea, chlamydia) per 100,000 population (2007)	537.4	492.9	37th
Adults with alcohol and illicit drug abuse or dependence (2006-2007)	8.2%	9.2%	6th
Adults with serious psychological distress (2006-2007)	10.9%	11.1%	15th
Average air pollution (micrograms of fine particulate per cubic meter) (2005-2007)	13.6	13.1	35th
Motor vehicle fatalities per 100,000 (2008)	15.5	12.3	35th
Children ages 19 to 35 months with recommended childhood immunizations (4:3:1:3:3) (2007)	80.0%	80.1%	27th
Low-income families (<200% FPG) (2007-2008)	39.4%	35.8%	39th
Graduation rate (2004-2005)	72.6%	74.7%	39th
Race and ethnicity equity (2007)	33.7	24.1	42nd
Uninsured (2006-2007)	17.2%	15.3%	38th

Data sources for all figures are located in the reference section.

Relying on prevention as a basic strategy can save lives, reduce disability, improve quality of life, and, in some cases, decrease health care costs. Research has shown that several modifiable behaviors such as tobacco use, exercise, nutrition, and substance use can either positively or negatively affect health outcomes. Individuals and families can improve their health and well-being by making healthy lifestyle choices. Although such decisions are made by individuals, they are influenced by many factors, including family and friends, medical care (including health insurance and health care providers), and workplace policies. In addition, community and environmental factors, as well as state and federal laws and policies, can have a profound impact on an

[a] When rankings appear throughout this Issue Brief, number "1" reflects the state with the best health status.

Overview | Tobacco | Obesity | Risky Sexual Behaviors | Substance Abuse and Mental Health | Environmental Risks
Injury | Infectious Agents | Disparities | Socioeconomic Factors | Prevention Strategies | Data | Conclusion | References

individual's health behaviors. Working to address all of these factors will improve the health and well-being of North Carolinians in both the short- and long-term.

Task Force Charge

The North Carolina Institute of Medicine (NCIOM), in collaboration with the North Carolina Division of Public Health, convened a Task Force to develop *Prevention for the Health of North Carolina: Prevention Action Plan* for the state. The Task Force was convened at the request of North Carolina's leading health foundations, including the Blue Cross and Blue Shield of North Carolina Foundation, The Duke Endowment, the Kate B. Reynolds Charitable Trust, and the North Carolina Health and Wellness Trust Fund. The Task Force was chaired by Leah Devlin, DDS, MPH, former State Health Director;[b] Jeffrey Engel, MD, State Health Director, Division of Public Health, North Carolina Department of Health and Human Services; William Roper, MD, MPH, CEO, University of North Carolina (UNC) Health Care System, and Dean, UNC School of Medicine; Robert Seligson, MA, MBA, Executive Vice President and CEO, North Carolina Medical Society, and included 46 additional members.

The Task Force identified 10 preventable risk factors that contribute to the leading causes of death and disability in the state:

1. Tobacco use
2. Diet and physical inactivity, leading to overweight or obesity
3. Risky sexual behaviors
4. Alcohol and drug use or abuse
5. Emotional and psychological factors
6. Exposure to chemicals and environmental pollutants
7. Intentional and unintentional injuries
8. Bacterial and infectious agents
9. Racial and ethnic disparities
10. Socioeconomic factors

The *Prevention Action Plan* includes evidence-based strategies that, if followed, will improve population health in the state. The Task Force followed four steps in developing this plan. First, the Task Force identified the diseases and health conditions that have the greatest adverse impact on population health in terms of premature death or disability including cancer, heart disease, injuries, chronic lower respiratory disease, alcohol and drug use, stroke, infectious diseases, diabetes, and depression. Second, the Task Force identified the underlying risk factors which contribute to these leading causes of death and disability. (See text box.) Third, the Task Force examined the literature to identify evidence-based strategies that could prevent or reduce these risk factors. Too often in the past we have not always used strategies with evidence of effectiveness. The Task Force was particularly mindful of the need to use existing dollars more efficiently, and to limit new funding to evidence-based strategies, or, when unavailable, best or promising practices where there is evidence to suggest that this intervention could be effective.

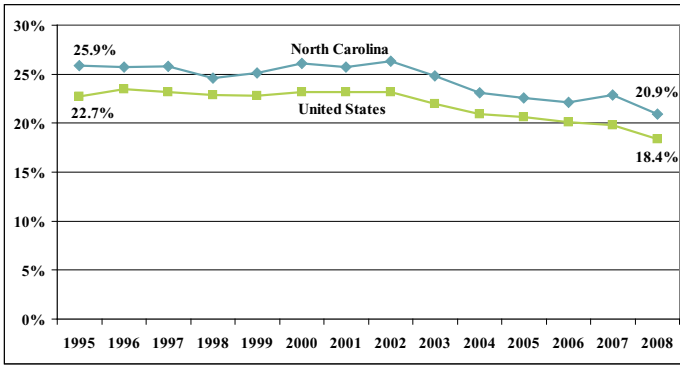
Finally, the work of the Task Force was guided by the understanding that changes in population health require multi-level interventions, or a "socioecological" model of prevention. Because people's decisions about whether to engage in risky health behaviors are influenced by other factors—including the opinions of family and friends, clinical advice, community and environment, and public policies—multi-level interventions are more likely to be successful.[2] For example, a coordinated effort to implement multifaceted, evidence-based interventions led to dramatic decreases in youth smoking rates. From 2003 to 2007, the high school use rate declined from 27.3% to 19.0%, after years of stagnation.[3] The lesson from our improvement in tobacco use is that broad-based, systematic investments in multifaceted interventions can be effective in addressing seemingly intractable public health problems. The path demonstrated by our success with tobacco should be replicated across the other risk factors outlined in this report.

[b] Dr. Leah Devlin served as one of the co-chairs for the Task Force from the inception of the work until she retired as State Health Director. At that time, Dr. Jeffrey Engel became one of the co-chairs. Dr. Devlin remained as a member of the Task Force.

Priority Recommendation:
Increase North Carolina's Tobacco Taxes

Tobacco use is the leading cause of preventable death in North Carolina. From 2005-2009, an estimated 13,000 North Carolinians aged 35 years or older died each year from a smoking-related death.[4] At least 30% of all cancer deaths and nearly 90% of lung cancer deaths—the leading cause of cancer deaths among men and women—are caused by smoking.[5] Despite decreases in smoking rates, North Carolina's tobacco use among adults continues to exceed the national rate.

North Carolinians are More Likely to Smoke than Rest of Nation



Increasing tobacco taxes will deter initiation of tobacco use by young people, encourage tobacco users of all ages to quit, and save lives. Research shows that a 10% price increase in a pack of cigarettes results in a 4.1% decrease in tobacco use within the general population, and a 4%-7% decrease among youth who smoke.[6] North Carolina has the 7th lowest cigarette tax in the country. Increasing the cigarette tax from our current tax rate ($0.45 as of September 1, 2009) to the national average ($1.32 as of August 12, 2009) would provide tremendous gain for the state in terms of reducing death and disability due to tobacco use.[7] In addition, raising the tax on other tobacco products (OTP) will discourage the use of these products as well.[8] The new revenues generated from the increase in tobacco taxes should be targeted to prevention efforts.

Other recommendations include funding and implementing the Comprehensive Tobacco Control Program; expanding tobacco-free policies; and expanding access to cessation services, counseling, and medications for smokers who want to quit.

Action Steps to Reduce Tobacco Use	
Individuals	Be tobacco free
Family/ Home	Don't use tobacco products at home
Clinical	Offer comprehensive cessation services (counseling and medication) to help smokers quit; stay up-to-date on evidence-based clinical preventive screenings, counseling, and treatment
Schools and Child Care	Enforce tobacco-free school laws; support the Coordinated School Health Program and participate in school health surveys; implement evidence-based health education programs
Worksites	Institute a worksite wellness program; create tobacco-free worksites; offer coverage for tobacco cessation services (counseling and medications)
Insurers	Pay for smoking cessation services and medications
Community	Expand tobacco-free policies to public places; fund and implement the comprehensive evidence-based tobacco prevention program
Public Policies	Expand tobacco-free policies to all workplaces; increase the tobacco tax; provide tax incentives to encourage comprehensive worksite wellness programs; fund and implement the Comprehensive Tobacco Control Program

Promote Healthy Eating and Physical Activity

Priority Recommendations:

1. Implement the Eat Smart, Move More North Carolina Obesity Plan and Raise Public Awareness
2. Implement Quality Physical Education and Healthful Living in Schools

Overweight and obesity pose significant health concerns for both children and adults. Excess weight is a risk factor for several serious health conditions and exacerbates existing conditions.[9] North Carolina is the 10th most overweight/obese state in the nation. Moreover, the trends in our state are alarming. The adult overweight/obese rate has increased dramatically from 52.3% in 1995 to 64.6% in 2008.[10] Trends in childhood obesity are equally disturbing.

Many North Carolina communities are trying to address this growing problem by implementing initiatives to improve nutrition and increase physical activity. Eat Smart, Move More North Carolina is a consortium of organizations that have developed a community-based plan to reduce obesity in our state and is ideally suited to lead this effort.

Currently the State Board of Education *recommends* schools provide 150 minutes of physical education in elementary schools and 225 minutes of Healthful Living education in middle schools; high school students are required to take one Healthful Living credit. *Requiring* schools to meet these guidelines and increasing the number of Healthful Living credits required of high school students would help ensure more students in North Carolina get the amount of daily physical activity that is recommended by the Centers for Disease Control and Prevention.

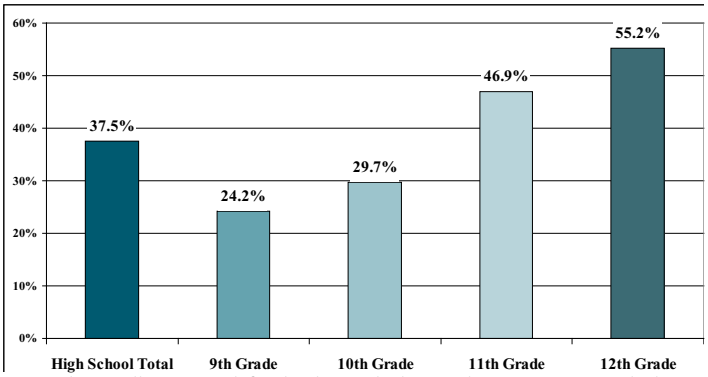
Other recommendations include implementing child nutrition standards in all elementary schools and testing strategies to deliver healthy meals in middle and high schools; ensuring all foods and beverages available in schools are healthy; expanding physical activity and nutrition in child care centers and after-school programs; expanding the availability of farmers markets and farm stands; promoting menu nutrition labeling; building active living communities; establishing joint-use agreements for school and community recreational facilities; expanding community grants program to promote physical activity; increasing the availability of obesity screenings and counseling; and expanding the Community Care of North Carolina (CCNC) childhood obesity prevention initiative.

Action Steps to Promote Healthy Eating and Physical Activity	
Individuals	Eat healthy and exercise more
Family/ Home	Provide nutritious meals and snack choices
Clinical	Offer obesity screening and counseling for adults; expand CCNC childhood obesity prevention initiative for children; stay up-to-date on evidence-based clinical preventive screenings, counseling, and treatment
Schools and Child Care	Implement child nutrition standards; ensure all foods and beverages are healthy; implement high quality physical education and evidence-based healthful living classes; expand physical activity in after-school and child care programs; expand joint-use agreements; support the Coordinated School Health Program and participate in school health surveys
Worksites	Institute worksite wellness program; promote healthy foods and physical activity; offer farmers markets/stands at the workplace; provide coverage for obesity screening and counseling
Insurers	Offer coverage for obesity screening, counseling, and treatment
Community	Fund and implement Eat Smart, Move More community-wide obesity reduction strategies; promote menu labeling in restaurants; build active living communities; expand joint-use agreements
Public Policies	Fund schools to provide nutritious meals; require schools to offer high quality physical education and healthful living classes; fund Eat Smart, Move More community-wide obesity reduction plan; support community efforts to promote physical activity and build active living communitites; provide tax incentives to encourage comprehensive worksite wellness programs

Priority Recommendation:
Ensure Students Receive Comprehensive Sexuality Education in North Carolina Public Schools

Risky sexual behaviors can lead to sexually transmitted diseases (STDs), human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), and unintended pregnancy. In 2007, nearly 54,000 cases of reportable STDs (non-HIV) were reported in North Carolina.[11] North Carolina has the 14th highest rate of new STD cases in the country (syphilis, gonorrhea, and chlamydia).[11] In addition, North Carolina has the 4th highest rate of new HIV cases out of 22 states.[12] Forty-five percent of all live births in 2006, including most births to teenagers, resulted from unintended pregnancies.[13] In 2006, North Carolina's teen (ages 15-19) birth rate was higher than the national rate (49.7 per 1,000 versus 41.9 per 1,000).[14]

More than One in Three North Carolina High School Students is Currently Sexually Active



Currently sexually active is defined as having had sex with one or more people during the past three months.

Until recently, North Carolina had a law requiring public schools to only teach abstinence until marriage. Evaluations of many abstinence programs, including abstinence-until-marriage programs, have shown no overall impact on delaying age of initiation of sex, number of sexual partners, or condom or contraceptive use.[15] In contrast, comprehensive sexuality education programs have been shown to be effective.[15] Despite a recent state law requiring local schools to offer comprehensive reproductive health and safety education, local Boards of Education are still required to adopt a policy to allow parents or legal guardians to consent or withhold consent for their student's participation.

An opt-out consent process would ensure that more young people in North Carolina receive evidence-based, scientifically accurate sexuality education.

Other recommendations include increasing awareness, screening, and treatment of STDs; increasing HIV testing in prisons, jails, and juvenile centers; reducing unintended pregnancies; and expanding the availability of low-cost family planning services to reduce unintended pregnancies.

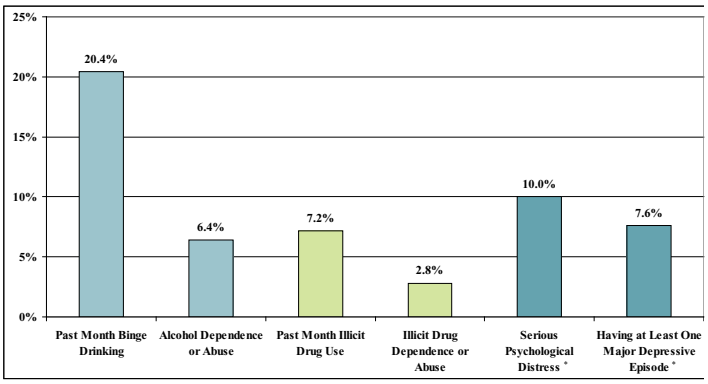
Action Steps to Reduce Risky Sexual Behavior	
Individuals	Use protection to prevent STDs and unintended pregnancy; know your STD/HIV status
Family/Home	Talk to your children about the consequences of risky sexual behavior
Clinical	Increase screening, counseling, and treatment of STDs/HIV and offer family planning services; stay up-to-date on evidence-based clinical preventive screenings, counseling, and treatment
Schools and Child Care	Ensure that more students receive comprehensive sexuality education; support the Coordinated School Health Program and participate in school health surveys; implement evidence-based health education programs
Insurers	Offer coverage for STD/HIV screening, counseling, treatment, and family planning services
Community	Expand availability of family planning services for low-income families; promote adolescent pregnancy prevention programs; increase testing for STDs/HIV in correctional facilities
Public Policies	Fund social marketing campaign to increase awareness, screening, and treatment of STDs and reduce unintended pregnancy; increase HIV testing in correctional facilities; expand the availability of family planning for low-income families

Prevent Substance Abuse and Improve Mental Health

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

Substance use and abuse is both a health problem in itself and a health risk contributing to other health problems. People with substance abuse problems or dependence are at risk for premature death, other health conditions, and disability.[16] Mental health disorders can have a profound effect on an individual, their interpersonal relations, their functioning in school or the workplace, and their overall sense of well-being.[17] Depression is also a leading cause of suicide.[18]

Many North Carolinians Report Substance Abuse and Mental Health Problems



* Data for serious psychological distress and having at least one major depressive episode are for adults ages 26 or older. Data for ages ages 18-25 are 16.6% and 8.6%, respectively. Due to differences in the questions asked of youth younger than 18, comprable data are not available.

Evidence-based prevention strategies have been shown to be effective in delaying initiation and reducing use of alcohol and other drugs. Many of these evidence-based programs have also demonstrated other positive effects, such as an improved sense of well-being and lower levels of depression.[19] Effective strategies targeting youth are needed because their developing brains are particularly susceptible to the effects of alcohol and drugs.[16,20]

Prevention should be the cornerstone of North Carolina's efforts to reduce inappropriate use, misuse, and dependence on alcohol and other drugs, and to prevent the incidence and severity of stress, depression, or other anxiety disorders. However, no prevention intervention will totally eliminate all harmful use of alcohol or other drugs, or feelings of isolation, depression, or stress. Thus, it is important to combine prevention with early intervention activities.

Other recommendations include screening, brief intervention, and treatment for people with behavioral health problems in the primary care setting; and expanding early intervention services in the faith community.

Action Steps to Prevent Substance Abuse and Improve Mental Health	
Individuals	Be substance abuse free and seek help for substance abuse or mental health problems
Family/ Home	Talk to your children about the dangers of substance use and help family members with behavioral health problems get into treatment
Clinical	Offer screening, brief intervention, and referral into treatment for substance abuse; offer behavioral health services in primary care offices; stay up-to-date on evidence-based clinical preventive screenings, counseling, and treatment
Schools and Child Care	Support the Coordinated School Health Program and participate in school health surveys; implement evidence-based substance abuse prevention and mental health programs
Worksites	Offer worksite wellness programs that include screening and referrals for substance use and depression
Insurers and Community	Offer coverage for substance abuse and mental health in parity with other services; pay for behavioral health services offered in primary care settings
Public Policies	Fund comprehensive community-based substance abuse prevention programs; increase tax on beer and wine; mandate coverage for substance abuse in parity with other services; fund expansion of co-location of behavioral health services in primary care settings; provide tax incentives to encourage comprehensive worksite wellness programs

The environment in which we live, work, learn, and play greatly affects our health. During the 20th century, the majority of the advances in population health were the result of public health interventions focused on improving the physical environment.[21] Despite these advances, air and water pollution persist. Air pollution has been shown to cause or worsen respiratory conditions (e.g. asthma and emphysema) and cardiovascular conditions (e.g. heart attack and stroke).[22] Water pollution has been linked to both acute poisonings and chronic effects. In addition, certain air and water pollutants have been linked to cancer.[21-24]

Action Steps to Decrease Environmental Risks	
Individuals	Keep your home healthy and safe
Family/ Home	Keep your home healthy and safe
Clinical	Offer counseling about safe homes, such as the use of smoke alarms and carbon monoxide detectors
Schools and Child Care	Train staff to conduct inspections and identify potential environmental hazards using the EPA's Tools for Schools Program; support the Coordinated School Health Program and participate in school health surveys
Worksites	Reduce environmental risks in the workplace
Community	Expand and enhance efforts to create healthy homes; clean up environmental hazards
Public Policies	Fund environmental assessments and create an interagency leadership commission to promote healthy communities, minimize environmental risks, and promote green initiatives; fund efforts to reduce environmental hazards in homes, schools, and child care

To build healthy, active communities, North Carolina needs to address the major pollutants and causes of pollution in the state, as well as the built environment. Many different agencies at the state and local level have responsibilities to monitor or enforce environmental standards and promote healthy communities. Thus interagency leadership is needed to develop an interagency plan to reduce environmental risks and promote healthy communities.

Environmental hazards in homes and schools can be particularly hazardous, especially to children and the elderly, as these are people who tend to spend a lot of their time in these environments. Multiple federal agencies are working together to improve housing conditions and create healthier homes by broadening the capacity of the different professionals who inspect homes to address multiple housing problems that can affect health or safety.[25] There are many different types of inspectors who work in North Carolina homes and who could be cross-trained to identify and help mitigate risks while in a home.

Many schools also have environmental hazards. Nationally, about one-third of schools in the United States are believed to have significant environmental risk issues and are in need of extensive repair or renovation.[26,27] The Environmental Protection Agency (EPA) has created the Indoor Air Quality Tools for Schools (TfS) Program as a means of reducing exposures to indoor environmental contaminants. Schools that have implemented the TfS Program have seen increases in comfort levels and reductions in absenteeism and poor health outcomes.[28]

Recommendations include creating an interagency leadership commission to promote healthy communities, minimize environmental risks and promote green initiatives; developing an environmental assessment that links environmental exposures to health outcomes; ensuring healthy homes; and reducing environmental risks in schools and child care settings.

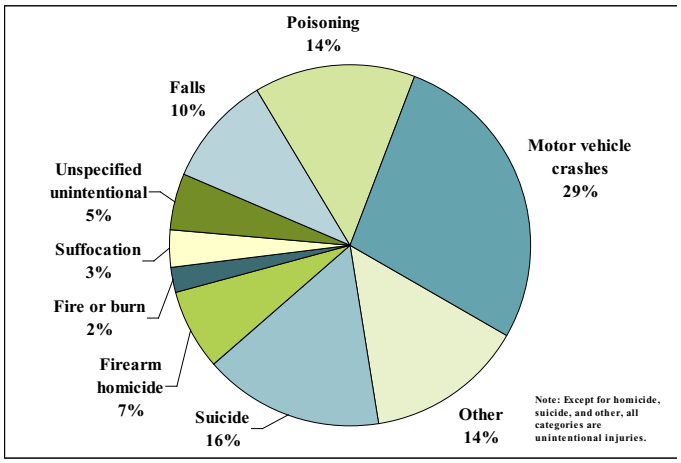
Reduce Unintentional and Intentional Injuries

Priority Recommendation:

Create a Statewide Task Force or Committee on Injury and Violence

Injury and violence are significant problems in North Carolina, leading to death and disability for thousands each year. Injuries can be either unintentional or intentional. Unintentional injuries include motor vehicle collisions, falls, and unintentional poisonings. Violence, on the other hand, is defined as intentional injury resulting from the active, deliberate use of force against another person or oneself. Injuries and violence are often preventable.[29]

Leading Causes of Injury Deaths in North Carolina, All Ages, 2006



Injury is a serious cause of disability, resulting in more than 148,000 hospitalizations, 819,000 emergency department (ED) visits, and an unknown number of outpatient visits and medically unattended injuries in North Carolina each year.[30] Motor vehicle-related crashes and other unintentional injuries, including unintentional poisonings and falls, are the 4th leading cause of death in North Carolina, resulting in more than 4,300 fatalities in 2007.[31]

Historically, the North Carolina General Assembly has not given the same priority to injury prevention as it has to other public health activities. Prevention of injury and violence is not listed as an essential public health service, although injury and violence are both major causes of death and disability in the state. North Carolina should make injury and violence prevention explicit in the list of essential public health services at the state level. Further, a statewide task force or committee on injury and violence could facilitate greater interagency leadership and coordination across agencies involved with preventing injury and violence in the state. Good data also are important to establish targeted and effective injury prevention initiatives.

Other recommendations include reviewing and enforcing all traffic safety laws; enhancing injury surveillance, intervention, and evaluation; and enhancing training of state and local health professionals in injury control.

Action Steps to Reduce Injuries	
Individuals	Practice common sense safety; follow traffic laws
Family/ Home	Reduce potential hazards in the home
Clinical	Offer counseling to prevent injuries; learn about evidence-based strategies to prevent and reduce injuries; collect and report injury data
Schools and Child Care	Support the Coordinated School Health Program and participate in school health surveys; implement evidence-based injury and violence prevention programs
Worksites	Provide a safe working environment
Community	Enforce traffic safety laws; enhance injury surveillance, intervention, and evaluation
Public Policies	Review and enhance traffic safety laws; fund injury surveillance and intervention; create a statewide task force to prevent injury and violence; fund injury prevention training for health professionals

Reduce the Incidence of Vaccine Preventable Diseases and Foodborne Illness

Priority Recommendation:
Increase Immunization Rates

Over the last 100 years, the number of deaths from infectious diseases in the United States generally decreased until the 1980s when it started increasing due to HIV/AIDS and the emergence of antibiotic resistant illnesses.[31] There are many different types of infectious diseases; the Task Force focused on vaccine preventable diseases and foodborne illnesses.

Infectious diseases, including pneumonia and influenza, were the 10th leading cause of death among North Carolinians, causing 1,644 deaths in 2007.[32] Infectious diseases can also cause disabilities. However, vaccines are available to help prevent many diseases, including pneumonia and many forms of influenza.

Childhood and adolescent vaccinations are a hallmark of preventive care. North Carolina has made vaccinating all children appropriately a priority. To help reach this goal, North Carolina provides the combined tetanus, diptheria, and pertussis (Tdap), hepatitis A (Hep A), hepatitis B (Hep B), haemophilus influenzae (Hib), polio (IPV), measles, mumps, and rubella (MMR), and varicella vaccines for children ages 0-18 free of charge through the Universal Childhood Vaccine Distribution Program (UCVDP).[33] The program is designed to remove financial barriers, assure vaccination access to all children, and simplify the vaccination process for health care providers. To maintain high vaccination coverage, additional outreach is needed to ensure that adolescents receive their Tdap booster vaccine, and that all children receive other vaccines recommended by the Centers for Disease Control and Prevention (CDC) that are not currently covered through the UCVDP. The state does not currently cover vaccines for the human papillomavirus (HPV), influenza, meningococcal diseases (MCV4), or pneumococcal diseases (PCV7). Including these vaccines would require additional funding.

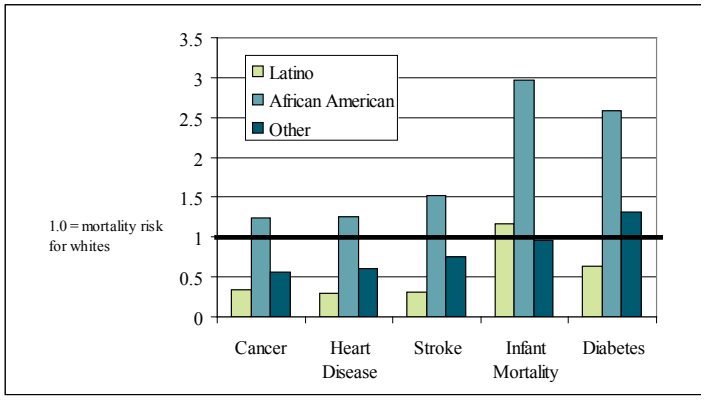
In addition to vaccine preventable illnesses, foodborne illnesses are among the most common infectious diseases. Foodborne diseases cause a total of approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths each year in the United States.[34] Unfortunately, the current food safety and defense system is very complex and varies by agency. Oversight and enforcement of food safety standards are split between many different state agencies. Therefore, another Task Force recommendation is to strengthen our food safety system by developing a unified, proactive, scientifically-based strategy to prevent, detect, and respond to foodborne illnesses.

Action Steps to Reduce the Incidence of Vaccine Preventable Diseases and Foodborne Illness	
Individuals	Get your recommended immunizations; wash your hands often
Family/ Home	Make sure your children are immunized; make sure food is prepared and stored safely
Clinical	Offer immunizations; counsel patients to receive age-appropriate immunizations
Schools and Child Care	Ensure children are immunized; support the Coordinated School Health Program and participate in school health surveys
Worksites	Make sure foods in break rooms are properly prepared and stored; encourage employees to wash hands
Insurers	Provide first dollar coverage for all vaccines recommended by the CDC
Community	Provide outreach and education about vaccines
Public Policies	Fund outreach efforts to increase immunization rates for all recommended vaccines; strengthen laws and procedures to prevent foodborne illnesses; fund enhanced efforts to protect the food supply

Eliminate Racial and Ethnic Disparities

Differences in health by race and ethnicity have been consistently observed across a range of health indicators. As a general rule, racial and ethnic minorities have poorer health status and experience poorer health outcomes than non-minorities.[35,36] Health disparities by race and ethnicity are also noted in health care access and quality, with minorities generally having less access to health care and health insurance and experiencing lower quality of health care than non-minorities.[36-38] These health disparities are not new, and while some disparities are slowly shrinking (e.g. life expectancy (US)), a few are actually increasing (e.g. health status as fair/poor for African Americans (US)).[38]

Risk of Mortality by Race/Ethnicity



Value greater than 1.0 indicates higher risk; value lower than 1.0 indicates lower risk.

In 2007, racial and ethnic minorities comprised approximately 29% of North Carolina's population (21% African American, 7% Latino, and 1% American Indian), with these populations steadily increasing.[37] Because of the large and growing numbers of racial and ethnic minorities in North Carolina, our state will not be able to make significant improvements in overall population health without addressing racial and ethnic health disparities.

In North Carolina, minorities are more likely to report that their health status is fair or poor compared to whites.[37] People of color in North Carolina are also more likely to engage in or be exposed to some of the preventable risk factors that contribute to poor health.

Differing levels of access to health care may also affect disparities in health status and health outcomes. However, racial and ethnic disparities often persist even after controlling for factors such as insurance status, income, age, co-morbid conditions, and symptom expression.[36] This racial and ethnic disparity translates into lower life expectancies: minorities have, on average, a life expectancy of 72.1 years, versus 76.8 years for whites.[38]

Gaps in health outcomes between minorities and white populations can be partly explained by their unique social experiences. Research has indicated that perceived racial/ethnic bias contributes to health disparities even after controlling for income and education.[39,40] Further, some individuals from minority populations are distrustful of the American health system because of the history of segregation and discrimination. As a result, they may be less likely to seek care, or to follow treatment advice.[39] Strategies that promote community involvement and empowerment, such as the use of community health workers or lay health advisors, have been shown to improve health-seeking behaviors.[40] The Task Force recommends funding evidence-based programs that meet the needs of the diversity of the population being served.

Action Steps to Eliminate Racial and Ethnic Disparities	
Clinical	Take steps to ensure your practice is culturally and linguistically accessible
Community	Involve community leaders in health education initiatives; fund evidence-based programs that help meet the health needs of diverse populations in the community
Public Policies	Fund evidence-based programs that help meet the health needs of diverse populations across the state

Reduce Socioeconomic Health Disparities

Priority recommendations:

1. Increase Economic Security by Increasing the State Earned Income Tax Credit
2. Increase Enrollment in the Supplemental Nutrition Assistance Program
3. Increase the High School Graduation Rate

A person's income, wealth, educational achievement, workplace, and community can have profound health effects. People with higher incomes or personal wealth, more years of education, and who live in a healthy and safe environment, on average, have longer life expectancies and better overall health outcomes. Income is positively related to health, with increasing income levels corresponding to gains in health and health outcomes.[41] People living in poverty have the worst health outcomes, including higher morbidity and mortality rates.

More than one million North Carolinians lived in a family that did not earn enough money to afford basic, necessary expenses in 2008, even though 61% of adults in these families worked.[42] The federal Earned Income Tax Credit (EITC) is one of the most effective anti-poverty measures for low- and moderate-income working families in the United States, and lifts approximately 4.5 million people out of poverty each year.[43] North Carolina has a small state EITC which could be increased to support economic security for low-income working families.

Households in North Carolina with lower incomes are significantly more likely to experience food insecurity, and have limited access to nutritionally adequate foods.[44] Increasing the use of the Supplemental Nutrition Assistance Program (SNAP), which helps families with monthly incomes less than or equal to 130% of the federal poverty guideline purchase groceries, would decrease food insecurity.

Academic achievement and education are also strongly correlated with health across the lifespan. Unfortunately, 3 in 10 North Carolina students do not graduate from high school.[45] Adults who have not finished high school are more likely to be in poor or fair health than college graduates. They are also more likely to suffer from the most common health conditions.[46] Increasing the percentage of the people who graduate from high school would significantly improve population health.

Increasing the availability of affordable housing and utilities is also a recommendation.

Action Steps to Reduce Socioeconomic Health Disparities	
Individuals	Finish high school and pursue higher education
Family/ Home	Encourage everyone in the family to get their high school diploma and pursue higher education
Clinical	Advise patients to finish high school or get their GED
Schools and Child Care	Implement programs to increase the high school graduation rates; expand opportunities for high quality early childhood education and health programs
Worksites	Pay employees a living wage and help them apply for the EITC; offer health insurance coverage
Insurers	Expand health insurance coverage to small businesses and more of the uninsured
Community	Conduct outreach to help people enroll in SNAP; fund high quality childhood education and health programs; support school drop-out prevention programs
Public Policies	Increase the state EITC; increase funding to support affordable housing and utilities; expand opportunities for high quality childhood education and health programs; implement programs to increase the high school graduation rate; expand health insurance coverage to more North Carolinians

Implement Prevention Strategies in Schools, Worksites, and Clinical Settings

Priority recommendations:

1. Expand Health Insurance Coverage to More North Carolinians
2. Enhance North Carolina Healthy Schools

Multifaceted prevention efforts that promote healthy behaviors at the individual, interpersonal, clinical, community, and policy levels have a better chance of positively impacting the health of a population than solitary interventions.[2] Although most of the Task Force's work focused on evidence-based strategies to reduce specific risk factors, the Task Force also wanted to examine site-specific strategies, such as those that can be provided through schools, worksites, or clinical settings, to improve population health across multiple risk factors.

Uninsured North Carolinians are Less Likely to Receive Preventive Screenings or Have a Regular Source of Care

	Insured	Uninsured
Have one or more people who they consider to be their personal doctor or health care provider	85.3%	44.4%
Had a mammogram in the last two years (women ages 50 and older)	84.5%	57.2%
Had a Pap smear in the past three years (women ages 18 and older)	88.4%	79.8%
Received the HPV vaccine	14.0%	8.1%
Tested for diabetes	64.8%	41.8%

Primary care and other clinical settings are effective intervention points to prevent disease. Unfortunately, many people—especially those who are uninsured—lack access to preventive screenings and services, as well as primary care. Currently, there are an estimated 1.75 million non-elderly people in North Carolina who lack insurance coverage.[47] Because of the importance of having insurance coverage to obtain preventive screenings and other primary care services, the Task Force recommends that all North Carolinians have health insurance coverage, and that existing benefit packages be expanded to ensure coverage of all the recommended preventive screenings.

One of the five goals of the North Carolina State Board of Education is to ensure that North Carolina public school students will be healthy and responsible. Healthy children and adolescents are better learners and are likely to do better in school.[48] The Centers for Disease Control and Prevention promotes an integrated approach to student and staff well-being through the use of the Coordinated School Health Program (CSHP) which includes eight components: health education, physical education, health services, nutrition services, mental and behavioral health services, healthy school environment, health promotion for staff, and family and community involvement. In order for school districts to teach an effective health curriculum, and to successfully integrate health throughout schools, the CSHP needs strong leadership and infrastructure.[49]

Other recommendations include requiring the use of evidence-based curricula for the healthful living standard course of study; creating a North Carolina worksite wellness collaborative and tax incentives for small businesses; and improving provider training to promote evidence-based practices.

Improve Data Systems to Support Prevention Efforts

Throughout its deliberations, the Task Force focused on identifying evidence-based practices that would address North Carolina's most pressing health needs most effectively. Good data are critical to identify these health concerns, the health risks contributing to these problems, and evidence-based interventions, and to measure progress—or lack thereof—in improving the health of the state's population. North Carolina needs information both about the prevalence of certain types of diseases or health conditions (i.e. data on specific types of cancer), as well as the number of people engaging in certain risky health behaviors.

While North Carolina has many different data systems that collect specific health data, these data systems are not well-integrated. They often operate in silos, making it difficult to capture a complete understanding of the health problems facing the state. Additionally, there are significant gaps in the data that are collected.

The state and other community groups also need information about evidence-based interventions which have been shown to be effective in addressing certain health problems. However, evidence-based interventions do not exist for every health problem. In these instances, community groups need access to best or promising practices which they can employ or modify to address their specific health concern. More is needed to disseminate both evidence-based strategies, as well as those best or promising practices that have been identified in North Carolina. Development of a clearinghouse of options well-suited to North Carolina communities would make this information-gathering more efficient.

Recommendations include enhancing existing data systems, and identifying and disseminating effective nutrition, physical activity, obesity, and chronic disease prevention practices in North Carolina.

Conclusion

North Carolina currently ranks poorly on many health indicators, including health outcomes, health behaviors, access to care, and socioeconomic measures. However, these health problems are not intractable. Our recent success in reducing youth smoking highlights the way to make meaningful health improvements in our state. We know that health improvements take a coordinated effort of many groups working together to implement evidence-based strategies that target individuals, families, clinical care, schools, workplaces, the community at large, and public policies. Working together from a common action plan and making wise use of resources offers the greatest opportunity to improve population health in the state.

The final report, *Prevention for the Health of North Carolina: Prevention Action Plan*, includes evidence-based strategies that, if followed, will lead to improved population health. Together, we can improve the health of North Carolinians and move towards the ultimate goal of making North Carolina the healthiest state in the nation.

References

TABLE AND FIGURE SOURCES

Overview table: Data on smoking, overweight and obesity, and physical activity: Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System Survey Data website. www.cdc.gov/brfss. Published May 22, 2009. Accessed July 16, 2009. **Data on STDs**: North Carolina Institute of Medicine. Analysis of 2007 sexually transmitted disease surveillance data from the Centers for Disease Control and Prevention. **Data on air pollution, immunizations, and graduation rate**: United Health Foundation. America's Health Rankings: data tables. United Health Foundation website. http://www.americashealthrankings.org/2008/tables.html. Published 2008. Accessed December 4, 2008. **Data on alcohol and drug use and psychological distress**: Hughes A, Sathe N, Spagnola K. State estimates of substance use from the 2006-2007 National Surveys on Drug Use and Health. Office of Applied Studies, Substance Abuse and Mental Health Services Administration, NSDUH Series H-35, HHS Publication No. SMA 09-4362. Rockville, MD. http://www.oas.samhsa.gov/2k7state/adultTabs.htm. **Data on motor vehicle fatalities**: National Highway Traffic Safety Administration. State traffic safety information for year 2008. National Highway Traffic Safety Administration website. http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM. Accessed July 16, 2009. **Data on low-income and uninsured**: The Henry J. Kaiser Family Foundation. Urban Institute and Kaiser Commission on Medicaid and the Uninsured estimates based on the Census Bureau's March 2007 and 2008 Current Population Survey (CPS: Annual Social and Economic Supplements). Kaiser state health facts website. http://www.statefacts.org. Accessed August 21, 2009. **Data on race and ethnicity equity**: Cantor JC, Schoen C, Belloff D, How SKH, McCarthy D; The Commonwealth Fund Commission on a High Performance Health System. *Aiming Higher: Results from a State Scorecard on Health System Performance*. New York, NY: The Commonwealth Fund; 2007.

Tobacco Use Figure: Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System prevalence and trends data. Centers for Disease Control and Prevention website. http://apps.nccd.cdc.gov/brfss/index.asp. Accessed September 24, 2009.

Sexual Behaviors Figure: North Carolina Department of Public Instruction. *2007 North Carolina Youth Risk Behavior Survey Results*. http://www.nchealthyschools.org/docs/data/yrbs/2007/highschool/statewide/tables.pdf. Accessed January 23, 2009.

Substance Abuse and Mental Health Figure: Office of Applied Studies, Substance Abuse and Mental Health Services Administration, Department of Health and Human Services. *Results from the 2007 National Survey on Drug Use and Health: National Findings.* http://www.oas.samhsa.gov/NSDUH/2k7NSDUH/2k7results.cfm#Ch5. Published 2008. Accessed May 5, 2009.

Injury Figure: North Carolina State Center for Health Statistics, North Carolina Department of Health and Human Services. Death file, 2006. Analysis by Injury Epidemiology and Surveillance Unit.

Race/Ethnicity Figure: North Carolina Institute of Medicine. Analysis of North Carolina Vital Records, 2006-2007 North Carolina Vital Statistics.

Uninsured Figure: North Carolina State Center for Health Statistics, North Carolina Department of Health and Human Services. Behavioral Risk Factor Surveillance System, 2008. http://www.schs.state.nc.us/SCHS/data/brfss.cfm. Published 2009. Accessed September 24, 2009.

REFERENCES

1. United Health Foundation. America's Health Rankings: data tables. United Health Foundation website. http://www.americashealthrankings.org/2008/Tables.html. Published 2008. Accessed December 4, 2008.

2. Glanz K, Rimer B, Lewis MF, eds. *Health Behavior and Health Education*. 3rd ed. San Francisco, CA: Jossey-Bass; 2002.

3. Shah V. North Carolina initiatives to reduce tobacco use: part II. Presented to: The North Carolina Institute of Medicine Task Force on Prevention; May 8, 2008; Cary, NC. Accessed June 29, 2009.

4. North Carolina Institute of Medicine calculation extrapolating from State Tobacco Activities Tracking and Evaluation (STATE) System and state population estimates.

5. American Cancer Society. Cancer facts and figures 2007. http://www.cancer.org/Docroot/Stt/Content/Stt_1x_cancer_facts__figures_2007.asp. Published 2007. Accessed November 4, 2008.

6. Centers for Disease Control and Prevention. Guide to Community Preventive Services: reducing tobacco use initiation. US Department of Health and Human Services website. http://www.thecommunityguide.org/tobacco/. Published November 5, 2008. Accessed November 5, 2008.

7. Campaign for Tobacco-Free Kids. *Benefits from a 96-Cent Cigarette Tax Increase in North Carolina.* Washington, DC: Campaign For Tobacco-Free Kids; 2009.

8. Campaign for Tobacco-Free Kids. The toll of tobacco in North Carolina. Campaign for Tobacco-Free Kids website. http://www.tobaccofreekids.org/reports/settlements/toll.php?StateID=NC. Accessed November 7, 2008.

9. Office of the Surgeon General. Overweight and obesity: health consequences. US Department of Health And Human Services website. http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_consequences.html. Published January 11, 2007. Accessed September 19, 2009.

10. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System, 2008. North Carolina tobacco use. http://apps.nccd.cdc.gov/brfss/display.asp?yr=2008&cat=tu&qkey=4396&atate=NC. Accessed May 21, 2009.

11. North Carolina Division of Public Health, North Carolina Department of Health and Human Services. *North Carolina Epidemiologic Profile for HIV/STD Prevention and Care Planning*. http://www.epi.state.nc.us/epi/hiv/epiprofile1008/Epi_Profile_2008.pdf. Published October 2008 (Revised May 2009). Accessed July 1, 2009.

References

12. Engel J. HIV/STD and unintended pregnancy in North Carolina. Presented to: The North Carolina Institute of Medicine Task Force on Prevention; October 3, 2008; Cary, NC.

13. North Carolina State Center for Health Statistics, North Carolina Department of Health and Human Services. *North Carolina PRAMS Fact Sheet: Unintended Pregnancies*. http://www.schs.state.nc.us/SCHS/pdf/UnintendedPregnancies.pdf. Published March 2009. Accessed July 1, 2009.

14. The National Campaign to Prevent Teen and Unplanned Pregnancy. *Teen Birth Rates in the United States*. http://www.thenationalcampaign.org/Resources/Birthdata/Tbr_rankbystate.pdf. Published January 2009. Accessed July 6, 2009.

15. Kirby D, ed. *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy; 2001.

16. North Carolina Institute of Medicine Task Force on Substance Abuse Services. *Building a Recovery-Oriented System of Care: A Report of the NCIOM Task Force on Substance Abuse Services*. North Carolina Institute of Medicine: Morrisville, NC; 2009.

17. Katon WJ. Clinical and health services relationships between major depression, depressive symptoms, and general medical illness. *Biol Psychiatry*. 2003;54(3):216-226.

18. Mann JJ, Apter A, Bertolote J, et al. Suicide prevention strategies: a systematic review. *JAMA*. 2005;294(16):2016-2074.

19. Centers for Disease Control and Prevention. Guide to Community Preventive Services. US Department of Health and Human Services website. http://www.thecommunityguide.org. Accessed November 5, 2008.

20. Office of the Surgeon General, Public Health Service. *The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking 2007*. US Department of Health and Human Services: Rockville, MD; 2007.

28. Shea KM. Changing environment, changing health. Presented to: The North Carolina Institute of Medicine Task Force on Prevention; January 14, 2009; Morrisville, NC.

22. American Lung Association. *State of the Air 2009*. http://www.lungusa2.org/sota/2009/SOTA-2009-Full-Print.pdf. Published April 2009. Accessed July 1, 2009.

23. Subcommittee on Arsenic in Drinking Water, National Research Council, eds. *Arsenic in Drinking Water*. Washington, DC: National Academies Press; 1999.

24. Environmental Protection Agency. Pesticides: health and safety. Human health issues. Environmental Protection Agency website. http://www.epa.gov/pesticides/health/human.htm. Published May 11, 2009. Accessed July 10, 2009.

25. Environmental Protection Agency. Arsenic in drinking water. Environmental Protection Agency website. http://www.epa.gov/safewater/arsenic/index.html. Published September 14, 2006. Accessed July 10, 2009.

26. Office of the Surgeon General, US Department of Health and Human Services. *The Surgeon General's Call to Action to Promote Healthy Homes*. http://www.surgeongeneral.gov/topics/healthyhomes/calltoactiontopromotehealthyhomes.pdf. Published 2009. Accessed June 16, 2009.

27. Daisey JM, Angell WJ, Apte MG. Indoor air quality, ventilation and health symptoms in schools: an analysis of existing information. *Indoor Air*. 2003;13(1):53-64.

28. Environmental Protection Agency. *Indoor Air Quality Tools For Schools Program: Benefits of Improving Air Quality in the School Environment*. http://www.epa.gov/iaq/schools/pdfs/publications/tfsprogram_brochure.pdf. Published October 2002. Accessed July 13, 2009.

29. Proescholdbell S. State of the state: injury and violence overview. Presented to: the North Carolina Institute of Medicine Task Force on Prevention; February 20, 2009; Morrisville, NC.

30. North Carolina Division of Public Health, University of North Carolina at Chapel Hill School of Medicine, Department of Emergency Medicine. NC Detect website. www.ncdetect.org. Accessed April 29, 2009.

31. Armstrong GL, Conn LA, Pinner RW. Trends in infectious disease mortality in the United States during the 20th century. *JAMA*. 1998;281(1):61-66.

32. North Carolina State Center for Health Statistics, North Carolina Department of Health and Human Services. *2007 NC Vital Statistics, Volume 2: Leading Causes of Death. Table A-F*. http://www.schs.state.nc.us/SCHS/deaths/lcd/2007/pdf/TblsA-F.pdf. Published December 4, 2008. Accessed August 10, 2009.

33. Immunization Branch, North Carolina Department of Health and Human Services. Immunize North Carolina: North Carolina's UCVDP program. North Carolina Department of Health and Human Services website. http://www.immunizenc.com/UCVDP.htm. Published January 14, 2008. Accessed June 30, 2009.

34. Mead PS, Slutsker L, Dietz V, et al. Food-related illness and death in the United States. *Emerg Infect Dis*. 1999;5(5):607-625.

35. Robert Wood Johnson Foundation Commission to Build a Healthier America. *Issue Brief 5: Race and Socioeconomic Factors Affect Opportunities For Better Health*. http://www.commissiononhealth.org/Pdf/506edea1-F160-4728-9539-Aba2357047e3/Issue%20brief%205%20april%2009%20-%20race%20And%20socioeconomic%20factors.pdf. Published April 2009. Accessed May 13, 2009.

36. Smedley BD, Stith AY, Nelson AR, eds; Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care, Board on Health Sciences Policy, Institute of Medicine of the National Academies. *Unequal Treatment: Confronting Racial And Ethnic Disparities In Health Care*. Washington, DC: National Academies Press; 2003.

References

37. North Carolina State Center for Health Statistics, North Carolina Department of Health and Human Services. *Health Profile of North Carolinians: 2009 Update*. http://www.schs.state.nc.us/SCHS/pdf/HealthProfile2009.pdf. Published May 2009. Accessed May 18, 2009.

38. Agency for Healthcare Research and Quality, US Department of Health and Human Services. *National Healthcare Disparities Report: 2008*. http://www.ahrq.gov/Qual/Nhdr08/Nhdr08.pdf. Published March 2009. Accessed May 22, 2009.

39. Boulware LE, Cooper LA, Ratner LE, Laveist TA, Powe NR. Race and trust in the health care system. *Public Health Rep*. 2003;118(4):358-365.

40. Plescia M, Groblewski M, Chavis L. A lay health advisor program to promote community capacity and change among change agents. *Health Promot Pract*. 2008;9(4):434-439.

41. Braveman P, Egerter S; Robert Wood Johnson Foundation Commission to Build a Healthier America. Robert Wood Johnson Foundation. *Overcoming Obstacles to Health*. http://www.rwjf.org/files/research/obstaclestohealth.pdf. Published February 2008. Accessed June 8, 2009.

41. Quinterno J, Gray M, Schofield J; North Carolina Budget and Tax Center, North Carolina Justice Center. *Making Ends Meet on Low Wages: The 2008 North Carolina Living Income Standard*. http://www.ncjustice.org/?q=node/243. Published March 2008. Accessed June 11, 2009.

43. Institute on Taxation and Economic Policy. Policy Brief #15: *Rewarding Work Through Earned Income Tax Credits*. http://www.itepnet.org/pb15eitc.pdf. Published 2008. Accessed June 18, 2009.

44. Kushel MB, Gupta R, Gee L, Haas JS. Housing instability and food insecurity as barriers to health care among low-income Americans. *J Gen Intern Med*. 2006;21(1):71-77.

45. Public schools of North Carolina, State Board of Education, 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. Published August 6, 2009. Accessed September 24, 2009.

47. North Carolina Institute of Medicine. *Characteristics of Uninsured North Carolinians, 2006-2007*. Morrisville, NC. http://www.nciom.org/projects/access_study08/Snapshot_9_23_08.pdf. Published September 2008. Accessed December 16, 2008.

48. Action for Healthy Kids. *The Learning Connection: The Value of Improving Physical Activity and Nutrition in our Schools*. http://www.actionforhealthykids.org/pdf/LC_Color_120204_final.pdf. Published 2008. Accessed June 22, 2009.

49. Greenberg T, Weissberg R, O'Brien MU, et al. Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *Am Psychol*. 2003;58(6-7):466-474.

Federal resources on evidence-based prevention practices:

- US Preventive Services Task Force (www.ahrq.gov/CLINIC/uspstfix.htm)
- CDC's Community Guide (www.thecommunityguide.org/index.html)
- CDC's Adolescent Health Registries of Programs Effective in Reducing Youth Risk Behaviors (www.cdc.gov/HealthyYouth/AdolescentHealth/registries.htm)
- US Department of Justice's Model Programs Guide (www2.dsgonline.com/mpg/)
- DHHS National Registry of Evidence-based Programs and Practices (www.nrepp.samhsa.gov/find.asp)
- National Cancer Institute's Research Tested Intervention Programs (http://rtips.cancer.gov/rtips/index.do)
- US Department of Education's What Works Clearinghouse (http://ies.ed.gov/ncee/wwc/)

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