

State of North Carolina Coordinated Chronic Disease, Injury, and Health Promotion State Plan

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I. EXECUTIVE SUMMARY

A. Overview

In collaboration with internal and external partners, the North Carolina Division of Public Health, Chronic Disease and Injury (CDI) Section developed this *North Carolina Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan* as part of the state's participation in the Coordinated Chronic Disease and Health Promotion (CCDP) Program, funded from 2011-2013 by the Centers for Disease Control and Prevention (CDC). The CDC provided CCDP Program funding to all 50 states to "build and strengthen state health department capacity to effectively prevent chronic disease and promote health." The CCDP Program sought to: 1) ensure that every state has a strong foundation in chronic disease prevention and control; 2) maximize the reach of categorical chronic disease programs by sharing cross-cutting services; and 3) increase collaborative work across chronic disease, condition and risk factors to most effectively meet population health needs, especially for populations at greatest risk or with the greatest burden.

Each state participating in the CCDP Program was required to develop a Coordinated State Chronic Disease Prevention Plan. Drafts of the plan were due in August 2012. This final version of the *NC CCDIHP State Plan* was developed using an engaged planning prioritization process involving Chronic Disease and Injury (CDI) Section management, staff, and internal and external partners. As encouraged by the CDC, the NC state plan: 1) provides evidence and rationale why the goals, objectives, and strategies were selected; 2) addresses the four CDC domains; 3) addresses health disparities and health equity; and 4) will be regularly updated based on new evidence and feedback from evaluation.

B. Burden of Chronic Disease and Injury

The *NC CCDIHP State Plan* includes a detailed description of the Burden of Chronic Disease and Injury in North Carolina. Mortality, healthcare utilization, and co-morbid chronic conditions and risk factor data were summarized to facilitate understanding of burden and disparity across chronic disease and injury entities. Concise summary tables allowed CDI Section staff to compare and contrast burden indicators across multiple disease and risk factor categories. During the collaborative state plan development process, the burden data were combined with review and discussion of the feasibility and effectiveness of strategies.

C. Collaborative State Plan Development Process

Members of the CDI Section Management Team (SMT) and Categorical Branch staff led the development of the *NC CCDIHP State Plan* with assistance from a team from the Department of Health Behavior at The University of North Carolina at Chapel Hill (UNC) Gillings School of Global Public Health. The UNC team

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facilitated the plan development process, provided external review and suggestions, and assisted the Section's collaborative efforts with internal/external groups and partners. CDI Section Branches and partners were engaged to identify strategies for consideration in the state plan. The CDI Section leadership, multiple staff members, partners, and Association of Local Health Directors representatives attended two strategic planning meetings in the spring of 2013 to: 1) review progress to date and discuss next steps to develop the *NC CCDIHP State Plan*; and 2) review and build consensus around coordinated strategies developed for the state plan.

To develop the plan, five working groups/teams were established, comprised of staff from CDI Section Branches with facilitation assistance from the UNC team. The working groups/teams served multiple functions during the 15-month collaborative state plan development process consisting of five primary phases, which often overlapped: 1) Review of existing CDI Section branch plans; 2) State plan initiation retreat and prioritization framework development; 3) Consideration of prioritization criteria; 4) Partner engagement and feedback; and 5) Application of prioritization criteria.

D. Goals, Objectives, and Strategies

The *NC CCDIHP State Plan* provides a list of goals, objectives, and strategies, categorized by the four CDC domains (Tables 1, 2, and 3). An engaged planning prioritization process was used to develop five goals and eight strategies, and CDI Section staff identified related measurable objectives for the *NC CCDIHP State Plan*. With few exceptions, the majority of objectives included in the *NC CCDIHP State Plan* were taken directly from Healthy NC 2020. Members of the CDI Section worked closely with the N.C. Institute of Medicine to create the Healthy NC 2020 objectives, which have measurable targets and the data are routinely captured and progress documented annually. The plan describes the capacity of the CDI Section and the resources available to evaluate the plan's goals, objectives, and strategies, once state plan implementation begins. In addition, the plan describes communication activities that will be used to disseminate information about the *NC CCDIHP State Plan*, and how results from implementation activities will be shared with multiple partners and stakeholders across the state of North Carolina.

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Table 1. NC Coordinated Chronic Disease, Injury, and Health Promotion Goals.

1. **Epidemiology and Surveillance Goal:** Improve data and surveillance systems to monitor health status and identify health disparities and to disseminate measures of health status to partners and decision makers.
2. **Supporting and Reinforcing Healthy Behaviors Goal:** Improve health-promoting environments that support, enable, and reinforce healthy behaviors.
3. **Health Systems Change Goal:** Expand access to and increase coordination for screening and clinical preventive services for all North Carolinians.
4. **Community-Clinical Linkages Goal:** Provide individuals with the tools and knowledge they need to manage their health condition(s) and maintain or improve quality of life and build community capacity to provide prevention and self-management programs for chronic diseases.
5. **Health Disparity Goal:** Reduce disparities in access to preventive health services by increasing interdisciplinary, multi-sectoral partnerships to improve environments where social, economic and environmental factors are barriers to health equity and population health.

Table 2. NC Coordinated Chronic Disease, Injury, and Health Promotion Objectives.

Objective 1. By 2020, map sources of population based clinical data to support existing data systems that describe the burden of chronic disease and injury

Objective 2. By 2020, based on burden of disease and injury data, coordinate internal and external activities to assist in reaching the following 2020 health outcomes:

- a. Decrease the percentage of adults who are current smokers
- b. Decrease the percentage of high school students reporting current use of any tobacco product
- c. Increase the percentage of high school students who are neither overweight nor obese
- d. Increase the percentage of adults getting the recommended amount of physical activity
- e. Increase the percentage of adults consuming fruits at least once daily and vegetables at least once daily.
- f. Reduce the percentage of traffic crashes that are alcohol related
- g. Reduce the unintentional poisoning mortality rate (per 100,000 population)
- h. Reduce the unintentional falls mortality rate (per 100,000 population)
- i. Reduce the homicide rate (per 100,000 population)
- j. Reduce the suicide rate (per 100,000 population)
- k. Reduce the cardiovascular disease mortality rate (per 100,000 population)
- l. Increase the percentage of adults who are aware that they have pre-diabetes
- m. Reduce the colorectal cancer mortality rate (per 100,000 population)
- n. Reduce the rate of asthma related emergency room visits

Objective 3. By 2020, increase state's impact on health equity to reduce disparities in the above 2020 health outcomes among vulnerable populations (defined by race/ethnicity, geography, gender, age, disability status, and other identified risks).

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Table 3. NC Coordinated Chronic Disease, Injury, and Health Promotion Strategies.

Domain 1 - Epidemiology and Surveillance (n=3)

1. Work in collaboration with the State Center for Health Statistics and other state and national partners to support and utilize monitoring and surveillance systems/data sources for tracking chronic disease and injury outcomes, risk factors, and health behaviors. Data sources may include: YRBS, CHAMP, BRFSS, Cancer Registry, Vital Statistics, and Hospitalization data.
2. Create, conduct and disseminate evaluation studies to assess the health and economic impacts of evidence-based policies, programs and other interventions to address chronic disease and injury. These may include: impact of NC smoke-free restaurants and bar law; Eat Smart, Move More, Weigh Less; Diabetes Self-Management Education.
3. When possible, align clinical data with the Health Information Exchange in order to have a more complete picture of the burden and impact of chronic disease and injury in North Carolina.

Domain 2 - Support and Reinforce Healthy Behaviors (n=4)

4. Inform, educate, and provide evidence to support NC public health partner groups that plan, implement, and/or evaluate evidence-based policies that support and reinforce healthy behaviors. These may include: legislatively mandated task forces, community based groups, coalitions, and/or public health organizations, etc.
5. Develop and use strategic, effective, and tailored media campaigns, in combination with other evidence-based strategies and with public health partners, to support healthy behaviors and reduce risk factors related to chronic disease and injury. Media may include: social marketing, small media, earned and/or paid mass media.
6. Educate and inform about the importance of considering health and safety in all community and transportation policies and planning. These may include retail and housing initiatives and community design that support evidence-based strategies to improve health and reduce injury.
7. Ensure that pre-school to post-secondary schools are safe and healthy environments through the promotion of evidence-based interventions. Promotion opportunities may include: policies to improve air quality and physical environment; tobacco-free campuses; adoption of physical education and activity; adoption of food service guidelines/nutrition standards; and development and use of care plans for students with chronic disease conditions.

Domain 3 - Health Systems Change (n=1)

8. Promote healthcare system quality improvement of care standards, use of data, and training for medical practices to improve use of standardized protocols for screening (such as accurate blood pressure measurement) detection, referral, interventions, and treatment of multiple chronic diseases and injury among high-risk populations.

Domain 4 - Community Clinical Linkages (n=1)

9. Develop a system to promote, monitor and track referrals between community resources and clinical settings across multiple chronic diseases and injury conditions to improve population health. This may include community-based prevention, early detection, treatment, and self-management programs in place for high-risk NC population groups.

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E. Communication

The *NC CCDIHP State Plan* describes the CDI Section goals, objectives, strategies, and some common activities that lend themselves to coordinated efforts involving multiple programs. Coordinating communication activities is especially important to the implementation of the state plan. One of several staff networking groups existing in the CDI Section, the Education and Communication Community of Practice (ECCoP) meets regularly and includes communication focused staff from Tobacco Prevention and Control, the Community Transformation Grant Project, and the Community and Clinical Connections for Prevention and Health Branch (formerly Diabetes, Heart Disease, Physical Activity and Nutrition and School Health). Members of the ECCoP have developed a *Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) Communication Plan* to ensure that appropriate and timely messages are shared about the plan, achievements and accomplishments.

The *NC CCDIHP Communication Plan* includes objectives, strategies, and tactics that are crafted to accomplish two major tasks for the CDI Section: 1) harness the CDI Section's existing capacity for communication efforts by better coordinating activities and functions to take full advantage of existing leadership and expertise; and 2) build the CDI Section's capacity for evidence-based health communication activities by developing new or enhanced activities and procedures that will allow for further coordination across programs and more success in communicating the most effective messages to the most influential audiences in North Carolina to support the *NC CCDIHP State Plan*. In accordance with the *CCDIHP Communication Plan*, various channels will be used to communicate epidemiology data and *NC CCDIHP State Plan* accomplishments to decision makers, healthcare providers, public health professionals, and the general public. The channels include: fact sheets; Twitter; Facebook; media releases; and letters to the editor.

Due to the urgent need to address health inequity, the CDI Section will use existing data that clearly shows "hot spots" of disparities through the Health Needs Index Mapping Project. This project uses GIS techniques to overlay the burden of chronic diseases and risk factors onto one map. The maps highlight the areas with the highest levels of chronic diseases, and filters can be used to show disparities by race, economics, and age. The CDI Section will share these data with partners, including the Office of Minority Health and Health Disparities, so that relevant public health partners can develop and implement local, tailored plans to address inequities. Local accomplishments to address disparities will be shared with decision makers and the public.

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F. Evaluation

The *NC CCDIHP State Plan* will be assessed annually by a newly formed Coordinating Community of Practice (CCoP). Membership in the CCoP will include CDI Section Management and leaders of the other four Section Communities of Practice (e.g., Health Data CoP, Policy and Environmental Change CoP, Healthcare Systems CoP, and Education and Communication CoP). Coordinated efforts outlined in this state plan will be standing agenda items for monthly CCoP meetings, and at meetings, other CoP leaders will provide regular reports and updates.

Objectives and outcomes identified in the plan align closely with *Healthy North Carolina 2020: A Better State of Health*, which serves as North Carolina's health improvement plan to address and improve the state's most pressing health priorities. Since 1990, the state of North Carolina has identified decennial health objectives with the goal of making North Carolina a healthier state. There is a strong link between objectives in the *NC CCDIHP State Plan* and the Healthy NC 2020 health improvement plan. Progress in meeting *NC CCDIHP State Plan* goals, objectives, and strategies will be measured by the Health Data Community of Practice (CoP) within the CDI Section in collaboration with the non-profit group, Center for a Healthy North Carolina.

The CDI Section's Coordinating CoP, in collaboration with other CoPs, will lead efforts to assess progress for the *NC CCDIHP State Plan*. The Health Data CoP and the Education and Communication CoP will evaluate progress to reach epidemiology and surveillance goals, objectives, and strategies. The Health Data CoP and the State Center for Health Statistics will annually measure progress on chronic disease, health promotion, and injury prevention goals, objectives, and strategies, including progress for 14 indicators included in the *NC CCDIHP State Plan*. The Health Systems CoP will track activities that support the chronic disease-focused outcomes (e.g., asthma, cancer, diabetes and heart disease). The Healthy Communities CoP will chronicle activities that support the health promotion and injury outcomes (e.g., smoking cessation, tobacco use, obesity, physical activity, consumption of fruits and vegetables, unintentional poisoning, unintentional falls, homicide, suicide). The Coordinating CoP will lead the assessment of progress to address health disparity/reach health equity goals, objectives, and activities.

II. INTRODUCTION

A. Background for Chronic Disease and Injury Prevention in North Carolina

The Chronic Disease and Injury (CDI) Section is one of five Sections in the NC Division of Public Health (DPH), Department of Health and Human Services (DHHS). The CDI Section includes over 250 employees, conducts at least 30 programs, and is comprised of three campuses in the state capital of Raleigh, NC. During the course of developing this NC state plan, the CDI Section has undergone significant reorganization. Currently the CDI section is comprised of the following seven Branches and/or Special Projects: 1) Cancer Prevention and Control Branch (includes Breast and Cervical Cancer Control Program, WISEWOMAN Program, and Comprehensive Cancer Control Program); 2) Community and Clinical Connections for Prevention and Health (formerly Physical Activity and Nutrition, Diabetes Prevention and Control, Heart Disease and Stroke Prevention, and School Health); 3) Community Transformation Grant (CTG) Project; 4) Forensic Tests for Alcohol; 5) Injury and Violence Prevention; 6) State Center for Health Statistics; and 7) Tobacco Prevention and Control (including the Asthma Program).

B. Summary of CDI Section Coordinated Efforts to Develop *NC CCDIHP State Plan*

In 2009, the NC Division of Public Health was awarded funding for the Negotiated Agreement Pilot Project (NAPP), funded by the National Center for Chronic Disease and Prevention and Health Promotion (NCCDPHP), Centers for Disease Control and Prevention (CDC). The CDC's original aim of the NAPP demonstration project was to increase synergy, reach, and desired health outcomes in selected categorically funded programs. For North Carolina, the three year project increased interest in a variety of coordinated efforts. In addition, the section created several cross-cutting Section-wide groups addressing common issues (e.g., Communities of Practice).

In collaboration with internal and external partners, the CDI Section developed this *North Carolina Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan* as part of the state's participation in the Coordinated Chronic Disease and Health Promotion (CCDP) Project, funded from 2011-2013 by the Centers for Disease Control and Prevention (CDC). The NC Division of Public Health submitted a draft of its plan in August 2012. This version of the *NC CCDIHP State Plan* was developed using an engaged planning prioritization process involving CDI Section management, staff, and internal and external partners. As encouraged by the CDC, the NC state plan: 1) provides evidence and rationale why the goals, strategies and objectives were selected; 2) addresses the four CDC domains; 3) addresses health disparities and health equity; and 4) will be regularly updated based on feedback from evaluation.

As part of North Carolina's CCDP Project, CDI Section staff, CCDP project team members, and external facilitators developed the *NC CCDIHP State Plan* to reduce the burden of chronic disease and injury among

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North Carolinians. As recommended by the CDC, this state plan categorizes strategies into the following four domains: 1) epidemiology and surveillance; 2) support and reinforce healthy behaviors; 3) health systems interventions; 4) community-clinical linkages. The plan seeks to address health disparities with a goal of achieving health equity.

C. Purpose of the *NC CCDIHP State Plan*

This State Plan documents how the CDI Section and partners will work together to achieve greater coordination, maximize the reach of existing resources in a time of limited resources, and ultimately, to build sustainable programs and policies to reduce the burden of chronic disease and injury across the state of North Carolina. In addition to an Executive Summary, Introduction, Appendices, and References, the *NC CCDIHP State Plan* includes five primary sections:

1. A summary of the Burden of Chronic Disease in North Carolina
2. A description of the Collaborative Process used to develop the *NC CCDIHP State Plan*
3. The list of Coordinated Goals, Objectives, and Strategies
4. A summary of Communication activities to support the *NC CCDIHP State Plan*
5. A description of how Evaluation of the *NC CCDIHP State Plan* will occur.

III. BURDEN OF CHRONIC DISEASE IN NC

A. The Burden of Chronic Disease and Injury in North Carolina

Since 2005, the State Center for Health Statistics (SCHS) has been housed in the CDI Section. The SCHS includes the state's Vital Records office, Vital Statistics, Survey Operations (Behavioral Risk Factor Surveillance System, Child Health Assessment Monitoring System, Pregnancy Risk Assessment Monitoring System), the Central Cancer Registry, the Birth Defects registry, health analysis staff and a geographic analysis unit. The wide array of public health, epidemiology and statistical expertise which resides in the CDI Section facilitates collaboration and provides staff the unique opportunity to collectively gather surveillance data and address the overall burden of chronic disease and injury and the impact of chronic disease and injury prevention and control in North Carolina.

To guide the development of North Carolina's Coordinated Chronic Disease, Injury and Health Promotion (CCDIHP) State Plan, CCDP Project staff established a Data Work Group (DWG), comprised of CDI Section leadership staff, SCHS leadership and staff, and external consultants from the University of North Carolina. The DWG updated its May 2012 Burden of Chronic Disease and Injury in North Carolina Report, developed as part of the CDI Section Integration Project. Leading causes of death, economic burden (where available), and risk factors related to chronic disease and injury are summarized in the updated summary report in Appendix A. Data specific to each of the CDI Section branches – heart disease/stroke, cancer, injuries, diabetes, asthma, physical activity/nutrition, and tobacco are summarized. Most CDI Section programs also produce their own more detailed "Burden" reports focusing on data exclusive to their programs.

To facilitate prioritization and planning for the CCDIHP, the DWG wanted to compare similar data across CDI Section Branches. The group began by reviewing the overall CDI Section Burden report, as well as available CDI Section program specific "Burden" reports. Based on this review, the DWG identified indicators that were commonly cited across CDI Section programs. Utilizing common indicators enabled DWG to more readily examine the differential impact of chronic diseases and injuries in the state. Sub-sections 1-4 include a brief summary of mortality, health care utilization, incidence and prevalence, and risk factors for chronic disease and injury in North Carolina.

1. Chronic Disease and Injury Mortality

The World Health Organization (WHO) defines chronic diseases as diseases that are not communicable, develop slowly, and persist for long periods of time. According to WHO, the four main types of chronic diseases are cardiovascular diseases (heart attack, stroke), cancer, chronic respiratory diseases (chronic obstructive pulmonary disease, asthma), and diabetes.

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Every day in North Carolina, approximately 160 residents die, 144 residents as a result of a chronic disease and 16 residents as a result of injury or violence. Altogether, chronic diseases, injury and violence were responsible for three-quarters of North Carolina resident deaths and resulted in over 58,000 resident deaths in 2010. Cancer, heart disease, chronic lung disease, stroke and unintentional injuries (motor vehicle and other) comprised the five leading causes of death in the state in 2010. Residents dying from chronic diseases had a mean of 6.3 years prematurely lost prior to age 75. Overall, injury deaths resulted in the highest average years of life lost, equating to an average loss of just over 26 years (26.2).

North Carolina's 2010 age-adjusted mortality rates were higher than U.S. death rates for cancer, stroke, chronic lower respiratory diseases, unintentional motor vehicle traffic, and homicides. North Carolina's age-adjusted rate for heart disease is the only rate where North Carolina is lower than the national rate for 2010. Age-adjusted mortality rates for some cancers, heart disease, stroke, and diabetes all declined substantially over the last decade. Age-adjusted mortality rates for unintentional motor vehicle injuries and homicides also experienced significant declines over the last decade. In contrast, other unintentional injuries increased during this time period and suicide mortality rates remained virtually unchanged.

Racial disparities in chronic disease and injury mortality persist in North Carolina. Non-Hispanic African Americans have higher rates than non-Hispanic whites for the majority of chronic diseases. During 2006–2010, non-Hispanic African Americans had age-adjusted mortality rates that were more than two times higher than non-Hispanic whites for prostate cancer, diabetes, kidney disease, and homicide.

Estimates reveal that over half of North Carolina resident deaths may be due to preventable causes. Among the leading causes of preventable death in the state are tobacco use, unhealthy diet and/or physical inactivity, alcohol misuse, firearms, sexual behavior, motor vehicles, and illicit drug use.¹

¹ North Carolina Division of Public Health, State Center for Health Statistics. Special data query based on North Carolina electronic mortality data files.

Vila et al. Preventable Causes of Death in Wisconsin, 2004. *Wisconsin Medical Journal*. 2007;106(7):373–9. Accessed at: www.wisconsinmedicalsociety.org/_WMS/publications/wmj/issues/wmj_v106n7/remington_2.pdf.

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2. *Chronic Disease and Injury Health Care Utilization*

In 2010, cardiovascular disease (CVD) was the leading cause of hospitalization in the state, with the highest discharge rate and the highest total (\$5.5 billion). Among the chronic diseases, asthma had the lowest average charge per case (\$12,632) as well as the lowest average number of days stayed (3.2 days). Injuries and poisoning represented approximately 8 percent of all hospitalizations in the state and had the third highest overall charges in 2010 at over \$2.8 billion.

In 2009, injury was the leading cause of emergency department (ED) visits in North Carolina. There were more than one million emergency department (ED) visits related to injuries in 2009, comprising approximately one out of every four ED visits in the state. Chest pain and ischemic heart disease were the leading cause of chronic-disease related emergency department visits in the state, responsible for more than one in ten ED visits in 2009.

3. *Chronic Disease and Injury Incidence and Prevalence*

Cancer. The North Carolina Central Cancer Registry projects that more than 55,000 North Carolinians will receive a cancer diagnosis in 2012 and approximately four in ten North Carolinians will develop cancer during their lifetime. North Carolina's 2005-2009 age-adjusted cancer incidence rate was 7.5 percent higher than the national rate. North Carolina males consistently have higher age-adjusted cancer incidence rates than females. North Carolina has significant disparities in cancer incidence, with non-Hispanic African Americans having the highest age-adjusted cancer incidence rate and Hispanics experiencing the lowest rates during 2005-2009. In 2009, approximately one in ten North Carolina adults reported that they had been diagnosed with cancer and 8.5% indicated that they were currently receiving treatment for cancer. In North Carolina, the cancers of focus are: breast, cervical, colon, lung, and prostate as these have evidence-based strategies for prevention through promotion of screening and early detection and treatment.

Cardiovascular Disease (CVD). Almost one in ten North Carolina adults reported a history of cardiovascular disease (heart attack, coronary heart disease or stroke) in 2010. Approximately 3 percent of adults in the state reported a history of stroke, 4.5% reported a history of heart attack, and almost 4.6% reported a history of angina or coronary heart disease. North Carolina's cardiovascular disease prevalence rate places it among the quartile of states with the highest CVD rates in the nation.

COPD and Asthma. In 2009, nearly 6 percent of North Carolina adults reported that a health professional had diagnosed them with chronic obstructive pulmonary disease (COPD), emphysema, or chronic bronchitis. COPD rates were highest among those over the age of 65 (9.8%), adults having less than a high school education (9.7%), and those with annual household incomes of less than \$15,000 (11.5%). Approximately 85-90% of COPD deaths are smoking related. In 2010, over 10 percent of North Carolina

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adults reported that they had ever been diagnosed with asthma and almost 8 percent reported that they currently had asthma. North Carolina's child health survey reveals that approximately one in ten North Carolina parents report that their child currently has asthma. In 2010-11 asthma was the most common chronic health condition reported among K-12 public school students, affecting approximately 7.2% of all students enrolled in public schools in the state, and was a leading cause for hospitalizations among children.

Diabetes. The prevalence of diagnosed diabetes in North Carolina increased from 6.4 percent of the adult population in 1998 to 9.8% in 2010, an increase of 53 percent. North Carolina's 2010 diabetes rate of 9.8 was higher than the U.S. average rate (8.7%) and has been consistently higher than the U.S. rate since 2004. North Carolina, along with many other Southern states, is in the quartile of states with the highest diabetes rate in the nation. North Carolina adults with lower education levels and lower incomes were more likely to report being diagnosed with diabetes.

Injury. In 2009, nearly one in ten (9.7%) North Carolina adults reported that they had an injury that resulted in seeking medical treatment during the past year and another 40 percent reported that they had such an injury more than 12 months ago. Approximately 5 percent of NC adults reported that they had experienced a traumatic brain injury (TBI). One in ten North Carolina children ages 0 to 17 had an injury in the past year that prohibited them from their usual activities for a day or more, and 16.2% had an injury in the past year that required medical attention.

4. Risk Factors for Chronic Disease and Injury

Obesity. The percentage of North Carolina adults who are obese has more than doubled over the last two decades; from approximately 13% of adults in 1990 to 28.6% of the population in 2010. In all, more than six in ten North Carolina adults (65.3%) were overweight or obese in 2010. Like adults, a high percentage of North Carolina children are overweight or obese. According to child health survey data, 17.1 percent of children ages 10 through 17 were obese and another 13 percent were overweight based on their body mass index.

Nutrition. According to the 2009 BRFSS, only one in five North Carolina adults reported consuming five or more servings of fruits and vegetables recommended daily. North Carolina children and adolescents have similar nutritional patterns to adults. Based on 2010 parental report survey data, only 28% of children were eating five or more fruits and/or vegetables on a typical day.

Physical Activity. Over half of North Carolina adults did not meet physical activity recommendations in 2009. North Carolina's recommended physical activity rates rank the state in the bottom quartile of states with the lowest rates of physical activity in the country, along with many other Southern states. Similarly, among North Carolina high school students, over half did not meet physical activity recommendations.

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Tobacco Use. Tobacco use remains the leading preventable cause of death in NC, and the nation, and is responsible for more than 12,200 deaths each year in NC. An additional 1600 adults, children and infants in North Carolina die each year from exposure to others' secondhand smoke. Tobacco use is a costly problem; excess health care costs from smoking cost the state \$2.7 billion per year, \$769 million of this annual cost is a Medicaid cost; add to that \$3.5 billion in smoking-attributable productivity costs. Excess health care costs from exposure to secondhand smoke are estimated to be an additional \$293 million per year.

Injury. Injury is the physical damage suffered when energy, such as speed in a motor vehicle crash, is sustained by an individual or when life sustaining substances are deprived, like oxygen loss in a drowning. Injury is divided into two categories of risk: intentional and unintentional. Intentional injuries result from interpersonal or self-inflicted violence, and include homicide, assaults, suicide and suicide attempts, child abuse and neglect (includes child sexual abuse), intimate partner violence, elder abuse, and sexual assault. Unintentional injuries include motor vehicle crashes, falls, fires, poisonings, drownings, suffocations, choking, and recreational and sports-related activities. Injury and violence are the leading cause of death for 80% of North Carolina's population, ages 1-59, and the fourth leading cause of all deaths. For younger people (ages 1 to 48), injury is the number one cause of death. Violence is the second (homicide) and third (suicide) leading cause of death for 15 to 24 year olds. The economic burden of injury and violence in North Carolina is enormous exceeding an estimated \$27 billion per year. The costs includes direct medical costs (\$1.2 billion), work-loss costs (\$6.8 billion), and quality of life costs (\$19.4 billion). Behavioral factors like alcohol or drug use and training to prepare for risky activities, such as a teenager learning to drive, contribute to increased injury and violence incidences. In terms of deaths, intentional injuries generally account for one-third of deaths while unintentional injuries account for two-thirds of deaths.

III. BURDEN OF CHRONIC DISEASE IN NC

B. Prioritizing the Burden of Chronic Disease and Injury in North Carolina

To assist in the prioritization process to develop goals, strategies and objectives for the *NC CCDIHP State Plan*, the DWG summarized key mortality and healthcare utilization data across chronic disease and injury areas including North Carolina resident mortality, emergency department, and hospital discharges. The data are presented in this way to facilitate the understanding of mortality, morbidity, and disparity burden related to chronic disease and injury categories. A concise summary table allowed the DWG to compare and contrast health outcomes associated with multiple disease and risk factor categories.

In sub-section 1, chronic disease injury mortality is summarized by showing: comparisons between NC and the US; 2000-2010 trends in mortality; premature mortality; and racial disparities in mortality. In sub-section 2, chronic disease and injury healthcare utilization is summarized by showing: emergency department utilization; and inpatient hospital utilization. A comparison summary of NC mortality and health care utilization is summarized in Table 4. In sub-section 3, the data are presented to show the extent of co-morbid conditions and diagnoses and other risk factors (Tables 5, 6, and 7).

1. *Chronic Disease and Injury Mortality in North Carolina*

Table 4 below was prepared by the State Center for Health Statistics (SCHS) to allow the CDI Section to develop this coordinated plan by first defining the leading chronic disease and injury problems in the state. The SCHS further reported this data with the following analyses:

N.C. compared to U.S. North Carolina age-adjusted mortality rates were comparable to the U.S. for asthma, arthritis, unintentional poisonings, and suicide. North Carolina age-adjusted mortality rates were lower than the U.S. for heart disease, diabetes, chronic liver diseases/cirrhosis, and cancers of the colon/rectum/anus, and pancreatic cancer. Chronic diseases with age-adjusted rates more than 20 percent higher than the U.S. rates included kidney disease (27% higher) and Alzheimer's disease (21% higher). North Carolina's age adjusted rates for unintentional motor vehicle traffic injuries were also significantly higher (28%) than the U.S. rate.

Trends in Mortality: 2000 – 2010. North Carolina's age-adjusted mortality rates have declined over the last decade for most chronic diseases, with the exception of Alzheimer's disease (26% increase), kidney disease (11% increase), other chronic respiratory diseases (3% increase), and pancreatic cancer (0% change). Several chronic diseases experienced declines of over 30 percent between 2000 and 2010, including emphysema (50% decline), stroke (42% decline), asthma (38% decline), cardiovascular diseases (35% decline), heart disease (34% decline), and prostate cancer (32% decline). Age-adjusted mortality rates increased considerably for several injury groups, most notably unintentional poisonings (120% increase) and

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unintentional falls (53% increase). The age-adjusted suicide rate also increased slightly during this time period (1.7%).

Premature Mortality. Cancer and cardiovascular diseases claimed the highest percentage of NC lives in 2010, together comprising over half (52.2%) of all resident deaths. Among the chronic diseases, three had average years of potential life lost greater than ten years, including asthma (19 years), chronic liver disease/cirrhosis (15 years), and female breast cancer (11 years). With regard to premature mortality, injuries - both intentional and unintentional - had the highest average years of potential life lost prior to age 75. Homicide, unintentional motor vehicle traffic deaths, and unintentional poisonings all resulted in an average of more than 30 years of potential life lost.

Racial Disparities in Mortality. North Carolina's age-adjusted mortality rates for non-Hispanic African Americans were more than two times greater than non-Hispanic Whites for homicide (3.5), prostate cancer (3.0), diabetes (2.7), kidney disease (2.7), and asthma (2.6). In North Carolina in 2010, non-Hispanic African Americans had lower age-adjusted mortality rates than non-Hispanic Whites for unintentional injuries/accidents (including falls and poisonings), Alzheimer's disease, chronic lower respiratory diseases, and suicide.

2. Chronic Disease and Injury Healthcare Utilization in North Carolina

Emergency Department Utilization. Cardiovascular disease, chronic lower respiratory diseases, and arthritis were the chronic diseases with the largest emergency department visit rates in North Carolina in 2010. In general, all of the cancers were less likely to be the primary cause for emergency department visits in 2010. With regard to injuries, unintentional injuries accounted for nearly 18 percent of all emergency department visits in 2009. Among unintentional injuries, unintentional falls had the highest emergency department utilization rate (24.8 per 1,000 population).

Inpatient Hospital Utilization. In 2010, cardiovascular disease (CVD) was the leading cause of hospitalization in the state, with the highest discharge rate (17 discharges per 1,000 residents). Non-Hispanic African Americans had hospital discharge rates more than two times higher than non-Hispanic whites for homicide/assault (4.0), asthma (2.9), and diabetes (2.8). Unintentional motor vehicle traffic injuries resulted in the highest average hospital charges, at over \$62,000 per hospitalization. Cancers also resulted in high average charges, overall averaging more than \$41,000 per hospitalization.

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Table 4. Summary of North Carolina Resident Chronic Disease and Injury Mortality, Emergency Department, and Hospital Discharges.

Disease	US 2010 (Provisional) Age-adjusted per 100,000	NC 2010 Age- adjusted per 100,000	Comparison N.C. vs. U.S.	2010 % of all deaths	Trend 2000-2010	Average Years of Life Lost Prior to Age 75	Age Adj. Mortality Disparity Ratio (NH AfAm to NH White)	2010 Total ED Visits	2010 % of all ED visits	2010 ED visit rate per 1,000	2010 Hospitaliza- tions per 1,000	2010 Average Charge per Case	2010 Hospital Discharge Disparity Ratio
Cardiovascular Disease	233.4	235.8	Higher	29.3%	Declining	5.5	1.3	182,948	4.6%	19.19	17.02	\$34,447	1.2
Heart Disease	178.5	174.3	Lower	21.7%	Declining	5.9	1.3	99,851	2.5%	10.47	11.33	\$37,077	1.0
Cerebrovascular Disease/Stroke	39.0	44.5	Higher	5.4%	Declining	4.3	1.4	29,288	0.7%	3.07	3.09	\$27,210	1.1
Malignant Neoplasms/ Cancer	172.5	178.5	Higher	22.9%	Declining	8.2	1.2	10,827	0.3%	1.14	3.27	\$41,401	1.0
Colon, Rectum and Anus	15.8	14.9	Lower	1.9%	Declining	8.8	1.4	1,006	0.0%	0.11	0.40	\$45,022	1.0
Pancreas	11.0	10.6	Lower	1.4%	Same	7.2	1.4	401	0.0%	0.04	0.10	\$42,980	1.3
Trachea, Bronchus and Lung	47.6	54.0	Higher	7.0%	Declining	7.5	1.0	2,309	0.1%	0.24	0.48	\$37,859	0.9
Female Breast ¹	22.2	23.6	Higher	1.7%	Declining	11.2	1.4	227	0.0%	0.02	0.16	\$25,493	1.1
Prostate ¹	22.0	24.8	Higher	1.2%	Declining	3.1	3.0	196	0.0%	0.02	0.26	\$28,048	1.1
Diabetes	20.8	20.4	Lower	2.6%	Declining	7.9	2.7	34,232	0.9%	3.59	1.90	\$20,899	2.8
Chronic Lower Respiratory Disease	42.1	46.0	Higher	5.7%	Declining	1.3	0.6	111,467	2.8%	11.69	3.23	\$15,639	1.2
Emphysema	3.1	3.2	Higher	0.4%	Declining	5.1	0.4	509	0.0%	0.05	0.03	\$34,103	0.7
Asthma	1.0	1.0	Same	0.1%	Declining	19.2	2.6	52,436	1.3%	5.50	1.10	\$12,632	2.9
Other Chronic Lower Respiratory Conditions	37.8	41.8	Higher	5.2%	Increasing	3.7	0.6	58,522	1.5%	6.14	2.11	\$16,981	0.7
Chronic Liver Disease and Cirrhosis	9.4	8.9	Lower	1.2%	Declining	15.2	1.1	2,349	0.1%	0.25	0.25	\$29,353	0.7
Kidney Disease	15.3	19.4	Higher	2.4%	Increasing	5.3	2.7	12,148	0.3%	1.27	1.51	\$22,470	1.7
Arthritis²	1.5	1.5	Same	0.2%	Declining	5.2	0.0	69,414	1.7%	7.28	3.22	\$40,435	0.7
Alzheimer's Disease	25.0	30.3	Higher	3.6%	Increasing	0.4	0.7	1,542	0.0%	0.16	0.16	\$16,242	0.7
Unintentional Injuries³	37.1	43.0	Higher	5.3%	Declining	24.0	0.8	770,084	17.6%	82.10	4.26	\$35,184	0.6
Unintent. Motor Vehicle Traffic ³	11.2	14.3	Higher	1.7%	Declining	33.1	1.2	120,157	2.7%	12.80	0.63	\$62,013	0.9
Unintentional Falls ³	7.9	9.0	Higher	1.1%	Increasing	4.3	0.5	232,572	5.3%	24.80	2.18	\$31,417	0.4
Unintentional Poisonings ³	9.9	9.9	Same	1.2%	Increasing	32.8	0.4	13,210	0.3%	1.40	0.34	\$16,302	1.0
All Other Unintent. Injuries ³	n/a	9.9	n/a	1.2%	Declining	19.8	1.1	145,731	3.3%	15.50	1.10	\$33,053	0.8
Suicide³	11.9	11.9	Same	1.5%	Increasing	28.6	0.3	11,605	0.3%	1.20	0.42	\$16,764	0.6
Homicide/Assault³	5.3	5.7	Higher	0.7%	Declining	39.7	3.5	37,663	0.9%	4.00	0.19	\$41,852	4.0

Table 4 Notes:

1. U.S. Rates for Breast and Prostate Cancer are for 2009. Source: National Cancer Institute, Surveillance Epidemiology and End Results.
2. U.S. Rates for Arthritis are for 2009. Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death, CDC Wonder.
3. Emergency Department numbers and rates for injuries (Unintentional, Suicide, and Homicide) are for all diagnoses, 2009 North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT).

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Table 4 Sources:

U.S. Mortality Data: Murphy SL, Xu JQ, Kochanek KD. Deaths: Preliminary Data for 2010. National Vital Statistics Reports; vol 60 no 4. Hyattsville, MD: National Center for Health Statistics. 2012.

N.C. Mortality Data: North Carolina Division of Public Health, State Center for Health Statistics. Special data queries based on North Carolina electronic mortality data files.

Emergency Department Data: North Carolina Division of Public Health, State Center for Health Statistics. Special data query based on North Carolina (Provisional) 2010 Emergency Department data files, primary diagnosis.

Hospital Discharge Data: North Carolina Division of Public Health, State Center for Health Statistics. Special data query based on North Carolina (Provisional) 2010 inpatient hospital discharge data files, primary diagnosis.

3. Summary of NC Co-Morbidity Data for Selected Chronic Diseases

Table 5. 2006-2010 North Carolina Resident Deaths for Selected Chronic Diseases.

Primary Cause of Death:	Other Mentioned Causes of Death													
	Diabetes		Cancer		Heart Disease		Stroke		CLRD ¹		Arthritis		Kidney Disease	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Diabetes	10,687	-	313	2.9%	7,001	65.5%	1,449	13.6%	637	6.0%	160	1.5%	2,496	23.4%
Cancer	4,769	5.4%	87,584	-	12,595	14.4%	2,065	2.4%	6,364	7.3%	572	0.7%	3,498	4.0%
Heart Disease	12,408	14.4%	2,904	3.4%	86,329	-	6,216	7.2%	8,271	9.6%	1,167	1.4%	8,309	9.6%
Stroke	2,228	10.1%	608	2.8%	5,022	22.8%	22,035	-	871	4.0%	274	1.2%	1,067	4.8%
CLRD ¹	2,067	9.6%	1,098	5.1%	7,858	36.4%	643	3.0%	21,573	-	300	1.4%	1,450	6.7%
Arthritis	72	10.3%	23	3.3%	271	38.8%	39	5.6%	67	9.6%	698	-	64	9.2%
Kidney Disease	739	8.4%	220	2.5%	3,683	41.9%	467	5.3%	343	3.9%	72	0.8%	8,786	-

¹ CLRD=Chronic Lower Respiratory Diseases, including asthma

Table 6. 2010 North Carolina Resident Hospital Discharges for Select Chronic Diseases.

Primary Diagnosis:	Other Mentioned Diagnoses													
	Diabetes		Cancer		Heart Disease		Stroke		COPD ¹		Arthritis		Kidney Disease	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Diabetes	18,101	-	360	2.0%	4,786	26.4%	526	2.9%	1,713	9.5%	998	5.5%	6,808	37.6%
Cancer	5,205	16.7%	31,226	-	7,605	24.4%	777	2.5%	4,704	15.1%	2,517	8.1%	3,907	12.5%
Heart Disease	32,415	30.0%	3,966	3.7%	108,062	-	4,617	4.3%	22,382	20.7%	8,989	8.3%	29,741	27.5%
Stroke	8,779	29.8%	970	3.3%	13,807	46.9%	29,429	-	3,820	13.0%	2,891	9.8%	4,991	17.0%
COPD ¹	7,325	23.8%	1,041	3.4%	13,071	42.4%	633	2.1%	30,833	-	2,912	9.4%	3,825	12.4%
Arthritis	6,114	19.9%	314	1.0%	6,901	22.5%	346	1.1%	4,154	13.5%	30,683	-	1,863	6.1%
Kidney Disease	4,387	30.5%	1,218	8.5%	6,440	44.8%	708	4.9%	1,900	13.2%	999	7.0%	14,370	-

¹ COPD=Chronic Obstructive Pulmonary Diseases, including asthma

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Table 7. North Carolina Residents, Prevalence of Select Chronic Diseases & Risk Factors.

Chronic Diseases:	Other Risk Factors											
	Hypertension		High Cholesterol		Current Smoker		Overweight/ Obese		Physical Inactivity ³		Unhealthy Diet ⁴	
	#	%	#	%	#	%	#	%	#	%	#	%
Diabetes	1,239	69.4	1,091	66.4	246	15.3	1,343	82.8	1,094	68.8	1,332	81.3
CVD ¹	1,172	68.9	1,041	69.8	296	22.9	1,084	73.6	981	70.7	1,242	83.6
COPD ²	603	56.7	567	61.9	357	42.0	656	71.6	658	64.0	818	80.3
Asthma	515	36.9	515	47.1	255	24.1	755	69.9	637	57.8	836	77.0
Kidney Disease	228	60.7	203	62.5	44	19.5	218	69.6	209	61.6	254	79.0
Arthritis	2,774	52.9	2,566	54.6	882	20.7	3,320	73.9	2,814	61.2	3,715	79.1
2 or more chronic diseases	1,978	42.3	1,909	47.5	732	21.6	2,679	69.5	1,649	41.8	3,109	78.9
Chronic Diseases:	Other Comorbid Chronic Diseases											
	Diabetes		CVD ¹		COPD ²		Asthma		Kidney Disease		Arthritis	
	#	%	#	%	#	%	#	%	#	%	#	%
Diabetes	-	-	491	25.6	235	12.5	221	12.1	114	5.9	915	49.7
CVD ¹	491	27.7	-	-	310	18.5	193	11.5	121	6.2	945	54.7
COPD ²	235	21.9	310	29.4	-	-	357	39.8	69	5.8	631	56.7
Asthma	221	14.8	193	12.8	357	28.6	-	-	44	3.0	597	44.7
Kidney Disease	114	29.8	121	28.2	69	16.6	44	12.1	-	-	222	56.7
Arthritis	915	17.6	945	17.5	631	11.3	597	12.8	222	3.9	-	-

¹ CVD = Cardiovascular Disease (Heart attack, coronary heart disease, stroke).

² COPD = Chronic Obstructive Pulmonary Diseases

³ Physical Inactivity - defined as not meeting physical activity recommendations (e.g. Moderate physical activity for 30 or more minutes per day, five or more days per week or vigorous physical activity for 20 or more minutes per day, three or more days per week)

⁴ Unhealthy Diet - defined as not consuming 5 or more servings of fruit or vegetables a day

Tables 5-7 Sources

North Carolina Behavioral Risk Factor Surveillance System (NC BRFSS), 2009. In most cases, the data shown in the Coordinated Chronic Disease Injury and Health Promotion plan matches the Healthy NC2020 baseline data.

IV. COLLABORATIVE STATE PLAN DEVELOPMENT PROCESS

A. State Plan Contributors

Leaders of the NC CDI Section facilitated the development of the NC Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan, along with input from the Section Management Team (SMT) and Categorical Branch Staff. They were assisted by a team from the Department of Health Behavior at The University of North Carolina at Chapel Hill (UNC) Gillings School of Global Public Health, who facilitated the plan development process, provided external review and suggestions, and assisted the Section’s collaborative efforts with internal/external partner groups and partners. To develop the plan, five working groups/teams were established, comprised of staff from several CDI Section Branches and assisted by the UNC team. The working groups/teams served multiple functions (Table 8).

Table 8. Working Groups Established to Develop the NC CCDIHP State Plan.

Coordinated Work Team (CWT)	This team was the main working group formed to develop the <i>NC CCDIHP State Plan</i> (along with other Coordinated Grant activities). Membership consisted of representation from: section leaders; chronic disease and health promotion programs; domain “experts”, including health disparities and health equity; and the UNC facilitation team.
Coordinated Advisory Team (CAT)	This group provided focused discussion and input for the State Plan process as well as other Coordinated Grant activities. Members included: CWT; the Section Chief; and the Branch Managers for all remaining programs in the Section (Section Management Team).
Data Work Group (DWG)	This group included Section and Coordinated Grant Leadership as well as State Center for Health Statistics experts. They led the development of the burden of chronic disease and injury and presentation of data for strategy prioritization activities.
State Plan Evaluation Team	This group included select Section leadership, staff with evaluation expertise, and UNC Team members. The team designed the evaluation plan for the <i>NC CCDIHP State Plan</i> , including the identification/development of SMART objectives.
State Plan Communication Team	This group included Section leadership, staff with communication expertise, and UNC Team members. The team developed the communication plan for the <i>NC CCDIHP State Plan</i> .

Internal and external partner groups of the CDI Section were also engaged in the state plan development process. These included three types of partner groups identified early in the state plan development process: 1) Internal Partner Groups (entities within the CDI Section Branches and Programs); 2) Internal/External Partner Groups (entities containing partners that serve in an advisory/working role, either section-wide or for branches; coordination of these entities is housed within CDI Section); and 3) External Partner Groups (entities outside of the CDI Section).

CDI Section Branches and partners were engaged to initially help identify strategies for consideration in the state plan. Along with CWT and CDI Section leadership, Association of Local Health Directors representatives, and partners attended two strategic planning meetings in early 2013 to: 1) review progress to date and discuss next steps to develop the *NC CCDIHP State Plan*; and 2) review and build consensus around

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coordinated strategies developed for the state plan. For more information about these external engagement strategic partner meetings, please see sub-section B.4 Partner Engagement and Feedback.

B. Summary of the State Plan Development Process

The *NC CCDIHP State Plan* development process consisted of the following six primary, sometimes overlapping, phases:

1. Review of Existing CDI Section Branch Plans
2. State Plan Initiation Retreat and Prioritization Framework Development
3. Consideration of Prioritization Criteria
4. Partner Engagement and Feedback
5. Application of Prioritization Criteria
6. Preparation for State Plan Implementation

1. Review of Existing CDI Section Branch Plans

The first step in the process to develop North Carolina's *NC CCDIHP State Plan* included a systematic review of existing CDI Section Categorical Branch strategic/project plans. UNC Team members reviewed and summarized information about the following categorical strategic/project plans (in alphabetical order, with plan date noted):

1. Asthma Branch (2007-2012)
2. Comprehensive Cancer Control Branch ('Living Document')
3. Diabetes Branch (2011-2015)
4. Forensic Tests for Alcohol Branch (2012 Service Report)
5. Heart Disease and Stroke Prevention Branch (2011-2016)
6. Injury and Violence Prevention Branch (2009-2014)
7. Physical Activity and Nutrition Branch (2013-2020)
8. Tobacco Prevention and Control Branch (2000-2010)

This review of current CDI Section categorical plans identified cross-cutting themes among the Section's chronic disease, injury, and health promotion branches. The review provided Branch staff the opportunity to determine the extent to which their work relates to the four domains promoted by the CDC. The review also identified prevention types (primary or secondary) and intervention strategy types (e.g., education, media, partner building, policy, services and/or built environments). The categorical plan coding procedures focused on descriptive characteristics of the strategies included in the plans, including CDC domains and the types of strategies. Data were analyzed and presented in summary tables for each plan (Appendix B).

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2. State Plan Initiation Retreat and Prioritization Framework Development

To initiate the state plan development process, the UNC Team facilitated a one-day retreat for 16 CDI Section leadership and staff members. Goals for the retreat included clarifying the purpose, structure, and content of the *NC CCDIHP State Plan*, answering questions, encouraging discussion, and generating ideas for next steps. The retreat was organized into four parts: 1) Overview of the *NC CCDIHP State Plan*; 2) Categorical Plan Content Review; 3) Discussion of the Burden of Chronic Disease in NC; and 4) Review of a proposed *NC CCDIHP State Plan Development Process*.

Based on discussions conducted during and following the retreat, plan development team members identified a set of guiding principles for the state plan's development (Table 9).

Table 9. NC Coordinated Chronic Disease State Plan Guiding Principles.

1. The plan development process should be transparent and easy to understand.
2. Available resources should inform what is prioritized in the plan.
3. Evidence-based strategies having the greatest impact should be identified through the coordinated planning process.
4. The plan should clearly consider health disparities and movement toward health equity.
5. Process should consider bureaucratic feasibility and opportunity.
6. Methods to develop the plan should be repeated as part of ongoing assessment and to update the plan as contextual factors change.
7. The plan development process should allow for staff and partner involvement at multiple levels.

Section leadership, CWT, and UNC Team members also worked collaboratively to develop a Prioritization Process Framework to assist with developing the state plan's strategies. The framework was grounded in research for public health prioritization processes (Neiger, 2011; Baltussen, 2006; and Danaei et al., 2009) and included the consideration of six components (Table 10). Over time, this framework was expanded to include other factors (e.g. status of strategy implementation across the state of NC, assessment of health impact and CDC domain).

Table 10. NC CCDIHP State Plan Prioritization Process Framework.

1. Size of the NC Burden of Chronic Disease and Injury.
2. Seriousness of the NC Burden of Chronic Disease and Injury.
3. Risk Factors associated with Burden
4. Intervention Effectiveness
5. Ability to Address Health Disparity
6. Feasibility

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3. Consideration of Prioritization Criteria

Identification of Size and Seriousness for Chronic Disease and Injury in North Carolina

To initiate the implementation of the state plan's prioritization process framework, the CDI Section adapted a priority scoring method (Niger et al., 2011) to compare size and seriousness across NC burden of chronic diseases and injuries. Led by staff from the State Center for Health Statistics (SCHS), the CDI Section organized, scored, and rank-ordered NC chronic disease and injury outcomes in descending order (e.g., Aggregate Size and Seriousness Score, Total Size, and Total Seriousness). This summary allowed for a rank-ordered comparison of disease and injury outcomes for state plan work groups to use when considering the contents of the *NC CCDIHP State Plan*.

To categorize Size of the chronic disease and injury burden (20 points total), the following components were considered: 1) Percent of all Deaths in NC (1-10 pts); and 2) Age-Adjusted Deaths per 100K (1-10 pts). To categorize Seriousness of the chronic disease and injury burden, the following components were considered: 1) NC > Risk than U.S. (1-10 pts); 2) Increasing Trend (1-10 pts); 3) Average cost per Hospitalization (1-10 pts); 4) Disparity Ratio (1-10 pts); and 5) Years of Potential Life Lost (1-10 pts).

Table 11 lists the disease/injury categories scored for aggregate size and seriousness, total size, and total seriousness. Broader disease/injury categories appear in bold and in larger font size. More specific disease/injury categories are indented and appear in smaller font size. A scoring legend is provided. Table 11 is organized to show NC disease/injury categories (n=23) ranked in descending order by Aggregate Total Size and Seriousness Score for the broader disease/injury categories (n=11). Based on this scoring, three categories of disease/injury burden are noted: Highest Burden (> 30 points); Intermediate Burden (20-29 points); and Lowest Burden (<20 points).

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Highest Burden (H) ≥30 points	Intermediate Burden (I) 20-29 points	Lowest Burden (L) <20 points
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Table 11. North Carolina Chronic Disease and Injury Outcomes Ranked by Size and Seriousness^a

Burden Category	Disease/Injury (n=23)	Aggregate Total Size and Seriousness Score	Total Size Score ^b (highest possible points=20)	Total Seriousness ^c Score (highest possible points=50)
H	1. Malignant Neoplasms/Cancer	38	20	18
I	Trachea, Bronchus and Lung Cancer	27	8	19
I	Prostate Cancer	27	3	24
I	Female Breast Cancer	20	3	17
L	Colon, Rectum and Anus Cancer	19	3	16
L	Pancreatic Cancer	17	2	15
H	2. Homicide/Assault	36	2	34
H	3. Cardiovascular Disease	34	20	14
H	Heart Disease	33	20	13
I	Cerebrovascular Disease/Stroke	24	7	17
H	4. Kidney Disease	34	3	31
H	5. Unintentional Injuries/Accidents	33	7	26
H	Motor Vehicle Traffic	34	3	31
I	Falls	28	2	26
I	Poisonings	27	2	25
H	6. Alzheimer's Disease	30	5	25
I	7. Diabetes	20	4	16
L	8. Suicide	19	2	17
L	9. Chronic Lower Respiratory Disease	17	7	10
I	Asthma	21	2	19
L	Emphysema	15	2	13
L	10. Chronic Liver Disease and Cirrhosis	16	2	14
L	11. Arthritis	15	2	13

^a Developed using Resident Mortality and Hospital Discharge data for Chronic Diseases, as described in Section III.

^b Size (20 points total) considered: 1) Percent of all Deaths in NC (1-10 pts); and 2) Age-Adjusted Deaths per 100K (1-10 pts).

^c Seriousness (50 points total) considered: 1) NC > Risk than U.S. (1-10 pts); 2) Increasing Trend (1-10 pts); 3) Average cost per Hospitalization (1-10 pts); 4) Disparity Ratio (1-10 pts); and 5) Years of Potential Life Lost (1-10 pts).

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Identification and Review of Proposed Intervention Strategies

CDI Section Branches and their identified partners were asked to complete two steps, using tools provided, to inform the contents of the state plan. Branch Managers used their own discretion in determining if and how best to engage staff and external partners in completing these steps.

Step #1: Branch staff and their partners identified intervention strategies for consideration in the state plan, and they described the extent to which those strategies: 1) are effective; 2) are being implemented across the state of NC; 3) address modifiable risk factors; and 4) address health disparity. Step #2: Branch staff and partners more thoroughly assessed the degree to which intervention strategies address health disparity by identifying the extent to which proposed strategies address health disparate population groups as defined by Healthy People 2020. In this two-step process, Branches submitted strategies categorized for the six factors (Table 12). Appendix C provides definitions of categories used for each factor in the prioritization process.

Table 12. Categories of Prioritization Factors for Strategies Proposed for the NC CCDIHP State Plan.

Factors	Categories									
1. Effectiveness	<i>Best, Proven, or Evidence Based Practice</i>		<i>Leading</i>			<i>Promising</i>		<i>Emerging</i>		
2. Source of Effectiveness	<i>CDC's Guide to Community Preventive Services</i>			<i>NCIOM Improving North Carolina's Health: Applying Evidence for Success</i>			<i>Clinical Guidelines</i>		<i>Other</i>	
3. Status of Implementation	<i>Future Implementation</i>		<i>Limited in NC (<25 counties)</i>		<i>Moderate in NC (26 to 60 counties)</i>		<i>Widespread in NC (60+ counties)</i>		<i>Other</i>	
4. Modifiable Risk Factors	<i>↓fruit and vegetable intake</i>	<i>Physical Inactivity</i>	<i>Tobacco Use</i>	<i>Exposure to Second-hand Smoke</i>	<i>Obese (BMI >30)</i>	<i>High Cholesterol</i>	<i>Hypertension</i>	<i>High Blood Glucose</i>	<i>Alcohol Overuse</i>	
5. Degree of Health Disparity Focus	<i>Not working on Health Disparities</i>		<i>Some/a little working on Health Disparities</i>		<i>Majority working on Health Disparities</i>		<i>Only working on Health Disparities</i>		<i>Don't know/not sure</i>	
6. Health Disparity Population ^a	<i>Not specifically targeting this population</i>		<i>Some/A little Targeting this population</i>			<i>Primarily targeting this population</i>		<i>Don't know/not sure</i>		

^a Health Disparate Populations are defined by Healthy People 2020.

Seven CDI Section Branches/Programs independently submitted 136 strategies for consideration in the state plan, including: 1) Asthma; 2) Cancer Prevention and Control; 3) Diabetes Prevention and Control; 4) Heart Disease and Stroke Prevention; 5) Injury and Violence Prevention/Forensic Tests for Alcohol; 6) Physical Activity and Nutrition; and 7) Tobacco Prevention and Control.

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In accordance with the CDC's request that states clearly identify how the four domains will be addressed in each state plan, the 136 strategies submitted were then assigned a code for a domain (Table 13). To enhance the CDI Section's understanding of the potential impact of each proposed strategy, the 136 strategies were also coded according to CDC Director Dr. Thomas Frieden's Health Impact Pyramid (2010) using definitions listed in Table 14.

Table 13. Coding Definitions for CDC Domains.

Epidemiology/Surveillance Domain 1	Gather, analyze, and disseminate data and information and conduct evaluation to inform, prioritize, deliver, and monitor programs and population health. This may include the creation of inventories or conducting research.
Strategies to Support and Reinforce Healthy Behaviors Domain 2	Environmental approaches that promote health, and support and reinforce healthful behaviors in diverse settings including schools, worksites, and communities. These might include efforts to modify state/local policy, changes to built environments, implementing nutrition standards, and worksite wellness initiatives.
Health Systems Change Domain 3	Health system interventions to improve the effective delivery and use of clinical and other preventive services in order to prevent disease, detect diseases early, and reduce or eliminate risk factors and mitigate or manage complications. Includes: prompting electronics (electronic health records), quitlines, and screening.
Community-Clinical Linkages Domain 4	Strategies to improve community-clinical linkages ensuring that communities support and clinics refer patients to programs that improve management of chronic conditions. Such interventions ensure those with or at high risk for chronic diseases have access to quality community resources to best manage their conditions or disease risk. This includes lifestyle-change programs (e.g., YMCA, Senior Centers), such as self-mgt.

Table 14. Coding Definitions for Impact Tiers^a.

Tier 1 Counseling and Education	Health education and counseling multiple settings, e.g. doctor office, school, etc. This includes interventions focused on prevention (healthy eating etc.) that are focused on individual behaviors. Educating policy-makers or stakeholders about the importance of 'changing the context' (health policy/environmental change) are coded in Tier 4.
Tier 2 Clinical Interventions	Ongoing clinical interventions. The aggregate impact of these interventions is limited by lack of access, erratic and unpredictable adherence, and imperfect effectiveness. This includes: trainings for medical professionals; e.g. training-of-trainers for nurses; and screenings.
Tier 3 Long Lasting Protective Interventions	Limited interventions that do not require ongoing clinical care (i.e., they necessitate reaching people as individuals rather than a collective whole). This includes: all data activities (typically referred to for QI and or expansion of program); Increase research/working with research; Media; and Interventions that are supported and need constant personnel (e.g., community gardens, farmers markets).
Tier 4 Changing the Context	Interventions that change the environmental context. The defining characteristics are that individuals would have to expend significant effort to not benefit from them. This includes: Advocacy for/passage of laws, legislation, and policies; Formal agreements including state plan, developmental plans; and/or Smoke free work places.
Tier 5 Socioeconomic Status (SES) Factors	Changes in socioeconomic factors often referred to as the social determinants of health. No strategies proposed using Worksheet #1 were coded for this Tier.

^a Frieden, Thomas, R. (2010). A Framework for Public Health Action: The Health Impact Pyramid. *Am J Public Health*. Vol. 100:590-595. doi: 10.2105/AJPH.2009.185652

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The CWT reviewed frequency distributions and trends for the 136 strategies and considered establishing “cut points” for including strategies in the state plan (e.g. include only those strategies that are: proven; widespread; addressing five or more risk factors; and at least somewhat working on health disparities). However, CWT members ultimately agreed that all proposed strategies would move forward for further consideration in the state plan, despite some variability across the six prioritization criteria, particularly: intervention effectiveness; status of implementation across the state; and degree to which health disparities are addressed. The CWT discussed that evidence based practices are not always possible for all diseases or risk factors, due to funding initiatives constantly changing and being redefined allowing for greater advancements in some diseases and risk factors and slower advancements in others. In addition, different population groups may require different strategies.

Addressing health disparities to achieve health equity will be a major component of the CDI Section’s coordinated work. Several discussions were facilitated among internal partners (CWT) to reach clear definitions for “health disparities” and “health equity.” Efforts to explain and analyze disparities in health care access and chronic disease emphasize the need to focus on social determinants of health to understand the relative distribution of disease across North Carolina. Understanding the root causes of health disparity and inequity extends beyond the analysis of traditional health data, and examines the association between social variables and health variables that impact health status. Social variables such as poverty estimates, education levels, locations of food deserts, access to healthy foods, tobacco advertising and safe, affordable housing are a few of the factors that may have deeply rooted structural inequities that contribute to the degree of health inequity throughout North Carolina. The CDI Section is working with the State Center for Health Statistics to develop a health needs index that combines health, social, and community data to identify areas that have the highest needs. GIS mapping is another tool that will be used to illustrate the geographic distribution of health disparities. Each of these, along with other data sources and tools, will be further developed to provide a comprehensive profile to prioritize and determine interventions that will have the greatest impact on the citizens of North Carolina.

4. Partnership Engagement and Feedback

Partner groups of the CDI Section were engaged to initially help identify strategies for consideration in the state plan. Along with CWT and CDI Section leadership, Association of Local Health Directors representatives, and external partners attended two strategic planning meetings in early 2013 to learn about the state plan development process, review progress to date, and provide input on proposed strategies.

On March 6, 2013, approximately 50 CDI Section leadership, Division of Public Health leadership, CDI Section staff, and representatives from the NC Local Health Directors’ Association met (for five hours) to: a) examine CDC’s request for coordinated chronic disease state plans; b) review prioritization factors and

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process; c) introduce health disparities and health equity; and d) consider next steps for process and answer questions about plan and plan development process. Appendix D includes a summary of the strategic planning meeting.

On April 29, 2013, over 70 CDI Section leadership and staff, NC Local Health Directors' Association representatives, and selected external partners at the state, regional, and local/community level met (for one day) to review and build consensus around coordinated strategies developed for the state plan. The objectives for the meeting included: a) collect attendee input to inform the contents and processes needed to communicate, implement, and evaluate the NC Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan; b) review the process used to identify strategies and discuss related implementation issues; c) provide opportunity to discuss health disparity and population groups to target in the state plan; and d) engage partners in the process to build consensus for state plan and to network/discuss cross-cutting ideas. Appendix E includes a summary of the strategic planning meeting held in April 2013.

Input collected during the second strategic planning meeting resulted in several themes for consideration for the remaining process to develop the *NC CCDIHP State Plan*, as well as continued work with partners to consider future implementation opportunities for the plan. Meeting feedback was used by CWT and SMT to refine the final proposed list of strategies (Table 15).

Table 15. Partner Engagement Meeting Feedback Summary.

1. The need to reduce and revise the strategies to show 'coordinated' efforts across CDI Branches and to align the state plan with partners.
2. The importance of addressing health disparities in the state plan, including the need to create a common understanding of health disparities and health equity, and to conduct an assessment of organizational cultural competence.
3. The opportunity that the CCDIHP has to expand existing partnerships, increase awareness and outreach to communities, and to clarify roles and expectations of partners.
4. The importance of developing streamlined communication messages about the state plan, using existing resources, multiple media channels, and tailoring materials for specific population groups.
5. The desire to improve data and technology to support strategies included in the state plan.

An additional partner engagement meeting is scheduled for late in 2013, when public health practitioners, researchers, and CDI Section staff will discuss implementation opportunities for the goals, objectives, and strategies outlined in the state plan.

5. Application of Prioritization Criteria

Following the April 29, 2013 strategic planning meeting with external partners, CDI Section Branch Managers were provided the opportunity to review and reconsider their lists of proposed strategies for consideration in the state plan. Special instruction was provided to have Branch Managers consider only those strategies for which collaboration with other branches was feasible, given resources, time, staffing, or other

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factors. Using worksheets provided by the UNC Team, Branch Managers were also instructed to note with which Branch coordination could occur for each proposed strategy. In addition, Branch Managers were asked to consider how important they felt each strategy was for inclusion in the coordinated state plan. Importance could be defined by each manager to include but not limited to:

1. Size and Seriousness of Burden (morbidity and mortality)
2. Effectiveness of interventions (includes reach of intervention, such as population-based strategies)
3. Modifiable risk factors addressed
4. Feasibility of implementation
5. Ability to have an impact on health disparity.

Branch Managers used their own discretion to engage their staff or external partners when submitting their revised lists. They were also encouraged to consider ‘importance’ in advance of an SMT meeting at which Managers would be voting on strategies that would remain for consideration in the coordinated state plan.

As a result of this step, a revised list of 77 strategies was proposed for consideration in the state plan (Appendix F). Over half (66%) of all strategies were best practices, proven or Evidence Based Practice; over half (53%) came from the CDC’s Community Guide; many (42%) reached across 60 + counties; almost three quarters (72%) addressed two or more risk factors; and the majority (70%) addressed Health Disparities “some” or the “majority” of the time (Table 16).

<i>Prioritization Criteria</i>	<i>% of Strategies</i>
1. Effectiveness: Best practices, proven or evidence based practice	66%
2. Effectiveness Source: CDC’s Community Guide	53%
3. Reach: 60 + counties	42%
4. Address Modifiable Risk Factors: Two or more risk factors	72%
5. Health Disparity: Address health disparities “some” or the “majority” of time	70%

The 77 strategies were reviewed and discussed at a facilitated SMT meeting on June 12, 2013. During this meeting, SMT members reviewed the strategies, discussed the degree of ‘coordination’ identified for the strategies, and distilled the list of 77 strategies to a revised list of 48 by combining strategies that were similar in focus and/or target group/setting. Branch Managers next voted on strategies they felt were ‘most important’ for the state plan (10 votes each). Of the 48 strategies, a total of 9 strategies received three or more “votes” from seven voting Branch Managers (senior management at the meeting did not vote), and a total of 21 strategies received at least one vote. Based upon SMT discussion at a meeting held one week later, the list of nine strategies was reduced to eight (two were combined into one). In October 2013, the CDI Management team revised the number strategies to better align with current events in public health. The final number of strategies included in the State Plan is nine.

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Goal statements developed for the August 2012 draft *NC CCDIHP State Plan* were then slightly revised to align with the strategies. CDI Section management, staff, and representatives from the Coordinated Evaluation Team also worked collaboratively to identify objectives, related to the strategies and goals, consistent with Healthy NC 2020.

6. Preparation for State Plan Implementation

To prepare for the implementation of the *NC CCDIHP State Plan*, and to build capacity and depth in new areas, the CDI Section: 1) completed additional group process to develop the communication and evaluation sections of the state plan; 2) investigated ways in which to align with other state and national products (including health equity guidelines); and 3) increased state level capacity for community and partnership engagement.

To develop the communication section of the state plan, CDI Section staff with a primary function of communication worked together to revise and tailor a draft version of the NC CCDP Project communications plan. To develop the evaluation section of the state plan, CDI Section epidemiologists and evaluators, along with the CDI Section Management Team and the Coordinated Work Team, met to identify and/or develop appropriate and related objectives. This group used Healthy NC 2020 objectives to assess progress on the *NC CCDIHP State Plan* because they are measurable, monitored, and encompass activities being conducted by all CDI Section Branches/Programs. In three cases, different objectives were identified: 1) the asthma objective (Objective 2n) was identified from the national level Healthy People 2020; and 2) the fruit and vegetable objective (Objective 2e) was revised because CDC guidelines for assessing recommended levels of fruit and vegetable consumption have been modified, and the diabetes objective (objective 2l) was modified from the 2020 objective to reflect public health efforts to reduce/prevent diabetes.

The health equity objective (Objective #3) was adapted from a national objective from the Office of Minority Health and Health Equity and tailored to the state of North Carolina. The CDI Section sponsored capacity building activities to train staff on health equity/health disparities during the process of developing this *NC CCDIHP State Plan*. The sessions will help inform ways in which activities can be conducted to address health disparity and achieve health equity.

To increase state level capacity for community and partnership engagement, 55 CDI staff members attended one of two, 2-day sessions in April 2013 to learn about the fundamentals of community and partnership engagement, and strategies to engage community members in the program design, implementation and evaluation process. Drs. Forrest Toms and Sylvia Burgess from North Carolina A&T University led staff in interactive sessions designed to build skills in designing programs and activities that support community engagement, multi-sector partnership development, and increase organizational capacity for addressing health inequity. In addition, several staff members participated in focus groups in about health

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equity in June 2013, conducted by a UNC graduate student. A total of 28 staff were asked questions about: their understanding of health equity; examples of DPH building their capacity to address health equity; and recommendations for improving staffs' capacity. Additionally, a focus group using similar questions was held with members of the CDI Section Management team in June 2013. Overall, the focus group results revealed that staff members' knowledge about health equity concepts varied, that their work with partners contributed to addressing health equity, and that they wanted more trainings and communication about health equity issues. A partner engagement meeting, scheduled for late 2013, will further engage public health practitioners, researchers, and CDI Section staff to identify ways in which health equity can be addressed via the goals, objectives, and strategies outlined in this *NC CCDIHP State Plan*.

V. GOALS, OBJECTIVES, STRATEGIES

A. Goals

Overall goal statements for the *NC CCDIHP State Plan* were developed based on CDC guidance to all states, which indicated that the state Coordinated Chronic Disease and Health Promotion State Plans should address the following four domains: 1) Epidemiology and Surveillance; 2) Support and Reinforce Healthy Behaviors; 3) Health Systems Interventions; and 4) Community-Clinical Linkages. The CDC also suggested that state plans describe strategies to address health disparities and achieve health equity. The Coordinated Work Team organized the *NC CCDIHP State Plan's* goal statements according to the four CDC domains (Table 17).

Table 17. NC Coordinated Chronic Disease, Injury, and Health Promotion Goals.

1. **Epidemiology and Surveillance Goal:** Improve data and surveillance systems to monitor health status and identify health disparities and to disseminate measures of health status to partners and decision makers.
2. **Supporting and Reinforcing Healthy Behaviors Goal:** Improve health-promoting environments that support, enable, and reinforce healthy behaviors.
3. **Health Systems Change Goal:** Expand access to and increase coordination for screening and clinical preventive services for all North Carolinians.
4. **Community-Clinical Linkages Goal:** Provide individuals with the tools and knowledge they need to manage their health condition(s) and maintain or improve quality of life and build community capacity to provide prevention and self-management programs for chronic diseases.
5. **Health Disparity Goal:** Reduce disparities in access to preventive health services by increasing interdisciplinary, multi-sectoral partnerships to improve environments where social, economic and environmental factors are barriers to health equity and population health.

B. Objectives

Objectives and outcomes identified in *NC CCDIHP State Plan* align closely with *Healthy North Carolina 2020: A Better State of Health*, which serves as the state of North Carolina's health improvement plan to address and improve the state's most pressing health priorities. Since 1990, the state of North Carolina has identified decennial health objectives with the goal of making North Carolina a healthier state. For the year 2020, there are 40 objectives within 13 specific focus areas. Healthy NC 2020 objectives were developed over a one-year period on behalf of the Governor's Task Force for Healthy Carolinians. The Governor's Task Force was charged by the Governor to develop these health objectives. Members of the CDI Section worked closely with the N.C. Institute of Medicine to create the Healthy NC 2020 objectives. The Healthy NC 2020 objectives have measurable targets and the data are routinely captured and progress documented annually. With few exceptions, the majority of 14 total indicators included in the *NC CCDIHP State Plan* were taken directly from Healthy NC 2020 (Table 18).

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Table 18. NC Coordinated Chronic Disease, Injury, and Health Promotion Objectives.

Objective 1. By 2020, align existing data sources with clinical data via the Health Information Exchange to have a more complete picture of chronic disease and injury burden in North Carolina.

Objective 2. By 2020, based on burden of disease and injury data, coordinate internal and external activities to assist in reaching the following 14 2020 health outcomes:

- a. Decrease the percentage of adults who are current smokers
- b. Decrease the percentage of high school students reporting current use of any tobacco product
- c. Increase the percentage of high school students who are neither overweight nor obese
- d. Increase the percentage of adults getting the recommended amount of physical activity
- e. Increase the percentage of adults consuming fruits at least once daily and vegetables at least once daily.¹
- f. Reduce the percentage of traffic crashes that are alcohol related
- g. Reduce the unintentional poisoning mortality rate (per 100,000 population)
- h. Reduce the unintentional falls mortality rate (per 100,000 population)
- i. Reduce the homicide rate (per 100,000 population)
- j. Reduce the suicide rate (per 100,000 population)
- k. Reduce the cardiovascular disease mortality rate (per 100,000 population)
- l. Increase the percentage of adults who are aware that they have pre-diabetes²
- m. Reduce the colorectal cancer mortality rate (per 100,000 population)
- n. Reduce the rate of asthma hospitalizations²

Objective 3. By 2020, increase state's impact on health equity to reduce disparities in the above 2020 health outcomes among vulnerable populations (defined by race/ethnicity, geography, gender, age, disability status, and other identified risks).

¹ This is the new objective and may not be reflected in printed NC2020 material published prior to 2014.

² Not a NC 2020 objective

C. Strategies

As described in the section describing the Collaborative State Plan Development Process, an engaged planning prioritization process was used to identify nine strategies, by domain, for the *NC CCDIHP State Plan* and to identify related measurable objectives (Table 19).

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Table 19. NC Coordinated Chronic Disease, Injury, and Health Promotion Strategies.

Domain 1 - Epidemiology and Surveillance (n=3)

1. Work in collaboration with the State Center for Health Statistics and other state and national partners to support and utilize monitoring and surveillance systems/data sources for tracking chronic disease and injury outcomes, risk factors, and health behaviors. Data sources may include: YRBS, CHAMP, BRFSS, Cancer Registry, Vital Statistics, and Hospitalization data.
2. Create, conduct and disseminate evaluation studies to assess the health and economic impacts of evidence-based policies, programs and other interventions to address chronic disease and injury. These may include: impact of NC smoke-free restaurants and bar law; Eat Smart, Move More, Weigh Less; Diabetes Self-Management Education.
3. When possible, align clinical data with the Health Information Exchange in order to have a more complete picture of the burden and impact of chronic disease and injury in North Carolina.

Domain 2 - Support and Reinforce Healthy Behaviors (n=4)

4. Inform, educate, and provide evidence to support NC public health partner groups that plan, implement, and/or evaluate evidence-based policies that support and reinforce healthy behaviors. These may include: legislatively mandated task forces, community based groups, coalitions, and/or public health organizations, etc.
5. Develop and use strategic, effective, and tailored media campaigns, in combination with other evidence-based strategies and with public health partners, to support healthy behaviors and reduce risk factors related to chronic disease and injury. Media may include: social marketing, small media, earned and/or paid mass media.
6. Educate and inform about the importance of considering health and safety in all community and transportation policies and planning. These may include retail and housing initiatives and community design that support evidence-based strategies to improve health and reduce injury.
7. Ensure that pre-school to post-secondary schools are safe and healthy environments through the promotion of evidence-based interventions. Promotion opportunities may include: policies to improve air quality and physical environment; tobacco-free campuses; adoption of physical education and activity; adoption of food service guidelines/nutrition standards; and development and use of care plans for students with chronic disease conditions.

Domain 3 - Health Systems Change (n=1)

8. Promote healthcare system quality improvement of care standards, use of data, and training for medical practices to improve use of standardized protocols for screening (such as accurate blood pressure measurement) detection, referral, interventions, and treatment of multiple chronic diseases and injury among high-risk populations.

Domain 4 - Community Clinical Linkages (n=1)

9. Develop a system to promote, monitor and track referrals between community resources and clinical settings across multiple chronic diseases and injury conditions to improve population health. This may include community-based prevention, early detection, treatment, and self-management programs in place for high-risk NC population groups.

VI. COMMUNICATION

The *NC CCDIHP State Plan* identifies the CDI Section goals, objectives, strategies, and some common activities that lend themselves to coordinated efforts involving multiple programs. Coordinating communication activities is especially important to the implementation of the state plan. The CDI Section's Education and Communication Community of Practice (ECCoP) meets monthly and includes communication focused staff from Tobacco Prevention and Control, the Community Transformation Grant Project, and the Community and Clinical Connections for Prevention and Health Branch (formerly Diabetes, Heart disease, Physical Activity and Nutrition and School Health). The leader of the ECCoP has over 20 years of communication experience that is directly related to public health. She provided leadership for developing the *Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) Communication Plan* and will ensure that appropriate and timely messages are shared about the plan, achievements and accomplishments.

The *NC CCDIHP Communication Plan* includes objectives, strategies, and tactics that are crafted to accomplish two major tasks for the CDI Section: 1) harness the CDI Section's existing capacity for communication efforts by better coordinating activities and functions to take full advantage of existing leadership and expertise; and 2) build the CDI Section's capacity for evidence-based health communication activities by developing new or enhanced activities and procedures that will allow for further coordination across programs and more success in communicating the most effective messages to the most useful audiences in North Carolina to support the *NC CCDIHP State Plan*.

In accordance with the *CCDIHP Communication Plan*, various channels will be used to communicate epidemiology data and *NC CCDIHP State Plan* accomplishments to decision makers, healthcare providers, public health professionals, and the general public. The channels include: fact sheets; Twitter; Facebook; media releases; and letters to the editor. Information will flow from CDI Leadership to the ECCoP and they will determine the best method of distribution and then work with Public Affairs staff from the Department of Health and Human Services to proceed. Information will also be shared through the Section Management Team (SMT), particularly to partners, and those partners will distribute to others. Key public health partners that work closely with the CDI Section, include the: Justice Warren Task Force; Diabetes Advisory Council; Asthma Alliance; American Cancer Society; Alliance for Health; and Area Health Education Centers. The CDI Section Chief will distribute messages to Section Management, and the appropriate manager who works with partner group(s) will distribute messages beyond the CDI Section.

Due to the urgent need to address health inequity, the CDI Section will use existing data that clearly shows "hot spots" of disparities through the Health Needs Index Mapping Project. This project uses GIS techniques to overlay the burden of chronic diseases and risk factors onto one map. The maps highlight the areas with the highest levels of chronic diseases, and filters can be used to show disparities by race,

VI. COMMUNICATION

economics, and age. The CDI Section will share these data with partners, including the Office of Minority Health and Health Disparities, so that relevant public health partners can develop and implement local, tailored plans to address inequities. Local accomplishments to address disparities will be shared with decision makers and the public.

The *CCDIHP Communication Plan* involves building the necessary infrastructure to ensure consistent and collaborative communication across all program areas in the CDI Section to communicate within the section, with the Division of Public Health (DPH) and the Department of Health and Human Services (DHHS), and with partners, potential partners, and citizens, especially those at risk for or suffering from chronic diseases and injuries. The overall strategies for communication include effective use of:

1. Best practices for communication and partner relationships to build stakeholder and public support for environmental strategies that support and reinforce healthy behaviors across the state based on the NCCDIHP plan.
2. Best practices for communication to increase diffusion of evidence-based programs that improve the health of those living with chronic diseases or risk factors for chronic diseases through healthcare providers and healthcare systems, as described in the NC CCDIHP plan.
3. Expertise and resources across programs to create communication products and develop communication channels for reaching priority populations about reducing their risks for chronic disease and injury, based on the NC Coordinated Plan.
4. Social marketing and health communication principles to create behavior change in intended audience(s).
5. Stakeholder relations strategies to build and maintain effective partnerships that support the NC CCDIHP plan.
6. Internal communication to share clear direction to all CDI Section staff its mission, vision, programs and individual roles via meetings, e-mail, newsletters, etc.

For more information about communication, including objectives and activities which accompany the *NC CCDIHP State Plan*, the *North Carolina CCDIHP Communications Plan* will be available on the N.C. Chronic Disease and Injury Section's website (<http://publichealth.nc.gov/chronicdiseaseandinjury/>) by Spring 2014.

VII. EVALUATION

The *NC CCDIHP State Plan* will be assessed annually by a newly formed Coordinating Community of Practice (CCoP). Membership in the CCoP will include CDI Section Management and leaders of the other Section Communities of Practice (Table 20). Coordinated efforts outlined in this state plan will be standing agenda items for [enter frequency] CCoP meetings, and at meetings, other CoP leaders will provide regular reports and updates.

Table 20. CDI Section Communities of Practice (CoP) Mission Summary.

<i>CoPs</i>	<i>Mission</i>
Health Data	To enhance CDI Section epidemiology and evaluation capacity, to coordinate and improve data collection and reporting initiatives, and to address health disparity data needs.
Policy and Environmental Change	To maximize the effectiveness of the Chronic Disease and Injury (CDI) Section in developing, advocating and promoting the successful adoption of evidence-based and promising practice policies at the state and local level to prevent and reduce morbidity and mortality in NC.
Healthcare Systems ^a	To support current state quality improvement efforts to promote effective primary care models for clinical management of chronic diseases by improving systems in practices across the state.
Education and Communication	To build capacity of education and communication, including health literacy, and to build cohesive communications strategies for branches and the Section to educate target audiences about the Section's work in North Carolina.

^a Reassembled in early 2013 with new members and focus. Its charter is forthcoming.

As a separate part of NC CCDP Project, the CDI Section will be assessing CoPs to identify recommendations. The assessment will identify ways to increase alignment with the CDC's four domains, including an emphasis on addressing health disparities with a goal of achieving health equity. Also as a separate deliverable for the CCDP Project, the CDI Section will develop an *Evaluation Plan* (due in October 2013) that will include short, mid-term indicators for the objectives included in this *NC CCDIHP State Plan*, along with a description of data collection methods and the groups responsible for data collection and analysis.

One of the five goals, one of the three objectives, and three of the nine strategies outlined in the *NC CCDIHP State Plan* relate to epidemiology and surveillance (Table 21). The CDI Section's Health Data CoP and the Education and Communication CoP will evaluate progress to reach Goal #1, Objective #1, and Strategies 1-3. Short term measures will include the number of burden and evaluation presentations and chronicling efforts to traditional public health surveillance sources with clinical data that will be available from the Health Information Exchange.

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Table 21. NC CCDIHP State Plan Epidemiology and Surveillance-related Goals, Objectives, and Strategies.

Epidemiology and Surveillance Goal: Improve data and surveillance systems to monitor health status and identify health disparities and to disseminate measures of health status to partners and decision makers.

Objective 1. By 2020, align existing data sources with clinical data via the Health Information Exchange to have a more complete picture of chronic disease and injury burden in North Carolina.

Strategy #1. Work in collaboration with the State Center for Health Statistics and other state and national partners to support and utilize monitoring and surveillance systems/data sources for tracking chronic disease and injury outcomes, risk factors, and health behaviors. Data sources may include: YRBS, CHAMP, BRFSS, Cancer Registry, Vital Statistics, and Hospitalization data.

Strategy #2. Create, conduct and disseminate evaluation studies to assess the health and economic impacts of evidence-based policies, programs and other interventions to address chronic disease and injury. These may include: impact of NC smoke-free restaurants and bar law; Eat Smart, Move More, Weigh Less; Diabetes Self Management Education.

Strategy #3. When possible, align clinical data with the Health Information Exchange in order to have a more complete picture of the burden and impact of chronic disease and injury in North Carolina.

Three of the five goals, one of the three objectives, and the remaining seven of the nine strategies outlined in the *NC CCDIHP State Plan* relate to chronic disease, health promotion, and injury prevention (Table 22). The Health Data CoP and the State Center for Health Statistics will annually measure the health outcomes for the 14 indicators included in the *NC CCDIHP State Plan*, which include:

- a. Decrease the percentage of adults who are current smokers
- b. Decrease the percentage of high school students reporting current use of any tobacco product
- c. Increase the percentage of high school students who are neither overweight nor obese
- d. Increase the percentage of adults getting the recommended amount of physical activity
- e. Increase the percentage of adults consuming fruits at least once daily and vegetables at least once daily.
- f. Reduce the percentage of traffic crashes that are alcohol related
- g. Reduce the unintentional poisoning mortality rate (per 100,000 population)
- h. Reduce the unintentional falls mortality rate (per 100,000 population)
- i. Reduce the homicide rate (per 100,000 population)
- j. Reduce the suicide rate (per 100,000 population)
- k. Reduce the cardiovascular disease mortality rate (per 100,000 population)
- l. Increase the percentage of adults who are aware that they have pre-diabetes
- m. Reduce the colorectal cancer mortality rate (per 100,000 population)
- n. Reduce the rate of asthma hospitalizations

In 2011, two major changes were made to the Behavioral Risk Factor Surveillance System (BRFSS) survey methodology: the inclusion of cell phone interviews; and a new statistical method for weighting the data. The Centers for Disease Control and Prevention (CDC) implemented these methodological changes to improve the accuracy of BRFSS estimates; however the results using these new methods are not comparable to BRFSS estimates from previous years. As a result, updated data for seven of the Healthy NC 2020 indicators are not

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comparable to the baseline and target values. However, the Health Data CoP will annually track activities toward achievement. The Health Systems CoP will likely track activities that support the chronic disease-focused objectives (e.g., asthma, cancer, diabetes and heart disease). The Healthy Communities CoP will likely chronicle activities that support the health promotion and injury objectives (e.g., smoking cessation, tobacco use, obesity, physical activity, consumption of fruits and vegetables, unintentional poisoning, unintentional falls, homicide, suicide).

Table 22. NC CCDIHP State Plan Chronic Disease, Health Promotion, and Injury Prevention-related Goals, Objectives, and Strategies.

Supporting and Reinforcing Healthy Behaviors Goal: Improve health-promoting environments that support, enable, and reinforce healthy behaviors.

Health Systems Change Goal: Expand access to and increase coordination for screening and clinical preventive services for all North Carolinians.

Community-Clinical Linkages Goal: Provide individuals with the tools and knowledge they need to manage their health condition(s) and maintain or improve quality of life and build community capacity to provide prevention and self-management programs for chronic diseases.

Objective 2. By 2020, based on burden of disease and injury data, coordinate internal and external activities to assist in reaching NC 2020 health outcomes.

Strategy #4. Inform, educate, and provide evidence to support NC public health partner groups that plan, implement, and/or evaluate evidence-based policies that support and reinforce healthy behaviors. These may include: legislatively mandated task forces, community based groups, coalitions, and/or public health organizations, etc.

Strategy #5. Develop and use strategic, effective, and tailored media campaigns, in combination with other evidence-based strategies and with public health partners, to support healthy behaviors and reduce risk factors related to chronic disease and injury. Media may include: social marketing, small media, earned and/or paid mass media.

Strategy #6. Educate and inform about the importance of considering health and safety in all community and transportation policies and planning. These may include retail and housing initiatives and community design that support evidence-based strategies to improve health and reduce injury.

Strategy #7. Ensure that pre-school to post-secondary schools are safe and healthy environments through the promotion of evidence-based interventions. Promotion opportunities may include: policies to improve air quality and physical environment; tobacco-free campuses; adoption of physical education and activity; adoption of food service guidelines/nutrition standards; and development and use of care plans for students with chronic disease conditions.

Strategy #8. Promote healthcare system quality improvement of care standards, use of data, and training for medical practices to improve use of standardized protocols for screening (including accurate blood pressure measurement) detection, referral, interventions, and treatment of multiple chronic diseases and injury among high-risk populations.

Strategy #9. Develop a system to promote, monitor and track referrals between community resources and clinical settings across multiple chronic diseases and injury conditions to improve

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Table 22. NC CCDIHP State Plan Chronic Disease, Health Promotion, and Injury Prevention-related Goals, Objectives, and Strategies.

population health. This may include community-based prevention, early detection, treatment, and self-management programs in place for high-risk NC population groups

One of the five goals and one of the three objectives outlined in the *NC CCDIHP State Plan* relate to health disparity and healthy equity (Table 23). The Coordinating CoP will use short term measures such as target groups and/or geographic areas reached by statewide initiatives and/or partner facilitated activities to address health disparities.

Table 23. NC CCDIHP State Plan Health Disparity/Health Equity-related Goals, Objectives, and Strategies.

Health Disparity Goal: Reduce disparities in access to preventive health services by increasing interdisciplinary, multi-sectoral partnerships to improve environments where social, economic and environmental factors are barriers to health equity and population health.

Objective 3. By 2020, increase state's impact on health equity to reduce disparities for the Healthy NC 2020 health outcomes, selected for inclusion in the *NC CCDIHP State Plan*, among vulnerable populations (defined by race/ethnicity, geography, gender, age, disability status, and other identified risks).

Objective 3 will assess the degree to which the *NC CCDIHP State Plan* initiates sustained, data-driven efforts to identify and address health disparities and to facilitate partner collaborations that are effective. The state's work to address health disparities will be guided by recommendations outlined in *CDC Health Disparities and Inequalities Report— U.S., 2011* (<http://www.cdc.gov/mmwr/pdf/other/su6001.pdf>). The state's efforts will focus on increasing awareness of disparities as problems, setting state and local level priorities based upon the burden of disease, and implementing evidence-based strategies to improve health outcomes among vulnerable populations. To identify health disparities, GIS analytic work will be used to identify hot spots of chronic diseases prioritized in CCDHIP State Plan's Chronic Disease Burden document. To address the health disparities, evidence-based interventions will be identified and shared with partner organizations as possible solutions. Partner collaborations will be encouraged so that resources and efforts can be targeted to address disparities in identified geographic locations.

Annually, CDI Section staff and stakeholders will meet to review the burden of diseases based upon the most recent surveillance data. In an annual review process, Section staff would also evaluate the needs and assess the progress made by partner organizations and other stakeholders. The annual meeting will also include time for stakeholders to share their best practices and lessons learned to help inform the efforts

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implemented across the state. Progress will be documented by assessing the extent to which activities and sub-activities outlined in Table 24 are implemented.

Table 24. Activities and Sub-Activities to Support NC CCDIHP State Plan Objective 3.

Activity 1: Increase awareness of disparities as a problem, using GIS analytic work to identify hot spots of chronic disease burden.

Sub-Activity 1a: Work in collaboration with the State Center for Health Statistics and other state and national partners to identify state hot spots for high burden of chronic disease and injury outcomes, risk factors, and health behaviors among vulnerable populations.

Activity 2: Set state and local level priorities based upon the burden of disease.

Activity 3: Identify evidence-based strategies to address these hot spots.

Sub-Activity 3a: Inform, educate, and provide evidence to support NC public health partner groups that plan, implement, and/or evaluate evidence-based policies that support and reinforce healthy behaviors.

Sub-Activity 3b: Develop and use strategic, effective, and tailored media campaigns, in combination with other evidence-based strategies and with public health partners, to support healthy behaviors and reduce risk factors related to chronic disease and injury.

Activity 4: Build coalitions of stakeholders and partners to coordinate efforts addressing those disparities.

Activity 5: Develop a system to track stakeholder activities and provide them with the technical assistance necessary to increase their capacity to reduce disparities.

Sub-Activity 5a: Develop a system to promote, monitor and track referrals between community resources and clinical settings across multiple chronic diseases and injury conditions to improve population health.

VIII. REFERENCES

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IX. LIST OF APPENDICES

The following appendices are provided to accompany the *NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan*.

- A. Burden of Chronic Disease and Injury in North Carolina (Detailed Version)
- B. Summary of Results from NC Categorical Plan Review
- C. Definitions of Prioritization Process Factors and Categories
- D. Summary of March 6, 2013 Partner Engagement Meeting
- E. Summary of April 29, 2013 Partner Engagement Meeting
- F. Detailed Strategies Used to Develop Final *NC CCDIHP State Plan* Strategies
- G. Acknowledgements

APPENDIX A. Burden of Chronic Disease and Injury in North Carolina

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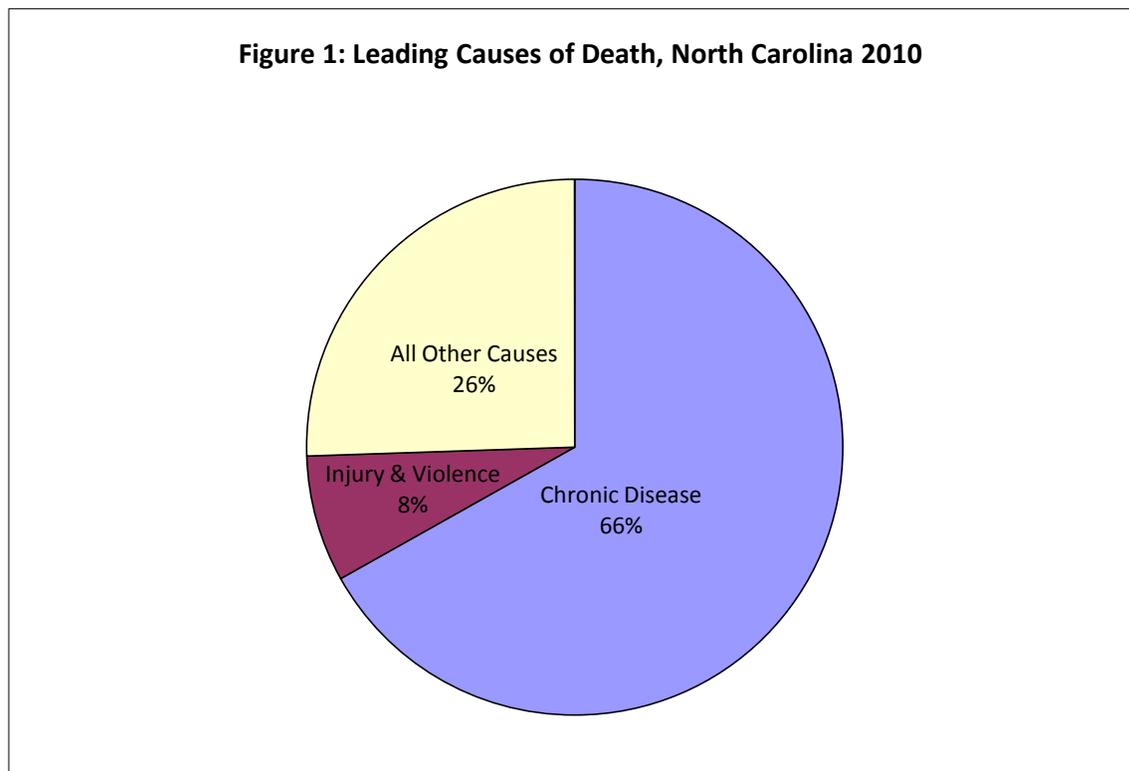
Overview

The World Health Organization (WHO) defines chronic diseases as diseases that are not communicable, develop slowly, and persist for long periods of time. According to WHO, the four main types of chronic diseases are cardiovascular diseases (heart attack, stroke), cancer, chronic respiratory diseases (chronic obstructive pulmonary disease, asthma), and diabetes.¹

In North Carolina, chronic disease and injury programs are located in the same section within the state's Division of Public Health. The Chronic Disease and Injury (CDI) Section is comprised of the following public health programs: Cancer, Heart Disease/Stroke, Diabetes, Asthma and Injury/Violence Prevention. Additionally, the CDI Section also houses programs focused on chronic disease prevention, including Physical Activity and Nutrition, Tobacco Prevention and Control, and Forensic Tests for Alcohol.² Since 2005, the State Center for Health Statistics (SCHS) has also been housed in the CDI Section. The SCHS includes the state's Vital Records office, Vital Statistics, Survey Operations (Behavioral Risk Factor Surveillance System, Child Health Assessment Monitoring System, Pregnancy Risk Assessment Monitoring System), the Central Cancer Registry, the Birth Defects Registry, and a geographic analysis unit.³ The wide array of public health, epidemiology and statistical expertise which reside in the CDI Section facilitates collaboration and enables staff to collectively gather surveillance data to address the overall burden of chronic disease and injury in North Carolina, as well as the impact of chronic disease and injury prevention and control.

Mortality Burden

Each day in North Carolina, approximately 144 residents die as a result of a chronic disease and 16 residents expire as a result of injury or violence. Chronic diseases, injury and violence were responsible for three-quarters (74.5%) of North Carolina resident deaths and resulted in over 58,000 resident deaths in 2010. [Figure 1].⁴



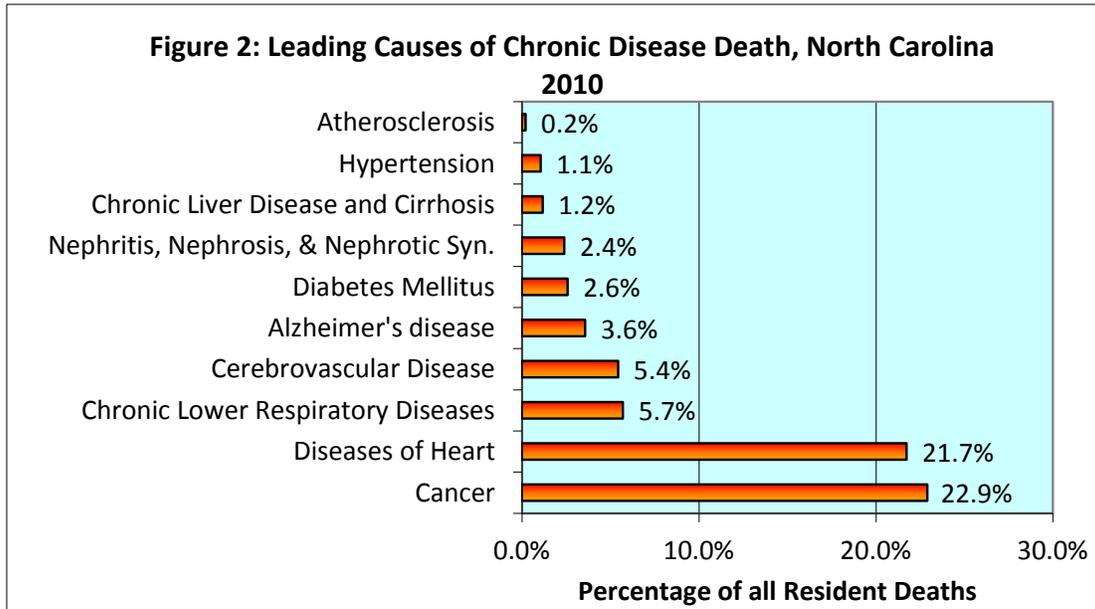
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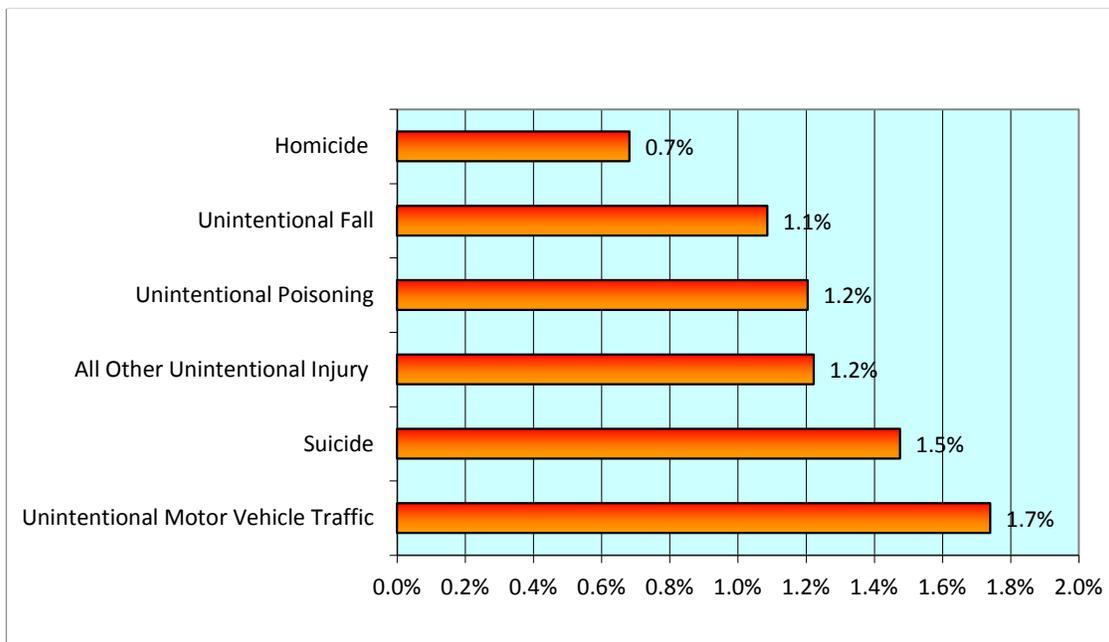
Leading Causes of Death

Cancer, heart disease, chronic lung disease, stroke and unintentional injuries (motor vehicle and other) comprised the five leading causes of death in the state in 2010. As shown in **Figure 2**, cancer and heart disease comprised the majority of chronic disease mortality in the state in 2010; ranking as the first and second causes of death overall and together accounted for nearly half (45%) of all resident deaths. Chronic lower respiratory diseases, such as asthma, emphysema and chronic bronchitis, led to 5.7% of deaths and stroke was responsible for another 5.4% of resident deaths. In 2010, cancer was the leading cause of death for both genders and all racial/ethnic groups with the exception of Native Americans.⁴



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Injuries (both unintentional and intentional) comprised approximately 8 percent of all North Carolina resident deaths in 2010 [**Figure 3**]. Within injuries, unintentional motor vehicle traffic injuries consistently rank as the leading cause of injury death in the state, representing nearly 2 percent (1.7%) of all resident deaths in 2010. Suicide was the second leading cause of injury death, representing 1.5% of all resident deaths in 2010.



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Years of Potential Life Lost

Chronic disease and injury result in premature death for many North Carolina residents. **Table 1** presents the total deaths, average years of life lost and total years of life lost for North Carolina decedents who died prior to age 75. In 2010, North Carolinians who died lost an average of 8.5 years of life due to early death and a total of 669,422 total years of life were lost. Residents dying from chronic diseases had a mean of 6.3 years prematurely lost. Among the chronic diseases, asthma had the highest average years of life lost; at approximately 19 years. Cervical cancer (17.3 years), chronic liver disease/cirrhosis (15.2 years), brain cancer (15.1 years), female breast cancer (11.2 years), and liver cancer (10.8 years) all averaged more than ten years of life lost. Overall, injury deaths resulted in the highest average years of life lost; equating to an average of just over 26 years (26.2). Among injuries, homicides – which disproportionately involve younger people – consistently have the highest average number of years of life lost per death. In 2010, the average number of years of life lost prior to age 75 was almost 40 years (39.7) among residents dying from homicide. Unintentional motor vehicle traffic (33.1 years), unintentional poisoning (32.8 years), and suicides (28.6 years) also resulted in more than 25 years of life lost on average.

Table 1: 2010 NC Resident Deaths: Total Deaths (All Ages) and Years of Life Lost Prior to Age 75

CAUSE OF DEATH	Total Deaths	Mean Years of Life Lost	Total Years of Life Lost
Total Chronic Disease Deaths	52,549	6.32	332,210
Heart Disease	17,090	5.87	100,278
Cerebrovascular Disease	4,281	4.34	18,561
Hypertension	840	5.34	4,486
Atherosclerosis	170	2.39	406
Cancer	18,013	8.24	148,455
- Trachea, bronchus, lung	5,510	7.48	41,235
- Colon, rectum, anus	1,499	8.81	13,208
- Pancreas	1,078	7.22	7,781
- Leukemia	637	8.84	5,630
- Non-Hodgkin Lymphoma	588	6.53	3,839
- Liver	537	10.84	5,822
- Brain	439	15.13	6,641
- Esophagus	436	9.90	4,317
- Female Breast	1,334	11.24	14,990
- Cervix	112	17.32	1,940
- Ovary	430	8.34	3,585
- Prostate	914	3.05	2,788
- All Other Malignant Neoplasms	4,499	8.15	36,679
Diabetes Mellitus	2,036	7.94	16,167
Alzheimer's disease	2,813	0.36	1,003
Chronic Lower Respiratory Diseases	4,490	1.26	5,635
- Asthma	102	19.15	1,953
- Emphysema	314	5.09	1,598
- Other Chronic Respiratory Diseases	4,074	3.73	15,182
Nephritis, Nephrosis, & Nephrotic Syn.	1,886	5.28	9,961
Chronic Liver Disease and Cirrhosis	930	15.23	14,160
Total Injury Deaths	5,983	26.23	156,907

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CAUSE OF DEATH	Total Deaths	Mean Years of Life Lost	Total Years of Life Lost
Unintentional Poisoning	947	32.82	31,081
Unintentional Motor Vehicle Traffic	1,368	33.08	45,247
Unintentional Fall	854	4.30	3,674
All Other Unintentional Injury	961	19.79	19,019
Suicide	1,160	28.57	33,138
Homicide	536	39.71	21,287
All Other Injury Deaths	157	22.04	3,461
<i>All other causes (neither Injury or Chronic)</i>	20,072	8.98	180,305
Total Resident Deaths (All Causes)	78,604	8.52	669,422

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Mortality Rates

Mortality rates for chronic diseases and injury vary by age group. Examining 2006-2010 North Carolina resident death rates by age; cancer, heart disease, stroke, chronic lower respiratory, and diabetes death rates all increase dramatically with increasing age [Table 2]. Mortality rates for unintentional injuries show a similar pattern to chronic diseases, with accidental injury rates increasing with each age group and highest among those ages 85 and over (346.5 per 100,000). Unadjusted mortality rates for unintentional motor vehicle deaths are also lowest for residents ages 19 and under (8.8 per 100,000) and highest among those ages 85 and over (28.6 per 100,000). In contrast, while suicide rates are also lowest among residents ages 19 and under (2.1 per 100,000), suicide rates peak among residents ages 40 through 64 (17.9 per 100,000). Homicide rates peak for residents ages 20 to 39 (12.8 per 100,000), and the lowest homicide rates occur among residents ages 65 & over (2.8 per 100,000).

Table 2. Age-Specific Mortality Rates for Selected Chronic Diseases and Injuries, North Carolina Residents 2006-2010.

	Age 00-19	Age 20-39	Age 40-64	Age 65-84	Age 85+
Selected Causes of Death:					
Cancer	2.1	11.2	180.5	923.6	1644.5
Heart Disease	1.9	10.4	122.9	748.2	3981.3
Stroke	0.4	1.8	22.1	197.4	1185.2
Chronic Lower Respiratory Diseases	0.3	0.8	22.3	264.3	653.6
Diabetes	0.0	2.0	20.8	104.9	275.3
Motor Vehicle Injuries	8.8	22.6	16.9	20.4	28.6
Suicide	2.1	14.2	17.9	15.1	15.9
Homicide	3.3	12.8	5.6	2.8	2.8
Other Unintentional Injuries	5.6	20.7	29.0	59.8	346.5

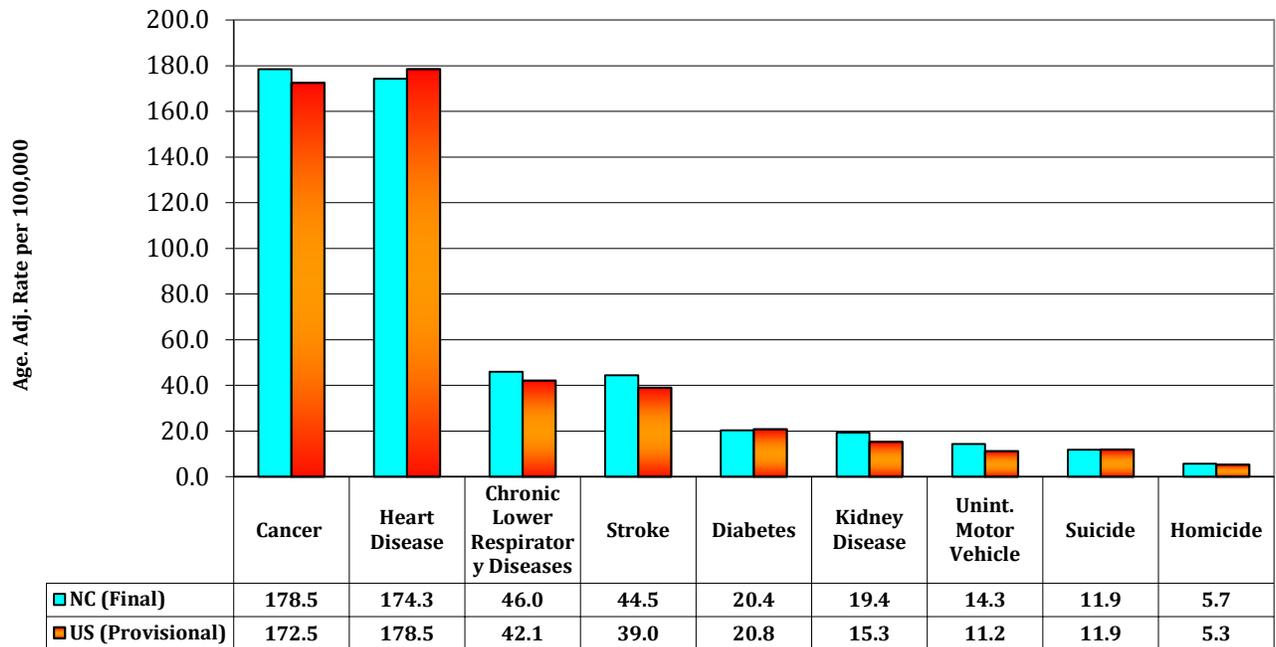
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Age adjustment of death rates helps to ensure that the influence of an aging population is eliminated and allow us to compare rates across geographic regions, genders, race and ethnicity.^{6,7} Comparing North Carolina's age-adjusted mortality rates for 2010 with U.S. rates, we can see that North Carolina has higher death rates for cancer, stroke, chronic lower respiratory diseases, kidney disease, unintentional motor vehicle traffic, and homicides [Figure 4]. North Carolina is comparable to the nation with regard to suicide and diabetes deaths. North Carolina's age-adjusted rate for heart disease is the only rate where North Carolina is lower than the national rate for 2010.^{5,8}

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Figure 4: 2010 Age-Adjusted Mortality Rates per 100,000 population for Select Chronic Diseases and Injuries, U.S. Compared with N.C.



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Source: U.S. data: http://www.cdc.gov/nchs/data/nvsr/nvsr60/nvsr60_04.pdf

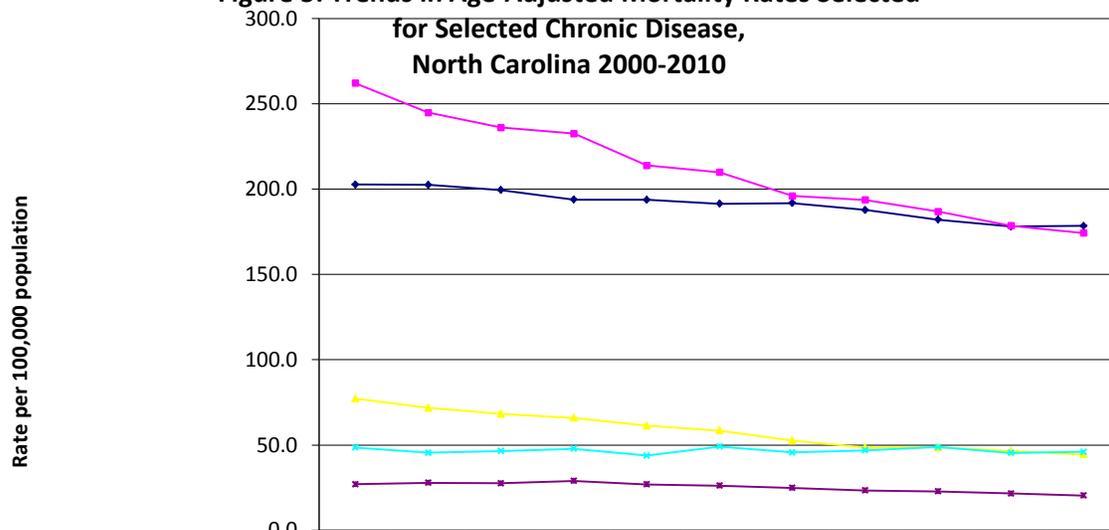
NC data: special data run from 2010 mortality & 2010 NCHS Bridged Population files

Figure 5 presents trends in North Carolina age-adjusted mortality rates for selected chronic diseases from 2000-2010. Age-adjusted mortality rates for cancer, heart disease, stroke, and diabetes all declined substantially over the last decade. Age-adjusted cancer rates declined 11.9 percent, heart disease rates were reduced by 33.5 percent, stroke mortality rates dropped by 42.4 percent, and diabetes declined by 24.4 percent. Chronic lower respiratory disease death rates declined a negligible amount (5.3%).⁵

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Figure 5: Trends in Age-Adjusted Mortality Rates Selected for Selected Chronic Disease, North Carolina 2000-2010



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cancer	202.7	202.5	199.5	193.9	193.8	191.4	191.8	187.8	182.1	178.1	178.5
Heart Disease	262.1	244.9	236.1	232.6	213.9	209.9	196.0	193.7	186.9	178.6	174.3
Stroke	77.2	71.8	68.2	65.9	61.3	58.4	52.6	48.5	48.7	46.4	44.5
Chronic Lower Respiratory Diseases	48.6	45.5	46.5	47.8	43.8	49.1	45.7	46.9	48.8	45.4	46.0
Diabetes	27.0	27.9	27.6	29.0	26.9	26.2	24.9	23.4	22.8	21.6	20.4

* Note: Calculated using 2000 U.S. population standard. Prepared by NC DHHS DPH State Center for Health Statistics May 2012.

Source: National Center for Health Statistics & NC State Center for Health Statistics.

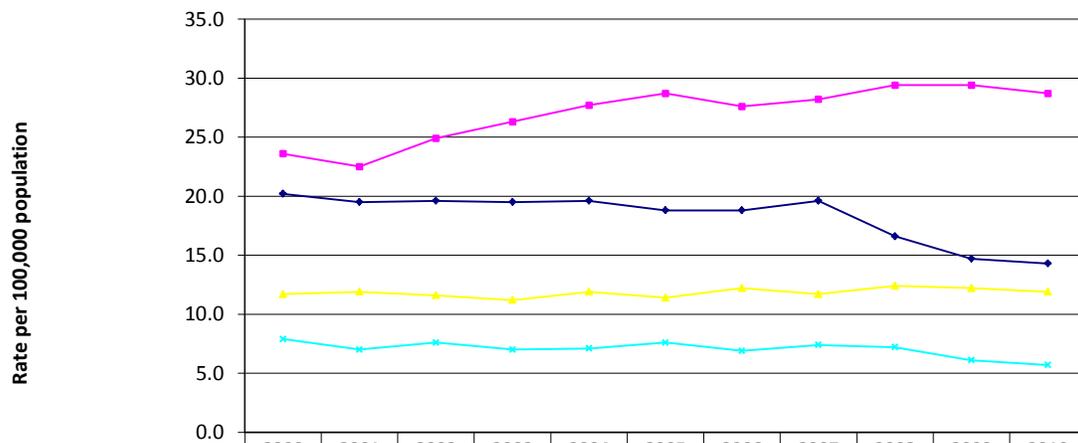
Age-adjusted rates were calculated using NCHS Bridged Postcensal Vintage 2010 Census File.

Trends in North Carolina age-adjusted mortality rates for selected injuries from 2000-2010 are presented in **Figure 6**. Age-adjusted mortality rates for unintentional motor vehicle injuries and homicides experienced significant declines over the last decade; with age-adjusted rates for both falling by almost 30 percent (29.2% for motor vehicle and 27.8% for homicide). In contrast, other unintentional injuries increased during this time period by more than 20 percent (21.6%). Suicide mortality rates remained virtually unchanged from 2000 to 2010; moving from 11.7 to 11.9 per 100,000 population.⁵

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Figure 6: Trends in Age-Adjusted Mortality Rates for Selected Injuries, North Carolina 2000-2010



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
—◆— Unintentional Motor Vehicle	20.2	19.5	19.6	19.5	19.6	18.8	18.8	19.6	16.6	14.7	14.3
—■— Other Unintentional Injuries	23.6	22.5	24.9	26.3	27.7	28.7	27.6	28.2	29.4	29.4	28.7
—▲— Suicide	11.7	11.9	11.6	11.2	11.9	11.4	12.2	11.7	12.4	12.2	11.9
—×— Homicide	7.9	7.0	7.6	7.0	7.1	7.6	6.9	7.4	7.2	6.1	5.7

* Note: Calculated using 2000 U.S. population standard. Prepared by NC DHHS DPH State Center for Health Statistics May 2012.

Source: National Center for Health Statistics & NC State Center for Health Statistics

Age-adjusted rates were calculated using NCHS Bridged Postcensal Vintage 2010 Census File.

As presented in **Table 3**, heart disease had the highest overall age-adjusted mortality rate during 2006-2010; with an age-adjusted rate of 184.9 deaths per 100,000 population. However, overall age-adjusted death rates for total cancer were nearly identical; at 183.1 deaths per 100,000 population. Chronic disease and injury mortality rates also vary by gender, race/ethnicity, and county in North Carolina. Examining age-adjusted mortality rates by gender; males have higher rates for all chronic diseases with the exception of Alzheimer's Disease. Among the chronic diseases, males have age-adjusted chronic liver disease/cirrhosis death rates (13.0 vs. 5.8) and other ischemic heart disease death rates (108.1 vs. 54.8) that are more than two times higher than females. Age-adjusted cerebrovascular (stroke) disease death rates are similar for males (48.7) and females (46.3). With regard to injuries, males have significantly higher age-adjusted rates of both intentional and unintentional injuries. Males have homicide (10.2 vs. 3.0) and suicide (19.6 vs. 5.3) rates that are three times higher than females and motor vehicle injury rates that are 2.6 times as high as females. (24.6 vs. 9.3)

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Table 3: 2006-2010 NC Resident Race/Ethnicity-Specific and Sex-Specific Age-Adjusted Death Rates per 100,000 Population

Cause of Death:	White, non-Hispanic		African American, non-Hispanic		Other Races, non-Hispanic		Hispanic		Male		Female		Overall	
	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
All Causes	294,336	797.3	79,064	984.0	5,239	555.2	4,192	275.9	189,797	985.4	193,034	691.0	382,831	819.0
Diseases of Heart	67,631	180.7	17,218	219.8	1,051	123.6	429	46.3	44,617	237.2	41,712	145.8	86,329	184.9
Acute Myocardial Infarction	14,710	39.1	3,367	43.7	254	29.7	79	8.6	10,002	52.3	8,408	29.6	18,410	39.2
Other Ischemic Heart Disease	28,856	76.8	6,727	86.1	468	55.3	179	22.2	20,501	108.1	15,729	54.8	36,230	77.3
Cerebrovascular Disease (Stroke)	16,616	44.6	4,995	65.3	285	34.5	139	14.3	8,777	48.7	13,258	46.3	22,035	47.8
Cancer	68,018	179.9	17,727	216.3	1,185	120.8	654	63.2	46,547	232.0	41,037	150.3	87,584	183.1
Colon, Rectum, and Anus	5,658	15.0	1,827	22.6	94	9.7	58	6.4	3,950	19.6	3,687	13.4	7,637	16.0
Pancreas	3,870	10.1	1,169	14.6	57	6.1	32	3.5	2,484	12.0	2,644	9.6	5,128	10.7
Trachea, Bronchus, and Lung	21,922	57.4	4,587	55.1	337	34.3	92	10.6	15,811	76.7	11,127	40.8	26,938	55.9
Breast	4,646	22.1	1,570	30.9	76	11.8	46	6.7	51	N/A	6,287	23.2	6,338	23.4
Prostate	2,898	20.4	1,454	59.4	53	18.2	28	9.5	4,433	25.5	0	N/A	4,433	25.5
Diabetes Mellitus	6,696	17.8	3,685	46.4	226	25.3	80	8.9	5,323	26.4	5,364	19.4	10,687	22.5
Chronic Lower Respiratory Diseases	19,110	50.9	2,247	29.3	167	20.3	49	7.1	10,210	55.5	11,363	41.1	21,573	46.4
Chronic Liver Disease and Cirrhosis	3,619	9.6	734	7.8	78	6.2	67	5.3	2,969	13.0	1,529	5.8	4,498	9.1
Kidney Disease	5,703	15.3	2,891	37.5	137	16.5	55	6.2	4,191	22.9	4,595	16.4	8,786	18.9
Alzheimer's disease	10,912	29.4	1,706	25.7	120	19.6	47	8.5	3,504	22.7	9,281	31.3	12,785	28.5
Unintentional Motor Vehicle Injuries	5,276	16.5	1,641	16.6	253	16.9	589	16.9	5,511	24.6	2,248	9.3	7,759	16.7
All Other Unintentional Injuries	10,846	32.0	1,843	20.9	226	18.4	295	11.3	7,873	38.4	5,337	20.2	13,210	28.6
Suicide	4,906	14.9	480	4.8	112	7.6	150	4.9	4,373	19.6	1,275	5.3	5,648	12.1
Homicide	1,055	3.4	1,537	14.8	130	8.0	319	8.5	2,330	10.2	711	3.0	3,041	6.6

Prepared by NC DHHS DPH State Center for Health Statistics May 2012.

Standard = Year 2000 U.S. Population ; Age Adjustment Method=Direct; Denominator: NCHS Bridged Population Files

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Examining North Carolina age-adjusted mortality rates by race, overall across all causes of death, non-Hispanic African Americans have rates that are approximately 1.2 times higher than non-Hispanic whites (984.0 vs. 797.3). Within chronic diseases, non-Hispanic African Americans had higher rates than non-Hispanic whites for all but chronic lower respiratory diseases, chronic liver disease and cirrhosis, and Alzheimer's disease. Rates of trachea/bronchus/lung cancer were similar for both races (57.4 vs. 55.1). During 2006-2010, non-Hispanic African Americans had age-adjusted mortality rates that were more than two times higher than non-Hispanic whites for prostate cancer, diabetes, kidney disease, and homicide. The only chronic disease or injury for which Non-Hispanic white rates were more than two times higher than non-Hispanic African American rates was suicide (14.9 vs. 4.8).

Chronic disease and injury mortality patterns also differ geographically in North Carolina. With the exception of chronic lower respiratory diseases and injuries, the eastern regions of the state and the southern Piedmont regions tend to consistently have the highest age-adjusted mortality rates.⁴ These same counties often have high concentrations of poverty and larger minority populations.

Health Care Utilization

Hospitalization

Chronic Disease is a significant risk factor for hospitalization and those with uncontrolled or unmanaged chronic diseases are most at risk for hospitalization.^{9,10} As presented in **Table 4**, cardiovascular disease (CVD) was the leading cause of hospitalization (n=162,329); with the highest discharge rate (17.0 per 1,000 population) and the highest total charges (\$5.5 billion) in North Carolina for 2010. Within cardiovascular disease, heart disease hospitalizations accounted for 67 percent of all CVD hospitalizations; representing over 100,000 hospitalizations (n=108,062) and over \$4 billion in hospital charges. Colon, rectal, and anal cancer had the highest average charge per hospitalization of any chronic disease; with \$45,022 charged per case. Musculoskeletal system diseases, arthropathies and related disorders and cancer also accrued average charges greater than \$40,000 per case. Among all of the chronic diseases, asthma had the lowest average charge per case (\$12,632) as well as the lowest average number of days stayed (3.2 days). Injuries and poisoning represented approximately 8 percent of all hospitalizations in the state and had the third highest overall charges in 2010; at over \$2.8 billion. On average, injuries and poisoning resulted in a hospital stay of approximately 5.5 days and an average hospital charge of more than \$36,000 per case.¹¹

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Table 4: 2010 North Carolina Resident Inpatient Hospital Utilization and Charges for Chronic Diseases and Injury by Principal Diagnosis
(excluding newborns and discharges from out of state hospitals)

DIAGNOSTIC CATEGORY	TOTAL CASES	DISCHARGE	AVERAGE	DAYS STAY	TOTAL	AVERAGE
		RATE	DAYS	RATE (PER	CHARGES	CHARGE
		(PER 1,000 POP)	STAY	1,000 POP)		PER CASE
CARDIOVASCULAR & CIRCULATORY DISEASES	162,329	17.02	4.62	78.6	\$5,590,738,944	\$34,447
-- Heart Disease	108,062	11.33	4.6	52.2	\$4,006,048,686	\$37,077
-- Cerebrovascular Disease	29,429	3.09	4.63	14.3	\$800,721,217	\$27,210
RESPIRATORY DISEASES	93,894	9.85	5.54	54.5	\$2,298,809,764	\$24,487
-- Pneumonia/Influenza	29,852	3.13	5.29	16.6	\$648,307,885	\$21,720
-- Chronic Obstructive Pulmonary Disease (excl. Asthma)	20,362	2.14	4.29	9.2	\$349,834,507	\$17,184
-- Asthma	10,471	1.1	3.23	3.5	\$132,224,232	\$12,632
MALIGNANT NEOPLASMS	31,226	3.27	6.75	22.1	\$1,292,508,450	\$41,401
-- Colon, Rectum, Anus	3,770	0.4	8.06	3.2	\$169,731,825	\$45,022
-- Trachea, Bronchus, Lung	4,541	0.48	6.81	3.2	\$171,878,301	\$37,859
-- Female Breast	1,498	0.16	2.86	0.4	\$38,188,217	\$25,493
-- Prostate	2,505	0.26	2.33	0.6	\$70,260,944	\$28,048
ENDOCRINE, METABOLIC & NUTRIT. DISEASES	40,208	4.22	4.12	17.4	\$842,380,304	\$20,956
-- Diabetes	18,101	1.9	4.73	9	\$378,165,678	\$20,899
DIGESTIVE SYSTEM DISEASES	95,072	9.97	4.78	47.6	\$2,326,599,949	\$24,477
-- Chronic Liver Disease/Cirrhosis	2,361	0.25	5.68	1.4	\$69,272,897	\$29,353
GENITOURINARY DISEASES	45,980	4.82	4.19	20.2	\$862,049,462	\$18,751
-- Nephritis, Nephrosis, Nephrotic Synd.	14,370	1.51	5.54	8.4	\$322,819,324	\$22,470
MUSCULOSKELETAL SYSTEM DISEASES	58,751	6.16	3.67	22.6	\$2,604,795,637	\$44,338
-- Arthropathies and Related Disorders	30,683	3.22	3.44	11.1	\$1,240,663,489	\$40,435
INJURIES & POISONING	78,641	8.25	5.5	45.4	\$2,860,695,761	\$36,386
ALL CONDITIONS	973,392	102.08	4.85	495.2	\$25,297,435,573	\$25,995

Prepared by NC DHHS State Center for Health Statistics, May 2012 based on Provisional 2010 Hospital Discharge Data

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Beginning with data year 2010, North Carolina statute required hospitals to submit self-reported race and ethnicity information in all hospital discharge records submitted to the Division of Public Health.¹² Currently, 4 percent of North Carolina's 2010 (provisional) hospital discharge records are missing racial information for the patient and a total of three hospitals have more than 30 percent of their records missing race. This is a vast improvement in race reporting from 2009 when 66 percent of North Carolina hospital discharge records were missing race. Ethnicity was not reportable prior to 2010; but in 2009, 15 percent of all hospital discharge records were missing ethnicity.¹¹ Given the high percentage of records missing ethnicity, we can only report race data from our hospital discharge records at this time.

Table 5: 2010 North Carolina Resident Inpatient Hospital Utilization Rates For Chronic Diseases and Injuries by Race (per 10,000 population).

	White	Black/A.A.	Native American	Other Non-White
Selected Primary Diagnosis Categories:	Rate	Rate	Rate	Rate
Cardiovascular & Circulatory Disease	159.9	183.9	156.5	126.8
Chronic Obstructive Pulmonary Disease (excl.Asthma)	22.6	15.0	39.0	7.9
Asthma	7.0	20.0	18.3	24.3
Cancer	32.3	31.3	19.5	36.4
Diabetes	12.7	35.1	21.2	23.4
Chronic Liver Disease/Cirrhosis	2.5	1.8	2.2	3.8
Nephritis, Nephrosis, Nephrotic Synd.	12.5	21.7	13.3	13.5
Arthropathies and Related Disorders	34.1	23.3	26.9	18.0
Injuries & Poisoning	81.9	71.9	70.2	107.2
ALL CONDITIONS	926.5	1073.5	1028.7	1821.8

Prepared by NC DHHS State Center for Health Statistics, May 2012 based on Provisional 2010 Hospital Discharge Data

Examining North Carolina's inpatient hospitalization rates by race, we can see that Black/African American hospitalization rates were higher than whites overall, as well as for asthma, diabetes, kidney disease, and cardiovascular disease. In fact, Black/African American residents had the highest rates of any race for these chronic diseases [Table 5]. North Carolina's Native American population had the highest hospitalization rates for chronic obstructive pulmonary disease. Hospitalization rates for cancer, chronic liver disease/cirrhosis, injuries and poisoning were highest among the state's other minority races. The only diagnostic category where hospitalization rates were higher for non-Hispanic whites compared with all other racial groups were arthropathies and related disorders (e.g. arthritis).¹

Emergency Department Visits

In 2009, injury was the leading cause of emergency department (ED) visits in North Carolina. There were more than one million emergency department (ED) visits related to injuries in 2009 (N=1,066,124); comprising approximately one out of every four (24%) ED visits in the state. The majority of the injury-related ED visits were for unintentional injuries (72%). Among unintentional injuries, falls were the most frequent; accounting for more than 200,000 ED visits and responsible for 5.3 percent of all ED visits in the state. Motor vehicle and traffic injuries were also common; resulting in 120,157 ED visits in 2009; or approximately 2.7% of all ED visits. Intentional injuries, such as assault and self-inflicted injuries, accounted for approximately 5 percent of all injury-related ED visits.

Chest pain and ischemic heart disease were the leading cause of chronic-disease related emergency department visits in the state; responsible for more than one in ten ED visits in 2009 (11.8%) Lower respiratory disorders were the second most frequent chronic disease associated with an ED visit; comprising over 480,000 hospitalizations and 11 percent of all ED visits in 2009. Among lower respiratory tract disorders, asthma and chronic obstructive pulmonary disease represented approximately 4 percent of all ED visits respectively; with each responsible for more than 175,000 ED visits in 2009. Diabetes was the third most frequent cause of chronic disease-related emergency room visits; accounting for almost 8 percent of all ED visits.¹³

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Table 6: 2009 North Carolina Emergency Department Visits by Diagnostic Group*

	Total Number of	Percentage of all	Rate per 1,000
	ED Visits	ED Visits	population
Total Emergency Department Visits	4,382,051	100.0%	467.1
Chest Pain/Ischemic Heart Disease	516,972	11.8%	55.1
Heart Failure	110,356	2.5%	11.8
Strokes & TIA	37,668	0.9%	4.0
Cardiac Arrest	7,035	0.2%	0.7
Cancer	82,215	1.9%	8.8
Diabetes	344,690	7.9%	36.7
Lower Respiratory Tract Disorders	481,177	11.0%	51.3
- Asthma	189,716	4.3%	20.2
- Chronic Obstructive Pulmonary Disease	178,784	4.1%	19.1
Total Injury	1,066,124	24.3%	113.6
Unintentional Injury	770,084	17.6%	82.1
- Falls	232,572	5.3%	24.8
- Motor vehicle traffic	120,157	2.7%	12.8
- Struck against or struck	85,510	2.0%	9.1
- Overexertion and strenuous movements	74,104	1.7%	7.9
- Cutting or piercing instruments or objects	46,565	1.1%	5.0
- Natural and environmental factors	41,708	1.0%	4.4
- Poisoning	13,210	0.3%	1.4
- Fire/Flames	10,527	0.2%	1.1
- Other unintentional	145,731	3.3%	15.5
Intentional Injury	50,135	1.1%	5.3
- Assault	37,663	0.9%	4.0
- Self-inflicted	11,605	0.3%	1.2
- Other Intentional	867	0.0%	0.1

* Includes any of 11 diagnoses (first-listed or comorbid diagnoses).

Prepared by NC DHHS DPH State Center for Health Statistics May 2012

Source: NC DETECT 2009 Annual Report:

http://www.ncdetect.org/FINAL_2009NCDETECT_ANNUALREPORT_BLACKANDWHITE.pdf

Incidence & Prevalence

Cancer

The North Carolina Central Cancer Registry projects that more than 55,000 North Carolinians (N=55,444) will receive a cancer diagnosis in 2012.¹⁴ Approximately four in ten North Carolinians will develop cancer during their lifetime.¹⁵

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Table 7: 2005-2009 North Carolina Age-adjusted Cancer Incidence Rates by Race and Ethnicity per 100,000 Population

SITE	Non-Hispanic Whites		Non-Hispanic African Americans		Non-Hispanic American Indians		Non-Hispanic Other Races		Hispanics		All Races and Ethnicities	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Oral Cavity	4,438	12.0	1,070	12.0	35	6.8	68	10.6	85	7.4	5,696	11.8
Esophagus	1,776	4.7	507	6.0	9	1.9	14	2.7	17	2.1	2,323	4.8
Stomach	1,750	4.8	845	10.7	28	6.9	73	14.7	97	9.6	2,793	6.0
Colon & Rectum	16,220	44.0	4,527	55.1	122	25.6	233	43.9	281	27.4	21,383	45.5
Liver	1,941	5.2	609	6.7	30	6.5	100	18.4	74	7.2	2,754	5.7
Gallbladder	327	0.9	114	1.5	6	1.4	6	1.3	13	1.7	466	1.0
Pancreas	4,060	10.9	1,246	15.9	33	7.7	35	6.3	67	7.2	5,441	11.6
Larynx	1,597	4.2	566	6.6	22	4.9	10	2.0	21	1.9	2,216	4.6
Lung & Bronchus	29,121	78.1	5,916	72.2	237	52.3	223	46.3	251	30.2	35,748	75.9
Bone	283	0.9	69	0.7	*	*	6	0.8	27	0.7	388	0.9
Soft Tissue	1,142	3.3	316	3.6	8	1.7	20	2.9	67	3.2	1,553	3.4
Melanoma (Skin)	9,758	27.9	80	1.0	13	2.8	86	15.6	67	5.1	10,004	21.5
Female Breast	30,701	156.7	7,572	152.0	247	93.6	531	149.6	728	119.0	39,779	154.5
Cervix Uteri	1,150	6.8	484	9.8	18	7.2	39	10.3	120	13.4	1,811	7.5
Corpus Uteri	4,536	22.5	1,111	23.0	35	13.3	79	23.3	103	16.2	5,864	22.3
Ovary	2,582	13.1	484	9.9	17	6.6	41	11.1	72	12.4	3,196	12.4
Prostate	24,463	142.0	8,562	249.4	312	152.7	417	192.2	366	89.9	34,120	158.3
Testes	917	6.3	93	2.2	7	2.5	9	1.5	90	4.0	1,116	5.1
Bladder	8,563	23.1	890	11.6	31	8.8	88	18.9	76	10.7	9,648	20.8
Kidney	6,081	16.6	1,607	18.6	68	14.4	57	9.5	164	13.3	7,977	16.8
Endocrine	4,329	13.0	835	9.2	35	6.5	158	19.1	221	10.1	5,578	12.0
Multiple Myeloma	1,985	5.4	986	12.2	15	3.6	34	6.8	53	5.6	3,073	6.6
Leukemia	4,496	12.7	792	9.5	35	7.5	97	16.2	223	10.1	5,643	12.2
Brain & Other CNS (includes benign brain)	6,249	18.0	1,255	14.5	56	11.5	121	18.4	226	12.0	7,907	17.0
Brain & Other CNS (excludes benign brain)	2,541	7.5	398	4.4	26	5.4	44	5.8	97	4.4	3,106	6.7
Hodgkin Disease	863	2.7	261	2.7	13	2.3	24	2.4	47	2.0	1,208	2.7
Non-Hodgkin Lymphoma	7,173	19.8	1,241	14.5	50	10.3	125	22.1	180	15.5	8,769	18.8
Other Cancer	11,483	31.4	2,605	31.9	115	27.5	185	37.1	260	24.5	14,648	31.5
All Cancers	184,276	502.7	43,786	521.5	1,570	339.4	2,802	493.6	3,867	320.8	236,301	500.1

Produced by the NC Central Cancer Registry, 01/2012.

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TABLE 7 NOTES: Numbers are subject to change as files are updated. Counts less than five are suppressed. Rates based on counts less than 16 are unstable. Use with caution. Cases may not sum to totals due to unknown or other values. Cancers of the urinary bladder and female breast include in situ cases.

Hispanic ethnicity is independent of race. Hispanic ethnicity is determined by self-report and the National Hispanic Identification Algorithm available online at www.naacr.org/LinkClick.aspx?fileticket=iTvgbzLrx8l%3d&tabid=118&mid=458.

Approximately 17 percent of patients of American Indian race are reported as a different race. Therefore, cancer incidence for American Indians is assumed to be underestimated.

(Yankaskas BC, Knight K, Fleg A, Rao, C. Misclassification of American Indian Race in State Cancer Data among Non-federally Recognized Indians in North Carolina.

Journal of Registry Management. 2009;36(1):7-11.)

Rates are calculated using the bridged-race population estimates obtained from the National Center for Health Statistics available online at www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm#vintage2010.

North Carolina's 2005-2009 age-adjusted cancer incidence rate was 500.1 per 100,000 residents; which is 7.5 percent higher than the national rate of 465.2.^{16,17} North Carolina males consistently have higher age-adjusted cancer incidence rates than females. In 2009, males had an age-adjusted cancer incidence rate of 566.0 per 100,000 population compared with a rate of 451.4 for female residents. The most common cancer diagnosis for males was prostate cancer (27% of all male cancers), followed by lung and bronchus cancer (17%). The most common diagnosis of cancer among women were breast cancer (35%) and lung/bronchus cancer (13%). North Carolina has significant disparities in cancer incidence by race and ethnicity; with non-Hispanic African Americans having the highest age-adjusted cancer incidence rate per 100,000 population (521.5) and Hispanics experiencing the lowest rate (320.8) from 2005-2009.¹⁸ [Table 7]

According to the 2009 North Carolina Behavioral Risk Factor Surveillance System (NC BRFSS), 10.3 percent of North Carolina adults reported that they had been diagnosed with cancer and 8.5 percent indicated that they were currently receiving treatment for cancer. Among adult respondents indicating that they had been diagnosed with cancer, skin cancer was the most common (36.7%), followed by breast (17.5%), and other types of cancer (23.7%). Almost 15 percent (14.9%) of respondents reported that they had been diagnosed with more than one type of cancer.¹⁹

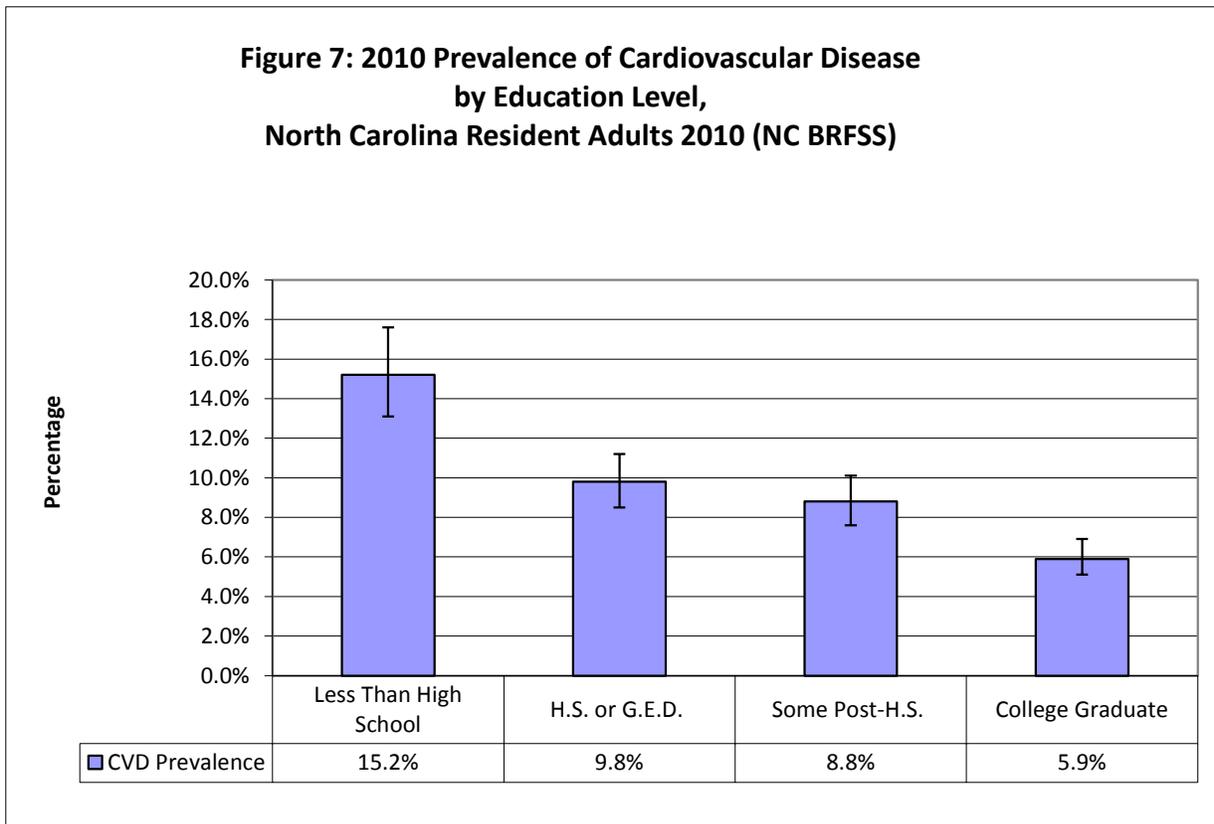
Using data from the NC BRFSS, a 2010 report found that the prevalence of chronic disease was higher among adult cancer survivors compared to adults without cancer. After controlling for age, cancer survivors had a significantly greater relative risk of having arthritis, kidney disease, disability, chronic obstructive pulmonary disease (COPD), and asthma. Compared to adults without cancer, cancer survivors had a 13 percent higher probability of having arthritis; a 54 percent higher probability of kidney disease; a 12 percent higher probability of disability; a 30 percent higher probability of COPD; and a 48 percent higher probability of asthma.²⁰

Cardiovascular Disease (CVD)

According to the NC BRFSS survey, almost one in ten North Carolina adults (9.0%) reported a history of cardiovascular disease (heart attack, coronary heart disease or stroke) in 2010. Approximately 3 percent of adults in the state reported a history of stroke (3.1%), 4.5 percent reported a history of heart attack, and 4.6 percent reported a history of angina or coronary heart disease. North Carolina's cardiovascular disease prevalence rate places it among the quartile of states with the highest CVD rates in the nation and our CVD remains statistically significantly higher than the national CVD rate of 7.9 percent in 2010. Despite significant reductions in CVD mortality from 2001 to 2010, North Carolina's CVD prevalence rate remained virtually unchanged during this time period.^{19,21}

Examining North Carolina adult CVD prevalence rates by gender, we can see that North Carolina males (9.6%) slightly higher rate of CVD than females (8.3%); although this difference was not statistically significant. Reported rates of CVD did not differ significantly between whites (9.5%) and Blacks (9.2%) in the state. CVD rates generally increase with age; with less than three percent of adults ages 18 to 44 reporting a history of CVD, compared with almost one in three adults ages 75 and over. Education is inversely related to CVD prevalence in North Carolina; as education levels increase, reported prevalence of CVD decreases. As shown in **Figure 7**, adults with less than a high school education were twice as likely to report having a history of CVD (15.2%) in 2010, compared with college graduates (5.9%). Examining risk conditions related to CVD, we can see that 2010 CVD rates were significantly higher for North Carolina adults without health insurance (10.1%), obese adults (10.6%), adults with asthma (16.4%), and adults with diabetes (26.9%).¹⁹

Figure 7: 2010 Prevalence of Cardiovascular Disease by Education Level, North Carolina Resident Adults 2010 (NC BRFSS)



Prepared by NC DHHS DPH State Center for Health Statistics May 2012

COPD & Asthma

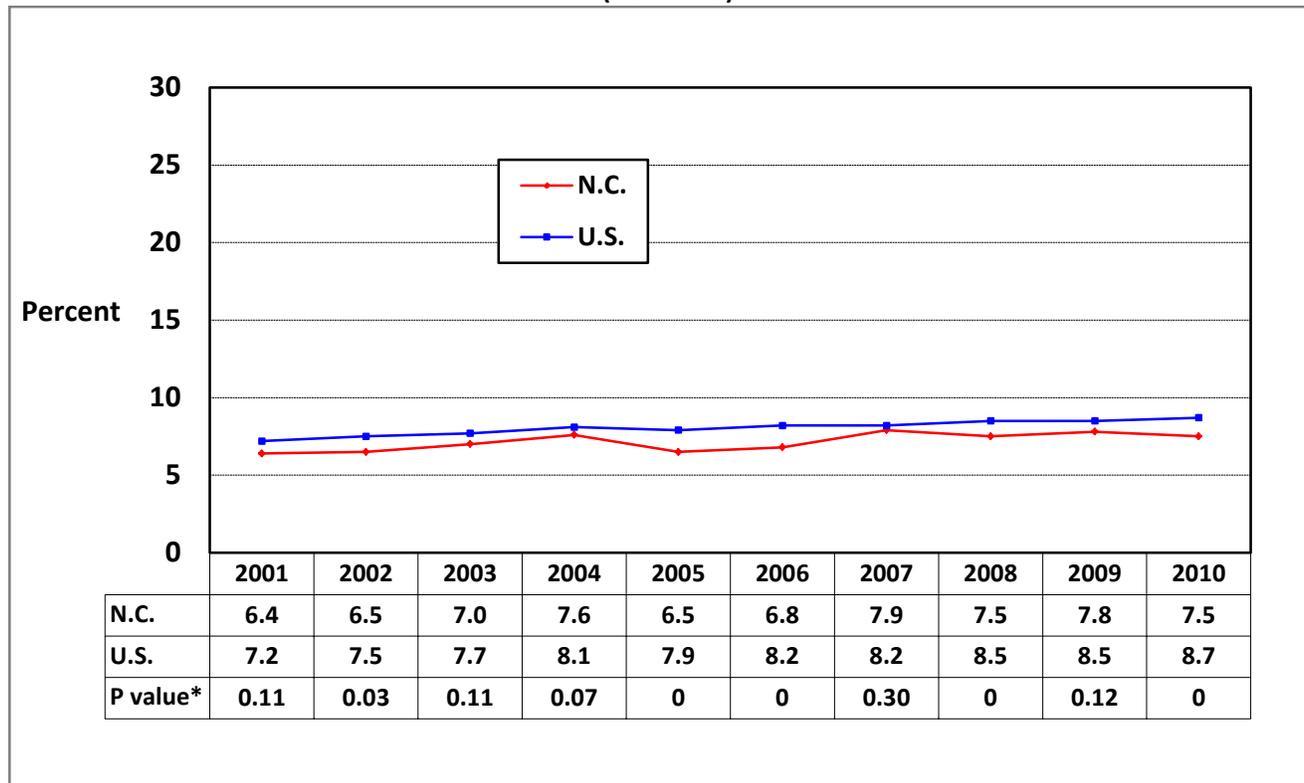
In 2009, nearly 6 percent (5.6%) of North Carolina adults reported that a health professional had diagnosed them with chronic obstructive pulmonary disease (COPD), emphysema, or chronic bronchitis. COPD rates were highest among those over the age of 65 (9.8%), adults having less than a high school education (9.7%), and those with annual household incomes of less than \$15,000 (11.5%). Among North Carolina adults reporting COPD, the majority reported that shortness of breath affected the quality of their life (71.2%).¹⁹

In 2010, over 10 percent of North Carolina adults (12.6%) reported that they had ever been diagnosed with asthma and almost 8 percent (7.5%) reported that they currently had asthma. As shown in **Figure 8**, from 2001-2010, the state’s age-adjusted rate of current asthma increased slightly from 6.4 percent in 2001 to 7.5 percent in 2010.¹⁹ North Carolina’s rates of current asthma remained consistently lower than U.S. rates from 2001-2010 and our 2010 rate places us in the quartile of states with the lowest asthma rates in the nation.²¹

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Figure 8: 2001-2010 Age-Adjusted Adult Asthma Prevalence, North Carolina and United States Adults (NC BRFSS)



*P values based on t-test for difference in age-adjusted asthma rates by year between NC and US (excluding NC).

Rates of adult asthma were statistically significantly higher among North Carolina males than females in 2010; with 5.3% of males reporting current asthma compared with 9.6% of females. Examining racial differences, African Americans were more likely to report current asthma (10.0%), compared to non-Hispanic Whites (7.2%) in 2010. By education, North Carolina adults with less than a high school education were more likely to report asthma (11.5%) than college graduates (6.3%). Compared to the 2001 rates of current asthma, there was a slight increase in the 2010 rates for most demographic groups in North Carolina. However, the increase in the asthma rate was only statistically significant for those with less than a high school education and those with a post-high school education. Examining risk factors and conditions associated with asthma, asthma rates were higher among adults with a history of CVD (13.6%), those with diabetes (12.0%), and adults reporting a disability (13.9%).¹⁹

According to the 2010 Child Health Assessment Monitoring Program (CHAMP) survey, one in ten (10.3%) North Carolina parents report that their child currently has asthma. Reported childhood asthma rates were not statistically significantly different by gender. Childhood asthma rates were higher among African American/Black children (17.4%) than white children (7.4%). By age group, children under age 5 were least likely to have current asthma (5.4%) and children ages 11 to 13 were most likely (19.5%). Asthma rates were significantly higher among children with special health care needs (29.3%), compared with children who did not have special health care needs (5.3%).²² According to the North Carolina Annual School Health Services Report, in 2010-11 asthma was the most common chronic health condition reported among K-12 public school students. In total, school nurses reported that more than 100,000 North Carolina public school children had asthma (N=101,599); this represents approximately 7.2% of all students enrolled in public schools in the state.²³

Diabetes

With a greater prevalence of obesity and an increasing elderly population, diabetes rates are rising in North Carolina. According to the NC BRFSS survey, the prevalence of diagnosed diabetes in North Carolina increased from 6.4 percent of the adult population in 1998 to 9.8 percent in 2010 - an increase of 53 percent. Further, an additional 7 percent of 2010

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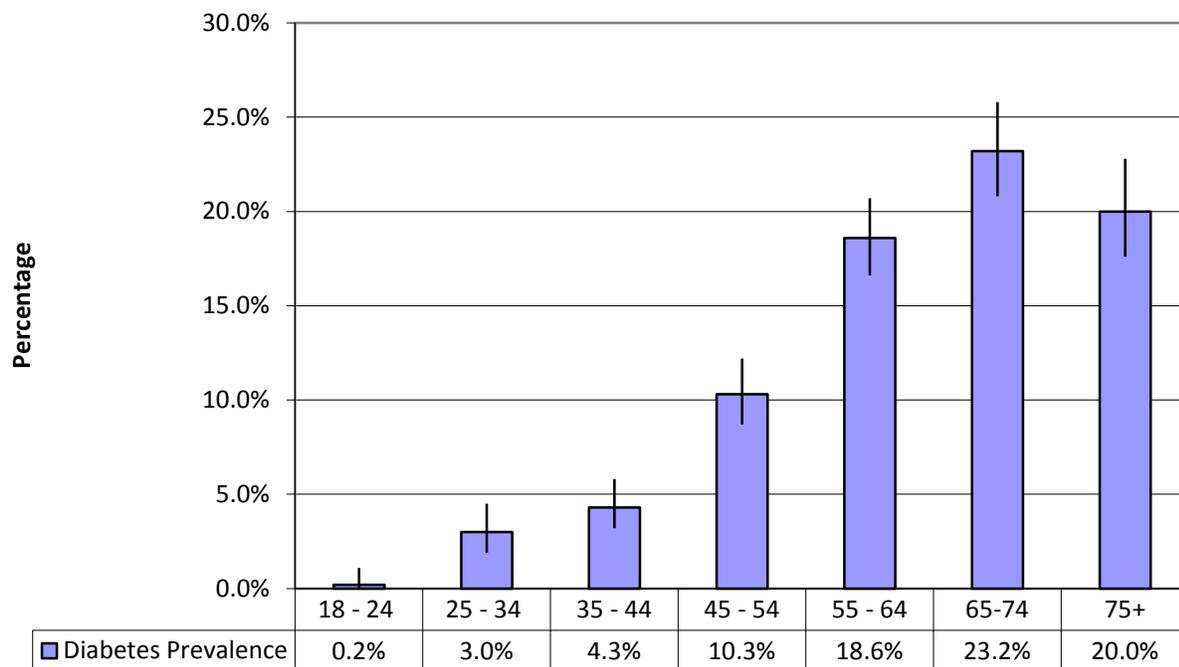
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respondents (7.1%) indicated that they had been diagnosed with borderline or pre-diabetes.¹⁹ The actual prevalence of diabetes may be twice as high given that it is estimated that there is one undiagnosed case of diabetes for every 2.7 cases that are diagnosed.²⁴ In 2010, 40.3 percent of North Carolina adults responding to the NC BRFSS survey indicated that they had not had a blood test for diabetes within the last three years.¹⁹

North Carolina's 2010 diabetes rate of 9.8 was higher than the U.S. average rate (8.7%) and has been consistently higher than the U.S. rate since 2004. North Carolina, along with many other Southern states, is in the quartile of states with the highest diabetes rate in the nation.²¹

Examining North Carolina 2010 diabetes prevalence rates by gender, we can see that male (10.0%) and female (9.5%) residents were nearly equally likely to report having diabetes. With regard to racial disparities, North Carolina's African Americans had the highest rates of diabetes; with more than one in ten African American adults (14.6%) reported having diabetes; compared with 9.0 percent of white adults. Diabetes rates increase precipitously with age; and by age 65 more than 20 percent of adults reported having diabetes in 2010 [Figure 9]. Adults with lower education levels and lower incomes were more likely to report having diabetes. In 2010, 18 percent of North Carolina adults without a high school diploma reported having diabetes, compared with approximately 6 percent of college graduates (5.9%). Household income is also inversely related to diabetes prevalence. North Carolina adults reporting household incomes of less than \$15,000 per year reported the highest rates of diabetes (18.5%); while diabetes rates were lowest among adults in households making \$75,000 or more annually (5.1%). Looking at risk factors and conditions associated with diabetes; diabetes rates were significantly higher for adults without health insurance (10.6%), obese adults (19.1%), adults with a history of CVD (29.0%), adults with asthma (15.6%), and adults reporting disability (18.8%).¹⁹

Figure 9: 2010 Prevalence of Diabetes by Age Group, North Carolina Resident Adults 2010 (NC BRFSS)



Prepared by NC DHHS DPH State Center for Health Statistics May 2012

Diabetes is projected to become increasingly common among North Carolina children in the future due to high rates of overweight and physical inactivity. The Centers for Disease Control and Prevention predicts that one in three children will develop diabetes in their lifetime.²⁵ According to the North Carolina Annual School Health Services Report, school nurses

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reported that a total of 4,854 public school students had diabetes during school year 2010-11. This represents approximately 0.34% of all students enrolled in public schools in the state. According to the report, 1,368 public school students had Type II diabetes; with just over half of these cases occurring among high school students (52%). In 2009, North Carolina's General Assembly enacted additional requirements to the "Care for School Children with Diabetes Act". This law helps ensure that diabetic students receive the care they need during the school day and includes additional requirements to assess school system compliance with the law.²⁶ In school year 2010–2011, 3,764 diabetic students monitored their blood glucose, 2,259 students received insulin injections, and 1,712 managed insulin pumps in North Carolina public schools. As a result of the "Care of Students with Diabetes Act", the majority of North Carolina's diabetic students (86%) enrolled in public schools had an "Individual Health Plan" completed by a school nurse and 99 percent of all schools had two or more staff members intensively trained in diabetes care.²³

Injury

The true prevalence of injury is not known, as some individuals that are injured may never seek medical care. The 2009 NC BRFSS survey asked North Carolina adults if they have ever been treated in a private doctor's office or urgent care clinic for injury. Almost one in ten (9.7%) North Carolina adults reported that they had an injury that resulted in seeking medical treatment during the past 12 months and another 40 percent reported that they had such an injury more than 12 months ago (40.4%). Individuals with annual household incomes of more than \$75,000 were more likely to report an injury requiring medical treatment (11.7%) than those with incomes less than \$15,000 (4.3%). Disabled adults were also more likely to report an injury (13.0%) compared with adults without a disability (8.4%). With regard to more serious injuries, almost 5 percent of NC adults (4.7%) reported that they experienced a traumatic brain injury (TBI). Among these, nearly four in ten resulted from a motor vehicle/motor cycle crash (39.1%), 9.3 percent were sports-related, and 7.5 percent resulted from falls.

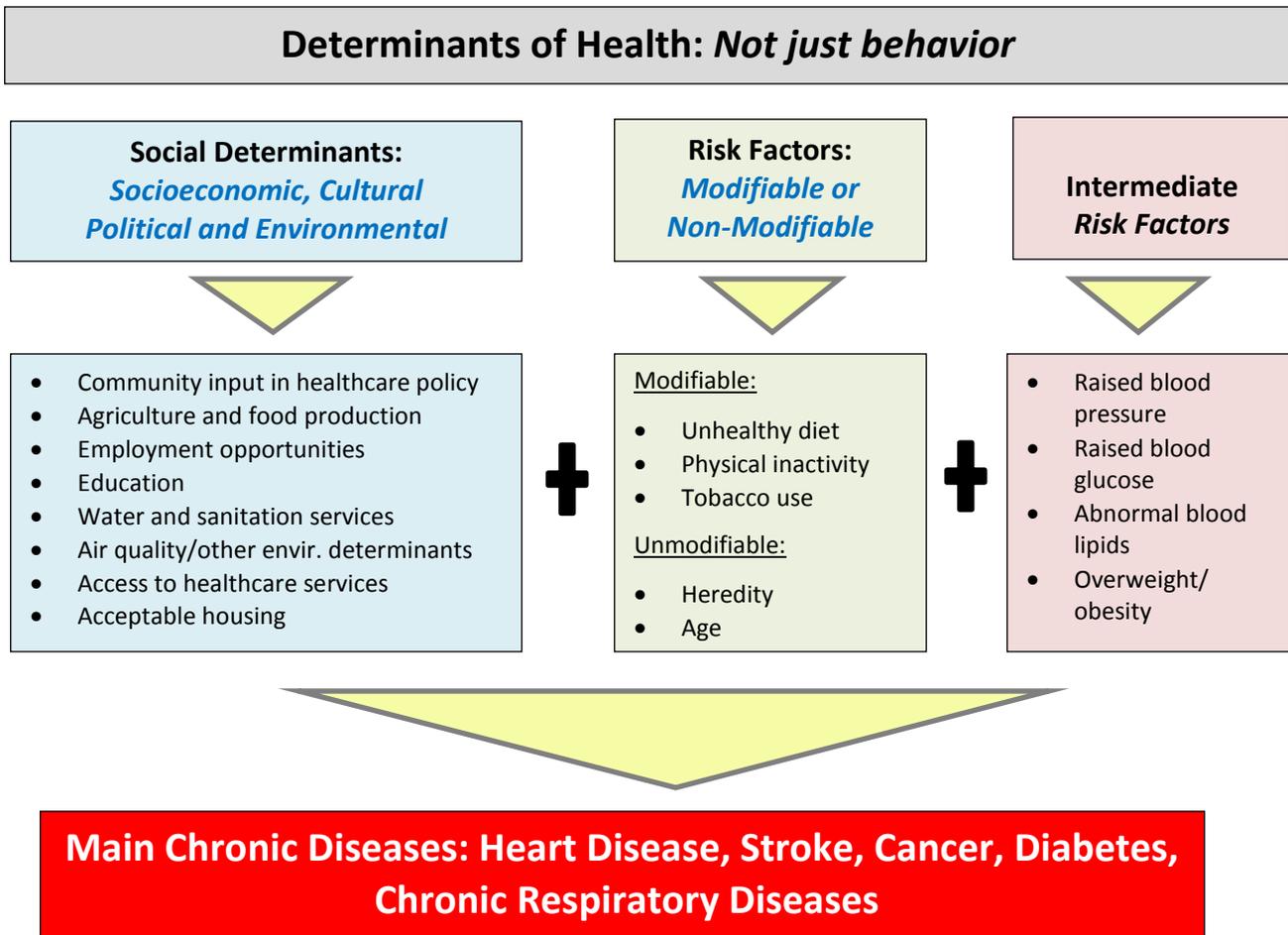
The 2010 NC CHAMP survey found that approximately one in ten (10.7%) North Carolina children ages 0 to 17 had an injury in the past year that prohibited them from their usual activities for a day or more. Further, 16.2% of children had an injury that necessitated medical attention. Children in grades six through twelve were more likely to have injuries requiring medical attention (approximately 22%) compared with elementary school children (12.8%) and children not enrolled in school (12.4%).²² According to the North Carolina Annual School Health Services Report, school nurses reported a total of 23,022 injuries during school year 2010-11. The most common school injuries were sprains or strains (25%), head injuries (13%), fractures (12%) and lacerations (10%).²³

Risk Factors for Chronic Disease and Premature Death

The presence of certain risks factors may predispose individuals to chronic disease. Known risk factors, such as unhealthy diet, physical activity and tobacco use, are modifiable; meaning that an individual can control them by altering their behavior. Other risk factors, such as heredity, age, or gender) are fixed but may be mediated by reducing risk behaviors. Intermediate risk factors for chronic disease, which may be regulated by individual behavior, include factors such as blood pressure, glucose levels, blood lipids, and overweight/obesity.²⁷ Heredity, modifiable and intermediate risk factors all play a role in the development and acceleration of chronic disease. For the remainder of this report, we will examine some of the modifiable risk factors risk factors for chronic disease among North Carolina residents.

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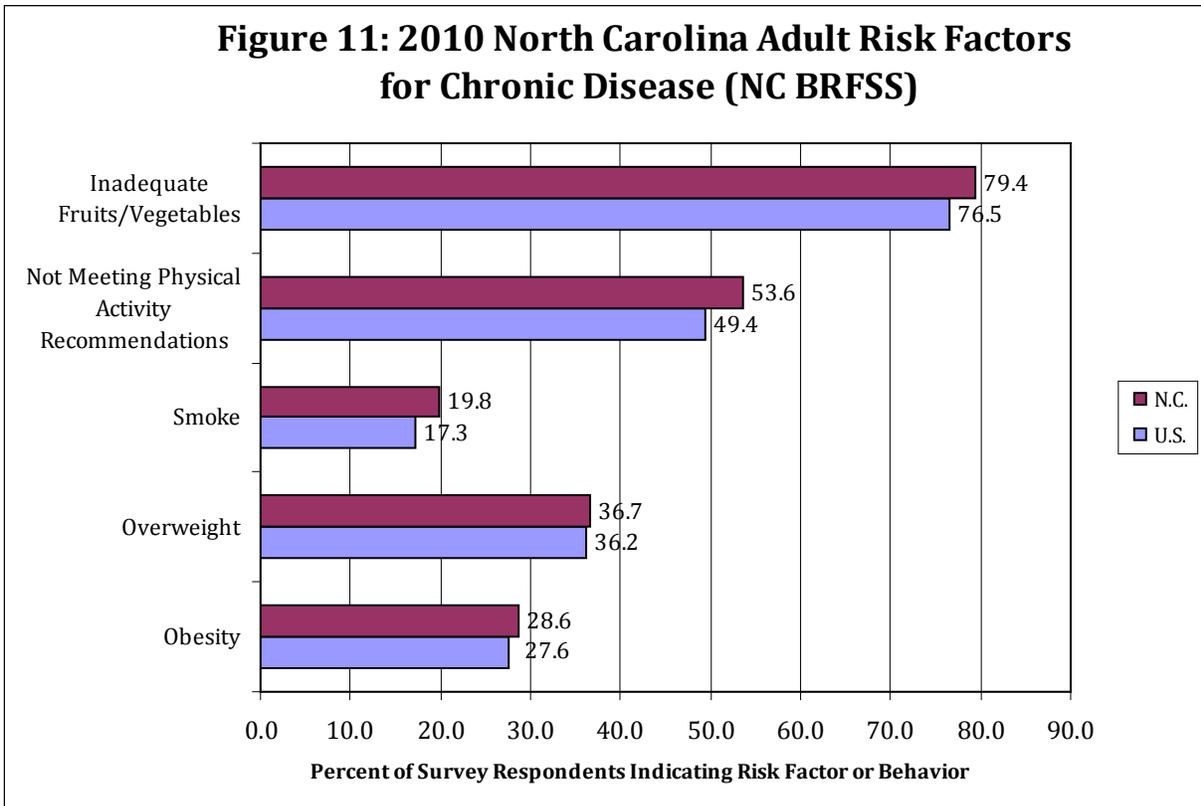


Modifiable Risk Factors

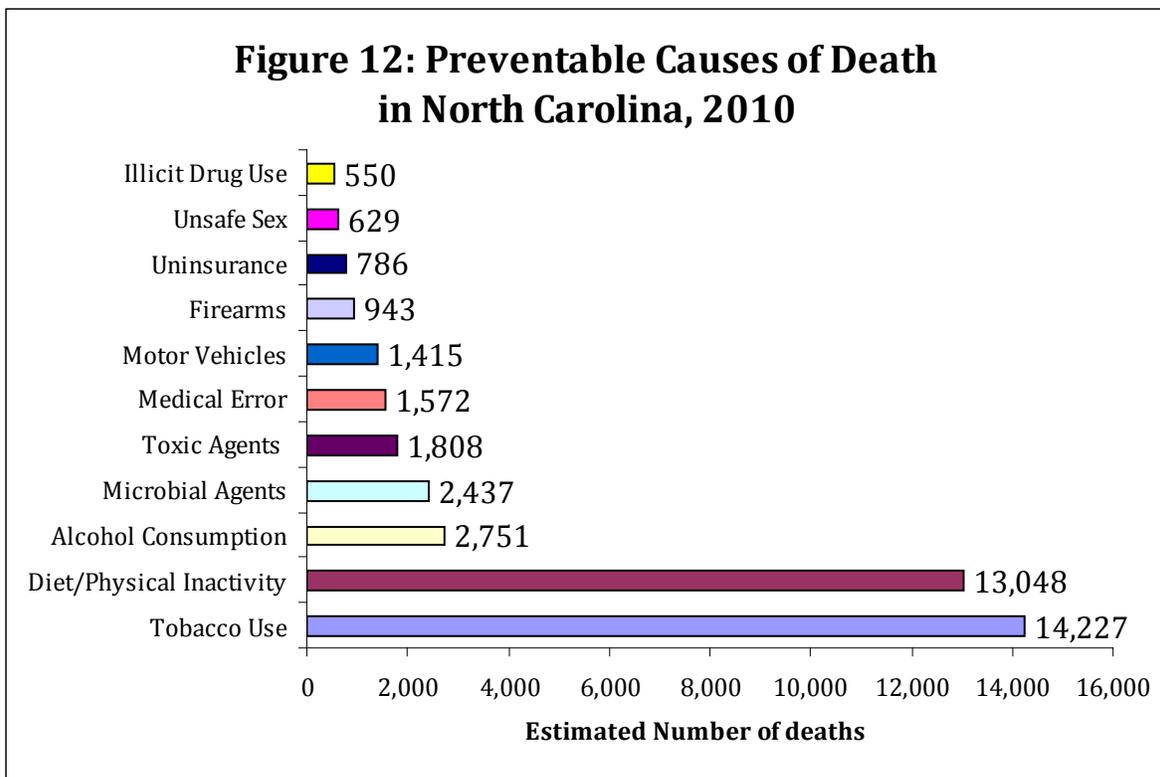
It is estimated that approximately half of all U.S. deaths are preventable. Many of the leading causes of preventable deaths in North Carolina involve risky behaviors or lifestyle choices. As shown below in **Figure 11**, North Carolina adults are somewhat more likely to smoke, have sedentary lifestyles, and be obese, compared with all U.S. adults. Among the leading causes of preventable death are tobacco use, unhealthy diet and/or physical inactivity, alcohol misuse, firearms, sexual behavior, motor vehicles, and illicit drug use. Using methods outlined by prior research, **Figure 12** presents the estimated number of North Carolina deaths due to preventable causes in 2010. Based on these methods, it is estimated that just over half (51.1%) of North Carolina's 78,604 resident deaths in 2010 were due to preventable causes.^{5,28,29} The annual economic costs associated with unhealthy lifestyles are estimated at \$57.4 billion in North Carolina, with \$11.9 billion attributable to lack of physical activity, \$15.5 billion due to excess weight, \$3.1 billion associated with inadequate fruit and vegetable consumption, and \$3.7 billion related to adult-onset (Type II) diabetes.³⁰

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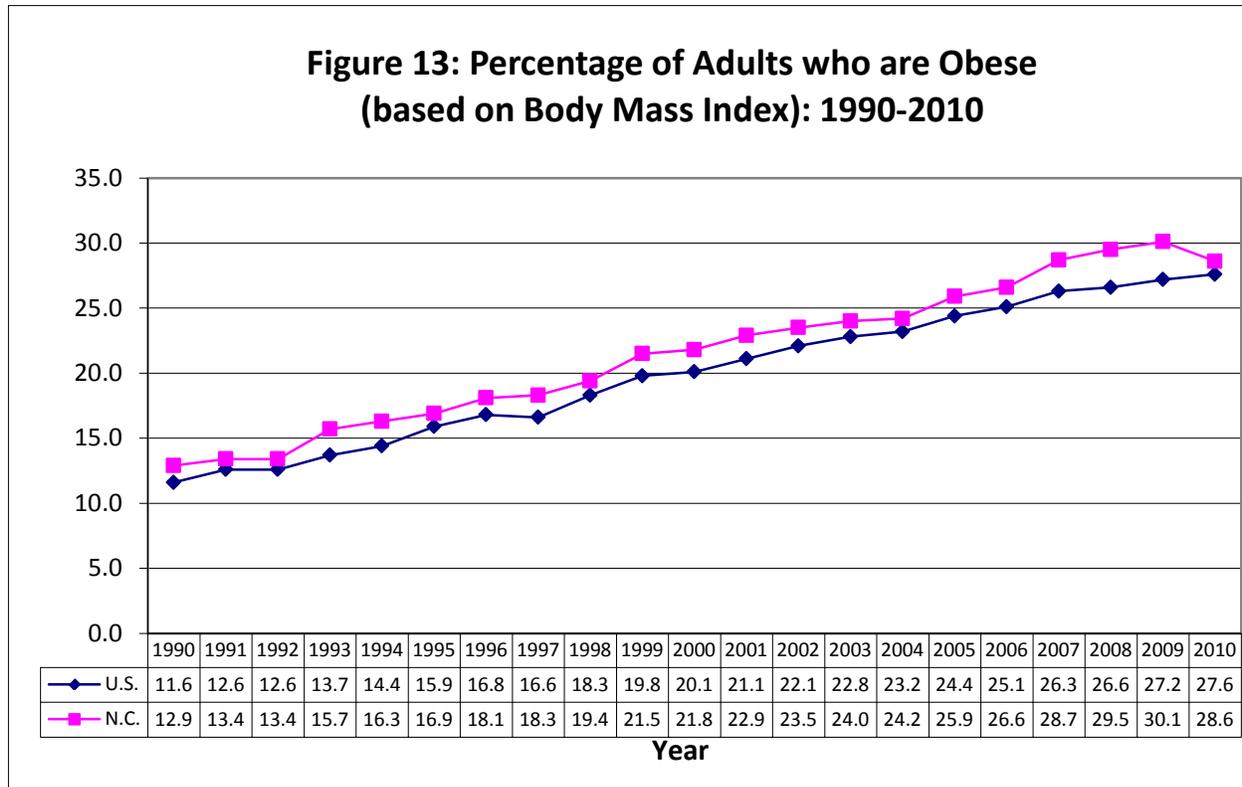
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Overweight/Obesity

Overweight and obese individuals are at increased risk for a host of physical ailments including hypertension, Type II diabetes, coronary heart disease, stroke, osteoarthritis, respiratory problems, and some types of cancer.³¹ The percentage of North Carolina adults who are obese has more than doubled over the last two decades; from approximately 13 percent of adults in 1990 to 28.6 percent of the population in 2010. As shown in **Figure 13**, this increase in obesity mirrors national trends and North Carolina rates are comparable to national averages. Additionally, another 36.7% of North Carolina adults were categorized as overweight in 2010. In all, more than six in ten North Carolina adults (65.3%) were overweight or obese based on their body mass index (calculated from reported height and weight) in 2010.¹⁹



Prepared by NC DHHS DPH State Center for Health Statistics May 2012

North Carolina's obesity rates are similar by gender; with approximately 28 percent of both males and females being obese. Examining racial disparities in obesity rates, we can see that the rate of obesity among North Carolina's African Americans (42.6%) is significantly higher than the rate for whites (25.6%). Native Americans also had obesity rates that were higher than whites, at 36.2 percent in 2010. Obesity rates do not differ significantly by ethnicity in North Carolina. By age, the lowest rates of obesity occurred among adults ages 18 to 24 (20.3%) and the highest rates occurred among adults ages 55 to 64. North Carolina's 2010 obesity rates were lowest among college graduates (22.8%) and comparable among those with less than a college degree (approximately 30.0%).¹⁹

According to researchers at the United Health Foundation and the American Public Health Association, and the Partnership for Prevention, North Carolina's obesity-related healthcare costs are estimated to be an average of \$4.3 billion by 2013. This equates to an average per capita cost of \$620 annually. The state could save billions of dollars a year if adults were to lose weight and adopt healthier lifestyles. If current trends continue, it is projected that almost half of all North Carolina adults (47.1%) could be obese by 2018.³²

Like adults, a high percentage of North Carolina children are overweight or obese. The North Carolina Nutrition and Physical Activity Surveillance System (NC-NPASS) maintains a repository of data collected on children seen in North Carolina Public Health sponsored Women, Infants, and Children (WIC) nutrition programs, child health clinics, and some

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school-based health centers. 2010 NC-NPASS data reveals that 31.8 percent of children ages 2 to 4 were obese or overweight based on their Body Mass Index (for their age). By race, obesity rates among non-Hispanic White and Black children were similar (approximately 28%). However, obesity rates were higher among American Indian (34.8%) and Hispanic (38.7%) children.³³ The 2010 North Carolina Child Health Assessment Monitoring Program (CHAMP) survey reveals that 17.1 percent of children ages 10 to 17 were obese and another 13 percent were overweight based on their BMI. Obesity rates were significantly higher among African American children (29.7%) compared with white children (11.5%). Obesity rates were also higher for children of parents with less than a high school education (27.9%) or a high school education (33.0%), and significantly lower for children of college graduates (10.0%).²²

Nutrition and Physical Activity

Physical inactivity and poor nutrition are significant risk factors for overweight/obesity and many chronic diseases.³⁴ According to the 2009 BRFSS, only one in five North Carolina adults (20.6%) reported consuming five or more servings of fruits and vegetables daily. Males were slightly less likely than females to report consuming fruits and vegetables (17.4% among males; 23.7% among females). Asians were the most likely to report adequate consumption of fruits and vegetables (31.0%), and African American (18.8%), Native Americans (18.9), and other minorities (16.9%) had the lowest rates. Fruit and vegetable consumption does not vary significantly by age; remaining consistently low across all age groups in the state. College graduates and adults living in households with annual incomes of \$75,000 had the highest rates of fruit and vegetable consumption. Conversely, adults that did not graduate from high school and those with household incomes of less than \$15,000 reported the lowest rates of fruit and vegetable consumption.¹⁹

North Carolina children and adolescents have similar nutritional patterns to adults. Based on NC CHAMP survey parental report data for 2010, only 28.1% of children were eating five or more fruits and/or vegetables on a typical day. As with obesity rates, children of parents with less than a high school education had the lowest rates of fruit and vegetable consumption (16.5%) and children of college graduates had the highest rates (29.7%).²² Fruit and vegetable consumption declined by age, with children ages 1 to 4 having the highest rates (36.7%) and adolescents ages 14 to 17 having the lowest rates of consumption (20.4%). In 2011, only 19.4% of high school students reported eating fruits and vegetables five or more times per day.³⁵

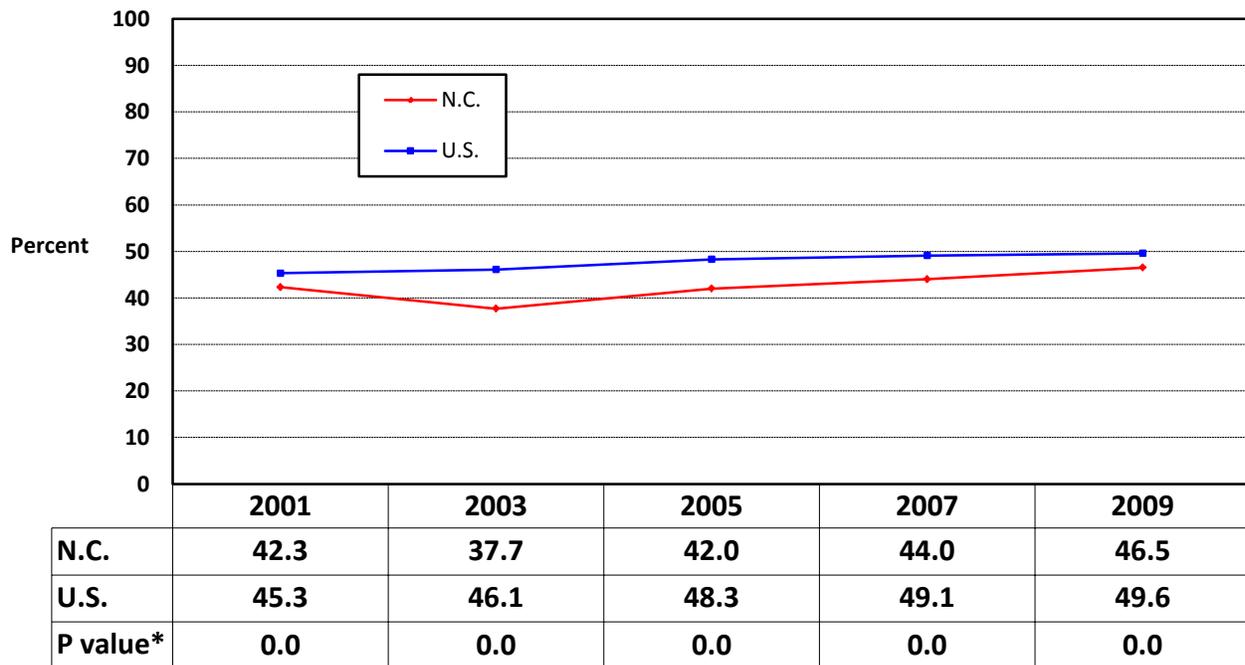
Physical Activity

Over half of North Carolina adults (53.6%) do not meet physical activity recommendations (defined as moderate physical activity for 30 or more minutes per day, five days per week, or vigorous physical activity for 20 or more minutes per day three days per week).¹⁹ As shown in **Figure 14**, the age-adjusted percentage of adults reporting that they met recommended physical activity levels increased slightly for both North Carolina and the United States from 2001 to 2009. The rate of North Carolina adults meeting physical activity guidelines remained consistently below the U.S. rate during this time period and the difference between the U.S. rate and the N.C. rate was statistically significant. North Carolina's recommended physical activity rates rank the state in the bottom quartile of states with the lowest rates of physical activity in the country, along with many other Southern states.²¹

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Figure 14. Percentage of Adults Meeting Recommended Physical Activity Levels (2001-2009) by North Carolina and United States



*P values based on t-test for difference in age-adjusted rates by year between NC and US.

Recommended physical activity levels were more often met by North Carolina males (51.1%) than females (41.9%). White adults were more likely to report adequate physical activity levels (48.6%) than African Americans (37.4%). Younger adults were more likely to meet activity guidelines than older residents, and activity levels declined with increases in age of respondents. Physical activity levels vary by income and education level. Respondents that were college graduates were significantly more likely to report meeting physical activity recommendations (51.2%) than adults less than a high school degree (38.5%). Examining differences by household income, we can see that only about a third (33.9%) of adults with annual household incomes of less than \$15,000 met physical activity guidelines, compared to over half (54.0%) of adults in households with annual incomes of \$75,000 or more.¹⁹

Similarly, among North Carolina high school students, just over half (52.4%) did not meet physical activity recommendations (60 or more minutes of physical activity on five or more days per week). White students were significantly more likely than those that identified as Black or having any other race to meet physical activity guidelines. High school males were also significantly more likely to report meeting activity recommendations (56.0%), than female students (39.1%). Overall, approximately 16 percent (15.5%) of students reported no physical activity during the week. Among middle school students, about four in ten (40.9%) did not meet physical activity guidelines.³⁵ The NC CHAMP survey reveals that, based on parent report, 8 percent of North Carolina children ages 0 to 17 engaged in no physical activity during a typical week, and 22.3 percent engaged in only one to three days of physical activity.²²

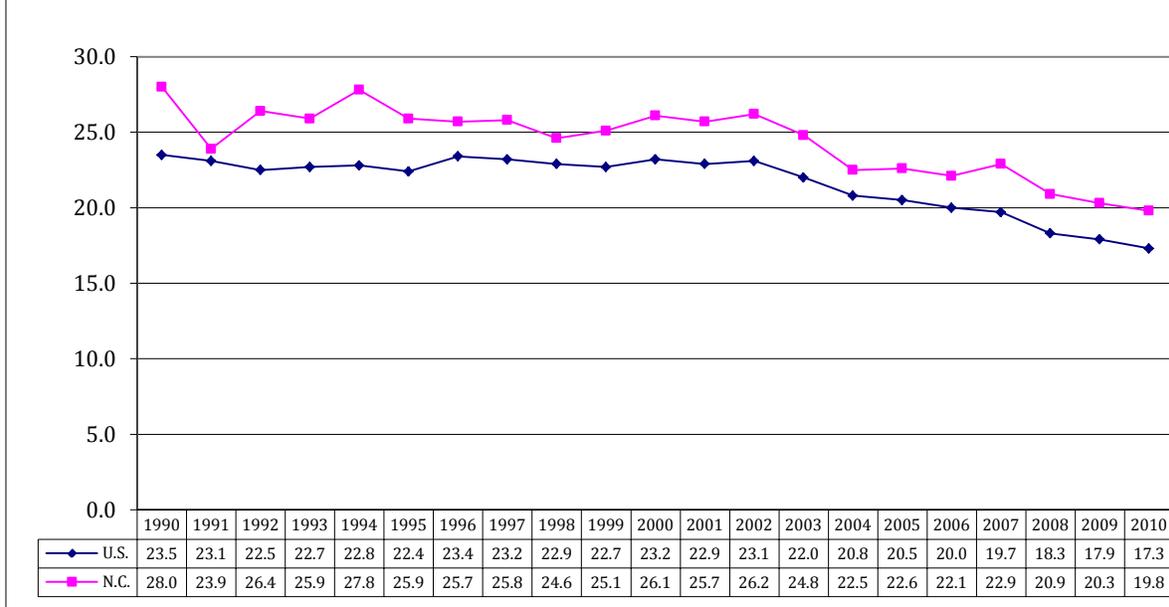
Tobacco Use

Tobacco use is a significant risk factor for coronary heart disease, stroke, cancer, and chronic obstructive pulmonary diseases.³⁶ As shown in **Figure 15**, adult smoking rates have steadily declined steadily from 1990 to 2010 in the United States and North Carolina. However, for each year, smoking rates were significantly higher in North Carolina compared to the rest of the United States. In all, the percentage of adult smokers in North Carolina declined from 1990 to 2010 by about eight percentage points. However, despite significant declines over the last decade, North Carolina's 2010 smoking rate ranks it among the top fifteen states with the highest smoking rates.²¹

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Figure 15: Percentage of Adults Who Report Being Current Smokers: 1990-2010



Source: Behavioral Risk Factor Surveillance System - Adults who Report Current Smoking

Note: NC BRFSS data prior to 2001 had a significantly smaller sample size than in subsequent years. The margin of error was larger in the earlier years. This may result in less stable estimates.

By gender, North Carolina adult males were significantly more likely to report that they were current smokers (23.4%), than females (16.4%) in 2010. Reported smoking rates generally declined with age, education level, and household income. The lowest smoking rates were reported among adults ages 75 and over (5.2%), college graduates (7.3%), and adults with household incomes over \$75,000 (11.5%). Smoking rates were significantly higher for those without health insurance (35.7%) compared with those having insurance (16.1%). Current smoking rates were also significantly higher for adults with a self-reported disability (26.6%) compared with adults who were not disabled (16.6%). Binge and heavy drinkers were also significantly more likely to report current smoking (37.4% and 47.2%, respectively).¹⁹

The North Carolina Youth Tobacco Survey supplies biennial data regarding cigarette smoking and tobacco use practices among middle and high school students in the state. Among middle school students in 2011, 4.2 percent reported being current smokers and 2.7 percent reported using smokeless tobacco. Higher rates were reported among high school students in 2011; with 15.5 percent of North Carolina high school students reporting that they were cigarette smokers and another 6.6 percent reporting that they used smokeless tobacco products. In total, approximately 7.4 percent of North Carolina middle school students and 22.5% of high school students reported that they were current users of tobacco products.³⁷

Exposure to secondhand smoke also poses a significant risk to North Carolina residents. Secondhand smoke has been associated with an increased risk for serious health problems, including cancer, heart disease, chronic obstructive pulmonary diseases, and even Sudden Infant Death Syndrome (SIDS).^{38,39} Secondhand smoke exposure for adults can occur in the home or in the workplace. Between 2008 and 2010, the rate of workplace exposure to secondhand smoke among adults decreased significantly, from 14.6 percent in 2008 to 7.8 percent in 2010.¹⁹ Much of this decline can be attributed to the "Smoke-free Restaurants and Bars" law which went into effect in January of 2010.⁴⁰ Utilizing North Carolina emergency department data, researchers have found that since the law was put in place, emergency department visits for heart attacks have declined by 21 percent.⁴¹ Exposure to secondhand smoke still continues to be a significant problem in homes. In 2010, more than one in ten North Carolina adults (14%) reported being exposed to secondhand smoke in their home.¹⁹ A little over one in four high school (26.9%) and middle school (27.3%) reported being exposed to secondhand smoke in their home in 2011.³⁷

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APPENDIX B. SUMMARY OF RESULTS FROM NC CATEGORICAL PLAN REVIEW

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Introduction

The first step in the process to develop North Carolina's *CCDIHP State Plan* included a systematic review of existing CDI Section Categorical Branch strategic/project plans. UNC Team members reviewed and summarized information about the following categorical strategic/project plans (in alphabetical order, with plan date noted):

1. Asthma Branch (2007-2012)
2. Comprehensive Cancer Control Branch ('Living Document')
3. Diabetes Branch (2011-2015)
4. Forensic Tests for Alcohol Branch (2012 Service Report)
5. Heart Disease & Stroke Prevention Branch (2011-2016)
6. Injury & Violence Prevention Branch (2009-2014)
7. Physical Activity & Nutrition Branch (2013-2020)
8. Tobacco Prevention & Control Branch (2000-2010)

This review of current CDI Section categorical plans identified cross-cutting themes among the Section's chronic disease, injury, and health promotion branches. The review provided Branch staff the opportunity to determine the extent to which their work relates to the four domains promoted by the CDC. The review also identified prevention types (primary or secondary) and intervention strategy types (e.g., education, media, partner building, policy, services and/or built environments). The categorical plan coding procedures focused on descriptive characteristics of the strategies included in the plans, including CDC domains and the types of strategies.

After the final coding phase during the review of NC Categorical Plans, UNC analyzed the data and created summary tables.

- The results provided in Table 1 illustrate how each plan has a tendency to focus on activities in a particular domain over others. This raised the question of how the CDI Section can coordinate planning so that branch plans complement each other in addressing the four domains.
- Table 2 illustrates the distribution of strategies labeled as primary or secondary prevention. Though only about a fifth to a quarter of all strategies were given a prevention code, we know that all of the strategies are intended to prevent and/or control chronic disease and injury. This information suggests that CDI Section Branches may be able to better explain the purpose of some of its work in the coordinated plan.
- Table 3 shows the distribution of strategy types found in each plan, and shows that the majority of strategies center around educational activities. In light of the emphasis on strategies to promote and reinforce healthy behaviors strategies described in one of the four CDC domains, the data suggest that CDI Section Branch plans would benefit from better articulating the ways in which these activities support policy, environmental, and/or systems change.

APPENDIX B. SUMMARY OF RESULTS FROM NC CATEGORICAL PLAN REVIEW

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Table 1. State Plan strategies by CCDP Domain^a

State Plans	Number of Strategies	Not Coded on any variable	CCDP Domain								Not Coded to Domain	
			Support/Reinforce Healthy Behavior		Health Systems		Community-Clinic Linkages		Epi & Surveillance			
			#	%	#	%	#	%	#	%	#	%
Tobacco (Vision 2010)	39	--	4	10%	9	23%	5	13%	2	5%	19	49%
PAN (2013-20)	121	--	69	57%	13	11%	5	4%	1	1%	37	31%
IVP (2009-14)	112	5	10	9%	0	0%	2	2%	34	30%	62	55%
Alcohol (2012 Svc Rpt)	6	--	1	17%	0	0%	0	0%	0	0%	5	83%
Cancer ("Living Doc")	366	82	14	4%	67	18%	23	6%	32	9%	155	42%
HDS (2011-16)	87	3	14	16%	32	37%	11	13%	4	5%	25	29%
Diabetes (2011-15)	38	--	12	32%	11	29%	4	11%	4	11%	10	26%
Asthma (2007-12)	135	2	14	10%	8	6%	8	6%	31	23%	72	53%
Total	904	93 (10%)	130	15%	140	15%	58	6%	108	12%	385	43%

^a Row proportions might total more than 100% because plan strategies could be coded to multiple CCD Domain types.

Table 2. State Plan strategies by Prevention Type and Disparity Focus^a

State Plans	Number of Strategies	Prevention Type				Disparity Focus	
		Primary Prevention		Secondary Prevention			
		#	%	#	%	#	%
Tobacco (Vision 2010)	39	9	23%	14	36%	11	28%
PAN (2013-20)	121	111	92%	5	4%	2	2%
IVP (2009-14)	112	26	23%	3	3%	3	3%
Alcohol (2012 Svc Rpt)	6	3	50%	2	33%	0	0%
Cancer ("Living Doc")	366	27	7%	82	22%	18	5%
HDS (2011-16)	87	36	41%	25	29%	0	0%
Diabetes (2011-15)	38	20	53%	15	39%	2	5%
Asthma (2007-12)	135	1	1%	57	42%	11	8%
Total	904	233	26%	203	22%	47	5%

^a Row proportions might total more than 100% because plan strategies could be coded to multiple prevention types.

APPENDIX B. SUMMARY OF RESULTS FROM NC CATEGORICAL PLAN REVIEW

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Table 3. State Plan strategies by Strategy Type^a

State Plans	Number of Strategies	Not Coded to Strategy Type		Strategy Type											
				Education		Media		Partner Building		Policy		Services		Built Envt.	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
Tobacco (Vision 2010)	39	4	10%	15	38%	7	18%	4	10%	5	13%	10	26%	0	0%
PAN (2013-20)	121	13	11%	17	14%	3	2%	5	4%	64	53%	10	8%	10	8%
IVP (2009-14)	112	17	15%	59	53%	7	6%	32	29%	11	10%	0	0%	0	0%
Alcohol (2012 Svc Rpt)	6	1	17%	3	50%	0	0%	2	33%	0	0%	1	17%	0	0%
Cancer ("Living Doc")	366	152	42%	134	37%	5	1%	18	5%	12	3%	68	19%	0	0%
HDS (2011-16)	87	19	22%	24	28%	1	1%	8	9%	19	22%	23	26%	0	0%
Diabetes (2011-15)	38	6	16%	16	42%	1	3%	5	13%	5	13%	14	37%	3	8%
Asthma (2007-12)	135	42	31%	58	43%	5	4%	23	17%	7	5%	2	1%	6	4%
Total	904	254	28%	326	36%	29	3%	97	11%	123	14%	128	14%	19	2%

^a Row proportions might total more than 100% because plan strategies could be coded to multiple strategy types.

APPENDIX C. DEFINITIONS OF PRIORITIZATION PROCESS FACTORS AND CATEGORIES

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Introduction

To identify and review proposed intervention strategies for the NC CCDIHP State Plan, CDI Section Branches and their identified partners were asked to complete two steps, using tools provided, to inform the contents of the state plan. Branch managers used their own discretion in determining if and how best to engage staff and external partners in completing these steps. Seven CDI Section Branches independently submitted 136 strategies for consideration in the state plan, including: 1) Asthma; 2) Cancer Prevention and Control; 3) Diabetes Prevention and Control; 4) Heart Disease & Stroke Prevention; 5) Injury and Violence Prevention/Forensic Tests for Alcohol; 6) Physical Activity & Nutrition; and 7) Tobacco Prevention & Control.

Step #1: Branch staff and their partners identified intervention strategies for consideration in the state plan, and they described the extent to which those strategies: 1) are effective; 2) are being implemented across the state of NC; 3) address modifiable risk factors; and 4) address health disparity. Step #2: Branch staff and partners more thoroughly assessed the degree to which intervention strategies address health disparity by identifying the extent to which proposed strategies address health disparate population groups as defined by Healthy People 2020. In this two-step process, Branches submitted strategies categorized for the five factors, each defined in this Appendix:

1. Effectiveness and Source of Effectiveness
2. Status of Implementation
3. Modifiable Risk Factors
4. Degree of Health Disparity Focus
5. Health Disparity Population Focus

1. *Effectiveness and Source of Effectiveness*

Branches identified predetermined codes for each proposed strategy. Terminology was defined by the 2012 NCIOM *Improving North Carolina's Health: Applying Evidence for Success* report, the continuum of effectiveness includes:

- *1 = Best, Proven, or Evidence Based Practice (EBP)*: These practices are supported by intervention evaluations or studies with rigorous systematic review that have evidence of effectiveness, reach, feasibility, sustainability, and transferability.
- *2 = Leading*: These practices are supported by intervention evaluations or studies with peer review of practice that have evidence of effectiveness, reach, feasibility, sustainability, and transferability.
- *3 = Promising*: These practices are supported by intervention evaluations without peer review of practice or publication that have evidence of effectiveness, reach, feasibility, sustainability, and transferability.
- *4 = Emerging*: These practices are supported by field-based summaries or evaluations in progress that have plausible evidence of effectiveness, reach, feasibility, sustainability, and transferability.

Branches also stated the source used to determine effectiveness. Options included: Guide to Community Preventive Services; NCIOM *Improving North Carolina's Health: Applying Evidence for Success*; or other.

APPENDIX C. DEFINITIONS OF PRIORITIZATION PROCESS FACTORS AND CATEGORIES

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

2. Status of Implementation

Status of implementation was collected for each strategy in order to gain an understanding of where the strategies were being implanted and how many people were being affected by their reach. Branches identified the current status of implementation across the 100 counties in North Carolina. They were asked to indicate how the strategy is currently being implemented using the following codes:

- Not being implemented, but would like to see implemented in future;
- Limited in NC (e.g., in 25 counties or less);
- Moderate in NC (e.g., in 26 to 60 counties);
- Widespread in NC (e.g., in more than 60 counties).

3. Modifiable Risk Factors

Coordinated Work Team members then identified a list of modifiable dietary, lifestyle, and metabolic risk factors associated with the NC disease and injury outcomes. The list developed was based on literature (Danaei 2009) and available NC data resources that corresponds to the Disease/Injury Outcomes scored for Size and Seriousness (Table A). In total, nine chronic disease modifiable risk factors related to nine chronic disease outcomes were identified, along with 11 injury modifiable risk factors related to five injury outcomes. For each strategy proposed, Branches were asked to indicate if a listed strategy addresses the risk factors listed in table A.

Table A. Chronic Disease and Injury Outcomes/Modifiable Risk Factors Guiding the NC CCDIHP State Plan

1. Alcohol Overuse defined as: a) Binge drinker; and/or b) Heavy drinker
2. Exposure to Secondhand Smoke, defined as: a) Secondhand Smoke (Indoor Workplace); and/or b) Secondhand Smoke (Home)
3. High Cholesterol
4. Hypertension, defined as high blood pressure
5. Inadequate fruit and vegetable intake
6. Obese (defined as BMI >30)
7. Physical Inactivity, defined as: a) not meeting aerobic activity recommendations; b) not meeting muscle strengthening recommendations; or c) not meeting aerobic and muscle strengthening exercise guidelines
8. Tobacco Use, defined as: Current smoker
9. Uncontrolled Blood Glucose, defined as: a) Diabetes; and/or b) Pre-diabetes
10. Injury & Violence Risk Factors
 - a. Motor Vehicle Injury (Alcohol use and driving, Occupant protection, Self reported speeding)
 - b. Falls (Muscle strengthening, Reduction of over use of medications, Vision Screening, Alcohol use)
 - c. Unintentional Overdose (Overdose prevention programs, Drug and monitoring programs)
 - d. Homicide (Safe gun storage)
 - e. Suicide (Alcohol misuse, General substance misuse, Mental illness)

4. Degree of Health Disparity Focus

For each intervention strategy proposed, Branches were asked to indicate the level of which the strategy addresses a Health Disparity using the following codes:

- 1 = Not at all working on Health Disparities

APPENDIX C. DEFINITIONS OF PRIORITIZATION PROCESS FACTORS AND CATEGORIES

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

- 2 = *Some/a little working on Health Disparities*
- 3 = *Majority working on Health Disparities*
- 4 = *Only working on Health Disparities*
- 5 = *Don't know/not sure*

5. Health Disparity Population Focus

Following the submission of proposed strategies and ratings for categories 1-4 above, Branches and their partners were asked, in follow-up, to provide additional information about the degree to which proposed strategies addressed health disparities. Based on a literature review, the Coordinated Work Team/UNC Team identified two ways to assess CDI Section Branch strategies considering health disparities and health equity, including: 1) what population groups are targeted; and 2) how those population groups are being reached using health equity strategies.

Specifically, Branches were asked to rate the extent (*not specifically targeting this population, some/a little targeting this population, primarily targeting this population, and Don't know/not sure*) to which strategies proposed target health disparity population groups, defined by Healthy People 2020:

1. Race or ethnic minority:
 - a. American Indian & Alaska Native
 - b. Asian American
 - c. Black or African American
 - d. Hispanic or Latino
 - e. Native Hawaiian or Other Pacific Islander
2. Socio-Economic Status
3. Gender (e.g., Women)
4. Age
5. Mental Health
6. Disability (e.g., cognitive, sensory, physical)
7. Sexual orientation and gender identity
8. Geographic location (e.g., rural and urban)

If applicable, they were allowed to select 'All' if they felt that a strategy targeted all groups listed above, but were requested to limit use of 'All' for those strategies that are truly only designed to address the health of all.

APPENDIX D. MARCH 6, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

A. Background

On March 6, 2013 team members (Carolyn Crump, PhD, Robert Letourneau, MPH and Rachel Page, MPH) from the University of North Carolina Gillings School of Global Public Health) facilitated a working meeting for approximately 48 public health professionals from the following entities: NC Division of Public Health (DPH); DPH Chronic Disease & Injury (CDI) Section leadership and staff members; representatives from the NC Local Health Directors Association; the Center for Healthy North Carolina, and the Center for Public Health Quality (*Sub-Appendix D-1*). The five-hour meeting (10:00 am – 3:00 pm) was held at the NC Division of Public Health (Building #3).

The purpose of the working meeting was to describe and summarize initial steps taken to develop a Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan as part of the Section's CDC-funded Coordinated Chronic Disease & Health Promotion (CCDP) Project. Objectives for the working meeting included: 1) Review CDC's request for coordinated chronic disease state plans; 2) Describe prioritization factors and process; 3) Review next steps for process; and 4) Answer questions about plan and plan development process.

B. Summary of Retreat Agenda

The retreat was organized into four primary parts: 1) Overview of the CCDIHP State Plan and vision for its use; 2) Summary of initial steps taken to develop the state plan; 3) Introduction to health disparities and health Equity; and 4) Discussion of next steps.

Part One: Overview of the CCDIHP State Plan and Vision for its Use

- Attendees conducted introductions designed to highlight the categories of attendees at the meeting. Special emphasis was given to introduce Coordinated Work Team (CWT) members.
- Christine Ogden provided an overview of the overall vision for the CCDIHP state plan, including how and why it is being developed and how it will be used. Chris also highlighted how a similar approach is underway in the state to assess effectiveness/priorities for strategies included in the Healthy NC 2020 plan.
- Attendees worked in small groups at their tables, with CWT members serving as note-takers, to identify questions about the plan's vision and uses. The questions were collected by UNC Team members, categorized, and used later during the working meeting to ensure that all questions were answered.

Part Two: Summary of Initial Steps Taken to Develop the State Plan

- Carolyn Crump briefly referred participants to background materials (sent prior to the meeting, and included in folders) about the state plan.
- She provided a brief overview of work completed to submit the August 2012 state plan draft to the CDC.
- Next, Carolyn briefly reviewed the steps taken to research, identify, and begin implementing a 'prioritization process' to develop the primary section of the CCDIHP State Plan (i.e., Goals, Strategies, Objectives), including: a review of guiding principles for the state plan; overview of the literature reviewed by the CWT/UNC Teams to develop the prioritization process; and review of initial prioritization process steps.
- Carolyn also presented and summarized the six prioritization factors being considered to identify the plan's goals/strategies/objectives (i.e., 1) size of burden, 2) seriousness of burden, 3) intervention effectiveness, 4) risk factors, 5) health disparity, and 6) feasibility). This also included a description (and demonstration) of how lenses and/or filters could be applied to identify the plan's goals, strategies, and objectives.
- Carolyn summarized the initial 'prioritization process' steps being taken to consider the first five prioritization factors:
 - **Step #1**, Involves identifying the degree proposed intervention strategies: 1) are effective; 2) represent current or future work being conducted by Branch staff, partners, and/or local health departments; 3) address modifiable risk factors; and 4) address health disparity.

APPENDIX D. MARCH 6, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

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- **Step #2**, to be completed in March 2013, will ask Branch staff and partners to more thoroughly assess the degree to which intervention strategies address health disparity.
- Kathleen Jones-Vessey, from the NC State Center for Health Statistics, reviewed and described the process for determining the data sources for Size and Seriousness, including an emphasis on why certain data sources were used and others were not (e.g., limitations).
- Kathleen also reviewed and described other data sources that will be used as the state plan process continues, including disparity data for diseases/risk factors.
- Robert Letourneau briefly reviewed the work completed by the CWT and UNC to develop Worksheet #1, and oriented participants to the Worksheet itself, including the instructions/scales provided to complete it.
- Robert summarized what has been submitted and comments from CWT members about the processes used to complete the Worksheet (including lessons learned and or challenges).
- Carolyn Crump provided a summary of preliminary aggregated Worksheet #1 results for the CDI Section.

Part Three: Review: Introduction to Health Disparities and Health Equity

- Carolyn Crump reviewed CDC guidance that state plans include an emphasis on addressing health disparities and achieving health equity.
- Monique Bethell provided an overview to define the terms 'health disparity' and 'health equity' (mentioning key national plans and how they are approaching reduction of HD)
- Robert Letourneau described how CWT/UNC planned to assess the health disparity emphasis of strategies, including asking about: 1) what population groups are targeted (following Healthy People 2020) and 2) what disparity strategies are used/employed (adapted from the National Stakeholders Strategy for Achieving Health Equity, Beadle, 2011).
- Robert also reviewed a draft handout summarizing the population groups and health disparity strategies to be assessed, using Worksheet #2, and answered a few questions about the draft handout.

Part Four: Discussion of Next Steps

- Carolyn Crump reviewed a summary of the next steps in the state plan development process, including:
 - Interpreting/Summarizing results from Branch-identified strategies submitted for consideration for inclusion in the state plan (using Worksheet #1).
 - Collecting/Interpreting/Summarizing results from Branch-identified descriptions of population groups targeted and strategies used to address health disparity, by strategy (using Worksheet #2).
 - Determining factors contributing to feasibility
 - Determining parameters/definitions of Goals, Strategies, and Objectives
 - Identifying parameters for 'Evaluation' and 'Communication' Sections of plan
 - Planning approach and methods to conduct April 29 Partner Meeting
- Christine Ogden reviewed the list of questions generated at the start of the working meeting to ensure that all were answered to the best they could currently be answered.
- Meeting attendees asked additional questions and provided additional input about the process being used to complete a state plan.
- Facilitators summarized the day's progress and asked for written feedback about the working meeting

C. Retreat Outcomes and Follow-Up

Following the retreat, UNC Team members summarized results of the retreat feedback provided by participants (Sub-Appendix D-2).

Overall, participants found the retreat to be helpful and felt that it answered questions about their role in assisting to develop the NC CCDIHP State Plan.

APPENDIX D. MARCH 6, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Sub-Appendix D-1. Meeting Attendee Summary		
Name	Title	Contact
NC Chronic Disease and Injury (CDI) Section Management		
1. Ruth Petersen	Section Chief	ruth.petersen@dhhs.nc.gov
2. Chris Ogden	Operations Manager	christine.ogden@dhhs.nc.gov
3. Sharon Rhyne	Programs Manager	sharon.rhyne@dhhs.nc.gov
4. Elaine Lo	Coordinated Project Consultant	elaine.lo@dhhs.nc.gov
State Center for Health Statistics		
5. Karen Knight	Director	karen.knight@dhhs.nc.gov
6. Kathleen Jones-Vessey	Statistical Services Manager	kathleen.jones-vessey@dhhs.nc.gov
CDI Section Cancer Control and Prevention Branch		
7. Debi Nelson	Branch Manager	debi.nelson@dhhs.nc.gov
8. Joseph Scott	Operations Manager	joseph.scott@dhhs.nc.gov
9. Lakeisha Johnson	Program Coordinator	lakeisha.johnson@dhhs.nc.gov
CDI Section Community Transformation Grant		
10. Sharon Nelson	Branch Manager	sharon.boss.nelson@dhhs.nc.gov
11. Jill Rushing	Evaluator	jill.rushing@dhhs.nc.gov
12. Monique Bethell	Health Equity Coordinator	monique.bethell@dhhs.nc.gov
13. Tish Singletary	Regional Program Coordinator	tish.singletary@dhhs.nc.gov
CDI Section Diabetes Control and Prevention Branch		
14. April Reese	Branch Manager	april.reese@dhhs.nc.gov
15. Lisa Holmes	Nurse Consultant	lisa.holmes@dhhs.nc.gov
16. Joanne Rinker	Diabetes Educator	joanne.rinker@dhhs.nc.gov
17. Lydia Dedner	Evaluator	Lydia.dedner@dhhs.nc.gov
CDI Section Heart Disease and Stroke Prevention		
18. Anita Holmes	Branch Manager	anita.holmes@dhhs.nc.gov
19. Leigh Hayden	Evaluator	leigh.hayden@dhhs.nc.gov
20. Susanne Schmal	Statewide Project Coordinator	susanne.schmal@dhhs.nc.gov
CDI Section Injury and Violence Prevention Branch / Forensic Tests for Alcohol Branch		
21. Alan Dellapenna	Branch Manager (IVP)	alan.delapenna@dhhs.nc.gov
22. Paul Glover	Branch Manager (FTA)	paul.glover@dhhs.nc.gov
23. Glorina Stallworth	Program Manager	glorina.stallworth@dhhs.nc.gov
CDI Section Physical Activity and Nutrition Branch		
24. Cathy Thomas	Branch Manager	cathy.thomas@dhhs.nc.gov
25. Lori Rhew	Physical Activity Unit Manager	lori.rhew@dhhs.nc.gov
26. Sam Thompson	Data Manager	sam.thompson@dhhs.nc.gov
27. Marybea Kolbe	Healthy Communities Coordinator	marybea.kolbe@dhhs.nc.gov
28. Diane Beth	Nutrition Manager	diane.beth@dhhs.nc.gov
CDI Section Tobacco Prevention and Control Branch / Asthma Program		
29. Sally Herndon	Branch Manager	sally.herndon@dhhs.nc.gov
30. Cindy Haynes-Morgan	Asthma Program Manager	cindy.haynesmorgan@dhhs.nc.gov
31. Joyce Swetlick	Director of Tobacco Cessation	joyce.swetlick@dhhs.nc.gov
32. Jim Martin	Director of Policy and Programs	jim.martin@dhhs.nc.gov
33. Ann Staples	Dir. of Public Education and Communications	ann.staples@dhhs.nc.gov
34. Tanha Patel	Evaluator	Tanha.patel@dhhs.nc.gov
Collaborating Partners		
35. Danny Staley	Division of Public Health	danny.staley@dhhs.nc.gov
36. Laura Edwards	The Center for Healthy North Carolina	laura.edwards@centerforhealthync.org
37. Beth Mainwaring	NC Center for Public Health Quality	beth.mainwaring@ncphf.org
38. Amanda Cornett	NC Center for Public Health Quality	Amanda.cornett@ncphf.org
NC Local Health Directors Association		
39. Paula Carden (phone)	LHD Jackson County	paulacarden@jacksonnc.org
40. Merle Green	LHD Guilford County	mgreen@co.guilford.nc.us

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Sub-Appendix D-1. Meeting Attendee Summary

<i>Name</i>	<i>Title</i>	<i>Contact</i>
41. Karen Lachapelle	LHD Edgecombe County	karen.lachapelle@co.edgecombe.nc.us
42. Beth Lovette	LHD Watagua County	beth.lovette@apphealth.com
43. John Morrow	LHD Pitt County	jhmorrow@pittcountync.gov
44. Carolyn Moser	LHD Pender County	cmoser@pendercountync.gov
45. Michael Rhodes	LHD Greene County	mrhodes@co.greene.nc.us
46. Kim Smith	LHD Columbus County	kim.l.smith@columbusco.org
47. Christopher Szwagiel	LHD Franklin County	cszwagiel@franklincountync.us
48. Anne Thomas (phone)	LHD Dare County	annet@co.dare.nc.us
UNC Gillings School of Global Public Health, Department of Health Behavior		
49. Carolyn Crump	Research Associate Professor	carolyn_crump@unc.edu
50. Rachel Page	Research Associate	rapage@email.unc.edu
51. Robert Letourneau	Research Associate	robert_letourneau@unc.edu

APPENDIX D. MARCH 6, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

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Sub-Appendix D-2: Meeting Feedback Summary Results

Background: On March 6, 2013 team members (Carolyn Crump, Robert Letourneau, and Rachel Page from the University of North Carolina Gillings School of Global Public Health) facilitated a working meeting for approximately 48 public health professionals from the following entities: NC Division of Public Health (DPH); DPH Chronic Disease & Injury (CDI) Section leadership and staff members; NC Local Health Directors Association; the Center for Healthy North Carolina, and the Center for Public Health Quality. The purpose of the working meeting was to describe initial steps taken to develop a Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan as part of the Section's CDC-funded Coordinated Chronic Disease & Health Promotion (CCDP) Project. Using a five-question written survey, participants were asked to provide feedback about the working meeting. Of the 48 meeting attendees, 29 submitted a feedback form at the end of the day (response rate = 60.4%). This appendix provides a summary of the feedback survey results.

Question 1

Using a six-point Likert scale (with 1=not useful and 6=very useful), participant were asked ***How well did this meeting help you understand the purpose of the NC Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan?***

The average response and Standard Deviation for each category of attendee, and total, is presented below:

Attendee Category	Average	Standard Dev.
Local Health Director (n=7)	5.0	1.1
NC CDI Section Staff (n=21)	4.9	1.1
Other (n=1)	6.0	0.0
Total	4.9	1.1

Question 2

Using a six-point Likert scale (with 1=not well and 6=very well), participant were asked ***How well did this meeting help you understand your role to develop the CCDIHP State Plan?***

The average response and Standard Deviation for each category of attendee, and total, is presented below:

Attendee Category	Average	Standard Dev.
Local Health Director (n=7)	4.4	1.4
NC CDI Section Staff (n=21)	4.4	1.1
Other (n=1)	5.0	0.0
Total	4.4	1.4

Question 3

Using an open-ended question format, participants were asked ***what they liked best about the meeting***. The following responses were provided, grouped by category:

1. Stakeholders & Collaboration (n=6)

CDI Staff (n=4)

- The different stakeholders that were in attendance and to hear their views and perspectives.
- Variety of partners/stakeholders and the expertise they bring to the Plan. The Resources that will be available.
- Having LHDs.
- Lots of representation, buy-in to process - - lots of planning behind meeting. Folks' "glass half full" attitude but realism, too. Facilitated by partner. Lunch! (Thanks!)

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Local Health Directors (n=2)

- A) Seeing and hearing from the DHHS staff on how the sections will collaborate. B) Consultation from UNC expert researchers. C) The schedule 10-3pm for those traveling in to Raleigh.
- Ability to hear from the Branches' viewpoints about internal strategy and how they needed to develop plans to implement the coordinated approach.

2. Background & Content (n=8)

CDI Staff (n=6)

- Background information concerning coordinated grant and state plan.
- Summary of work so far and process descriptions. Questions solicited early and answered later.
- It's overview - pulling all the pieces together to be set up better for the April meeting to be successful.
- Understanding the priority setting process.
- Well organized. Great overview of planning process and the plans. Excellent work of UNC staff and CDI Section lead staff.
- Enjoyed learning @ the CWTC the various planning teams that have come to the table to create the process for approaches of the plan. Also enjoyed meeting colleagues from various [can't read] & programs.

Local Health Directors (n=2)

- How each branch explained their involvement. Open discussion on each topic and on the process.
- Statistical info & info on prioritization factors. Orientation to who is in CCDIHP.

3. Training Methods (n=15)

CDI Staff (n=11)

- It was well organized.
- Handouts were organized. Nice opportunity to ask questions.
- Q&A
- Questions & discussion.
- The ability to do Q+A and the review of Q+A at the end.
- Opportunity for feedback & discussion on ideas/presentations.
- Discussion.
- Good explanations & discussion. Interesting to see how all the parts come together.
- The morning table work group and information/dialogue on the coordinated plan.
- People were friendly at table and great networking opportunities.
- Lunch :)

Local Health Directors (n=3)

- Everyone participated.
- New ideas. Brainstorming.
- Group discussion & hand-outs were helpful. I really appreciate the work around size & seriousness - the whole data ranking.

Other (n=1)

- Very informative, good presenters.

Question 4

Using an open-ended question format, participants were asked **what they liked the least about the meeting**. The following responses were provided, grouped by category:

1. Training Methods (n=7)

CDI Staff (n=6)

- A little more time for some small group discussions may have been helpful.
- Would like to have seen some examples of branches' work on handouts.
- The meeting seemed to drag on for a long time.

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- Assigned seating :)
- No exercise break!
- Need a few more breaks to be incorporated. Too long without a break. If you choose not to give breaks, then let lunch be on our own. Sessions too long without a break, you lost the audience doing 5 hours straight.

Local Health Directors (n=1)

- Not having a copy of the worksheets to view as speakers explained how to complete worksheet.

2. Content & Engagement (n=7)

CDI Staff (n=5)

- The brief overviews. For someone who is involved with the CCDI PH that's suffice; but, for those who aren't more time is needed to provide an adequate overview.
- Health disparities presentation stalled momentum.
- Maybe needed more local health director representation.
- I think this meeting could have been funneled into the April 29th meeting. This was more of use to CDI, the Local Health Directors really didn't need to be at this one.
- I think I'm still confused about if this is DPH's plan or a state plan. It seems like the process is on a DPH plan with partner input versus engaging partners first. I think an implementation plan as part of the state plan is important.

Local Health Directors (n=2)

- Not clear of local role yet. Extremely division focused; even questions at end.
- I pretty much stayed confused about the "worksheet" references. I think that's because it seems to be DPH/Branch focus, but hard for me to get.

3. Facilities (n=4)

CDI Staff (n=3)

- Room set up was uncomfortable - why didn't we use space in back.
- Cold air!
- Would recommend insuring that all speakers use a microphone. In the next location having standing microphones for audience questions. Need stretch break.

Local Health Directors (n=1)

- The air conditioning being on in the winter time. It was very cold and noisy.

4. No Problems/Other (n=4)

CDI Staff (n=1)

- N/A I thought well done & all sections necessary & appropriate.

Local Health Directors (n=3)

- The meeting was well-orchestrated.
- Good job.
- Bad news re: \$ cut.

Question 5

Using an open-ended question format, participants were asked **What they hope is accomplished at the April 29, 2013 meeting.** The following responses were provided, grouped by category:

1. Increase Participation & Enhance Partnerships (n=12)

CDI Staff (n=9)

- Hope it's less discussion by CDI and more opportunities for others to speak.
- The attendance of more stakeholders and partners; and a more in depth overview of CCDI PH.
- Reaching out to external partners for additional viewpoints & ideas. Hope to see buy-in from partners.

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- Understanding of what State plan means to locals. Partner stepping up to take parts of plan when finished.
- Buy-in by external partners. Figure out others that need to be involved. Strengthened prioritization/validation of priorities determined.
- Gain commitment from others/partners. Refine docs, priorities, responsible partners/groups.
- Letting partners know our goals - hearing from them what we can do for them and what they might be willing to support.
- Partners' ownership of the process and the plan. Partners' support to seek resources.
- Since new partners will be at the April meeting it would be nice if in some way they could be brought up to speed in advance of the meeting so there doesn't have to be a lot of repeat for those of us here today. I can't attend on that day so if there's a way to provide input in another way that would be great.

Local Health Directors (n=3)

- Interested to see how clear all this can be made to external stakeholders.
- Have input on plan.
- I hope that there will be AHA! Moments for the additional partners that are brought to the April meeting.

2. Increased Understanding & More Information (n=6)

CDI Staff (n=3)

- More persuasive understanding of what we are doing; more buy-in & understanding that the plan can/should serve as a common/credible resource so there is continuity in what many are using as base info to move forward.
- Filling in the blanks. Establish GAPS.
- Expand the discussion.

Local Health Directors (n=3)

- We can figure this out to help us do things "smarter, not harder".
- More research via UNC.
- Additional info.

3. Refine Prioritization & First Draft (n=5)

CDI Staff (n=5)

- I would like to see some hands-on activities where we are able to draft, finalize, and provide input on plan draft.
- Opportunity to review strategies & objectives selected as priorities.
- Feedback on priorities.
- More of a completion of plan.
- A good basic draft for the plan.

4. Funding (n=3)

CDI Staff (n=3)

- Strategies for obtaining funding. Make sure to include partners who can help us make a case for building capacity. Communicate to strategic partners the issues, resources, and categorical structures.
- Think about planning to leverage resources. Make sure we have right folks? - Public health friendly hospital CEO, - NCHA?, - Duke Endowment. Other foundations.
- Lots of funding.

APPENDIX E. APRIL 29, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

A. Background

On April 29, 2013 team members from the University of North Carolina Gillings School of Global Public Health (Carolyn Crump, PhD, Robert Letourneau, MPH and Rachel Page, MPH) and members of the Coordinated Chronic Disease and Health Promotion (CCDP) Project Work Team facilitated a strategic planning meeting for 71 public health professionals representing the following entities: 1) NC Division of Public Health Chronic Disease & Injury (CDI) Section leadership and staff members; 2) representatives from the NC Local Health Directors Association; and 3) Section and Branch partners at the state, regional, and local/community level (see [Sub-Appendix E-1](#) for a complete list of partners). The all-day meeting (9:00 am – 4:30 pm) was held at the Wake County Commons Building in Raleigh, NC.

The purpose of the strategic planning meeting was to review and build consensus around coordinated strategies developed for the Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan as part of the Section's CDC-funded Coordinated Chronic Disease & Health Promotion (CCDP) Project. Objectives for the strategic planning meeting included:

1. Collect attendee input to inform the contents and processes needed to communicate, implement, and evaluate the NC Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan;
2. Review the process used to identify strategies and discuss related implementation issues;
3. Provide opportunity to discuss health disparity and population groups to target in the state plan;
4. Engage Partners in process to build consensus for state plan strategies and to network/discuss cross-cutting ideas.

B. Summary of Retreat Agenda

The strategic planning meeting agenda ([Sub-Appendix E-2](#)) was organized into five primary parts: 1) State Plan Overview and Summary of Progress to date; 2) Building consensus on state plan strategies; 3) Implementation opportunities for the State Plan; 4) Communication approaches for coordinated chronic disease and injury prevention; and 5) Future partnership opportunities.

C. Overall Summary of Retreat Feedback

Following the strategic planning meeting, UNC Team members summarized results of a brief, four-question meeting 'feedback form.' Of the 71 meeting attendees, 56 submitted a feedback form (RR = 79%).

When asked how well the meeting helped them understand the purpose of the NC CCDIHP State plan, the average response was 4.8 (SD=0.8) on a 6-point Likert scale. When asked how effectively the meeting provided an opportunity for participants to provide input into the CCDIHP State plan, the average response was 4.9 (SD=0.9) on a 6-point Likert scale.

The majority of respondents (n=26) across all four participant groups (i.e., CDI staff, External Stakeholders, Local Health Directors, Other) indicated that the part of the meeting they 'liked best' was the opportunity to make new contacts, work with partners, and engage stakeholders in the process. Many participants (n=22) also commented on the small group discussions and interactions, particularly the three breakout sessions and the opportunity to work with different groups.

When asked what they 'liked least' about the meeting, responses included comments about meeting length, breaks, and lunch (n=12). A common comment was the challenge to stay on track during small group breakout sessions. Comments also referenced a lack of clarity over the draft state plan strategies, how the project will move forward (n=11), and how stakeholders will have continued participation (n=4).

Please refer to [Sub-Appendix E-3](#) for a detailed summary of feedback provided by participants (n=56 or 79%) submitting the meeting feedback form.

APPENDIX E. APRIL 29, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Sub-Appendix E-1: List of Attendees		
<i>Name</i>	<i>Title</i>	<i>Contact</i>
DIVISION OF PUBLIC HEALTH		
1. Belinda Pettiford	Interim Exec. Dir. Minority Health & Health Disparities	belinda.pettiford@dhhs.nc.gov
CHRONIC DISEASE AND INJURY SECTION		
<i>Section Management</i>		
2. Ruth Petersen	Section Chief	ruth.petersen@dhhs.nc.gov
3. Chris Ogden	Operations Manager	christine.ogden@dhhs.nc.gov
4. Sharon Rhyne	Programs Manager	sharon.rhyne@dhhs.nc.gov
5. Elaine Lo	Coordinated Project Consultant	elaine.lo@dhhs.nc.gov
6. LaShaun Polk	Project Officer, CDC	
<i>Section Partners</i>		
7. Adam Zolotor	NC Institute of Medicine	adam_zolotor@nciom.org
8. Beth Mainwaring	Center for Public Health Quality	beth.mainwaring@dhhs.nc.gov
9. Tom Wroth	Community Care of NC (for Jennifer Cockerham)	twroth@n3cn.org
Cancer Control and Prevention Branch		
<i>Branch Staff</i>		
10. Debi Nelson	Branch Manager	debi.nelson@dhhs.nc.gov
11. Joseph Scott	Operations Manager	joseph.scott@dhhs.nc.gov
12. Lakeisha Johnson	Program Coordinator	lakeisha.johnson@dhhs.nc.gov
13. Dianah Bradshaw	Nurse Consultant	dianah.bradshaw@dhhs.nc.gov
14. Shannon Dupree	Health Educator	shannon.dupree@dhhs.nc.gov
15. Kelcy Walker	Health Educator	kelcy.walker@dhhs.nc.gov
<i>Branch Partners</i>		
16. Morgan Daven	American Cancer Society	morgan.daven@cancer.org
17. Steve Patierno	Duke Cancer Society	steven.patierno@duke.edu
18. Tom Shea	Lineberger Cancer Institute/UNC-Chapel Hill	sheat@med.unc.edu
Community Transformation Grant Project/Health Equity		
<i>CTG Staff</i>		
19. Sharon Nelson	Project Manager	sharon.boss.nelson@dhhs.nc.gov
20. Jill Rushing	Evaluator	jill.rushing@dhhs.nc.gov
21. Monique Bethell	Health Equity Coordinator	monique.bethell@dhhs.nc.gov
22. Tish Singletary	Lead Regional Program Consultant	tish.singletary@dhhs.nc.gov
<i>Health Equity Partners</i>		
23. Lori Carter-Edwards	UNC Center for Health Promotion and Disease Prev.	lori_carter-edwards@unc.edu
24. Calvin Ellison	Success Dynamics Community Development Corp.	successdynamics.cdc@gmail.com
25. Forrest Toms	NC A&T University	Toms_2@charter.net
26. Sharon Elliott-Bynum	CAARE Inc.	sellbyn919@aol.com
Diabetes Control and Prevention Branch		
<i>Branch Staff</i>		
27. April Reese	Branch Manager	april.reese@dhhs.nc.gov
28. Lisa Holmes	Nurse Consultant	lisa.m.holmes@dhhs.nc.gov
<i>Branch Partners</i>		
29. Ben Money	NC Community Health Center Assoc.	moneyb@ncchca.org
30. Sue Kirkman	UNC Chapel Hill	sue_kirkman@med.unc.edu
31. Jan Nicollerat	Duke School of Nursing	janet.nicollerat@duke.edu
32. Ronny Bell	Wake Forest School of Medicine	rbell@wakehealth.edu
Heart Disease and Stroke Prevention		
<i>Branch Staff</i>		
33. Anita Holmes	Branch Manager	anita.holmes@dhhs.nc.gov
34. Leigh Hayden	Evaluator	leigh.hayden@dhhs.nc.gov
35. Susanne Schmal	Statewide Project Coordinator	susanne.schmal@dhhs.nc.gov
36. Sammy Tchwenko	Branch Epidemiologist	sammy.tchwenko@dhhs.nc.gov

APPENDIX E. APRIL 29, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Sub-Appendix E-1: List of Attendees		
<i>Name</i>	<i>Title</i>	<i>Contact</i>
<i>Branch Partners</i>		
37. Ann Lefebvre	Area Health Education Center	ann_lefebvre@med.unc.edu
38. Betsy Vetter	American Heart Assoc./American Stroke Assoc.	Betsy.Vetter@heart.org
39. Kenisha Riley	State Health Plan	Kenisha.Riley@nctreasurer.com
Injury and Violence Prevention Branch / Forensic Tests for Alcohol Branch		
<i>Branch Staff</i>		
40. Alan Dellapenna	Branch Manager (IVP)	alan.dellapenna@dhhs.nc.gov
41. Paul Glover	Branch Manager (FTA)	paul.glover@dhhs.nc.gov
42. Margaret Vaughn	Program Consultant (IVP)	margaret.vaughn@dhhs.nc.gov
43. Glorina Stallworth	Program Manager (IVP)	glorina.stallworth@dhhs.nc.gov
<i>Branch Partners</i>		
44. Ellen Schneider	UNC Center for Health Promotion & Disease Prevention	ecschnei@email.unc.edu
45. Jennifer Smith	Eastern Carolina Injury Prevention Program	jesmith@vidanhealth.com
Physical Activity and Nutrition Branch		
<i>Branch Staff</i>		
46. Cathy Thomas	Branch Manager	cathy.thomas@dhhs.nc.gov
47. Lori Rhew	Physical Activity Unit Manager	lori.rhew@dhhs.nc.gov
48. Sam Thompson	Data Manager	sam.thompson@dhhs.nc.gov
49. Mary Bea Kolbe	Healthy Communities Coordinator	marybea.kolbe@dhhs.nc.gov
50. Jamie Cousins	Community Programs Coordinator (for D. Beth)	jamie.cousins@dhhs.nc.gov
<i>Branch Partners</i>		
51. Alice S. Ammerman	UNC Center for Health Promotion & Disease Prevention	Alice_ammerman@unc.edu
52. Carolyn Dunn	4H Youth Devel/ and Family and Consumer Sciences	Carolyn_Dunn@ncsu.edu
53. Dave Gardner	Eat Smart, Move More NC	dgardner@unca.edu
Tobacco Prevention and Control Branch/Asthma Program		
<i>Branch Staff</i>		
54. Sally Herndon	Branch Manager	sally.herndon@dhhs.nc.gov
55. Cindy Haynes-Morgan	Asthma Program Manager	cindy.haynesmorgan@dhhs.nc.gov
56. Joyce Swetlick	Director of Tobacco Cessation	joyce.swetlick@dhhs.nc.gov
57. Jim Martin	Director of Policy and Programs	jim.martin@dhhs.nc.gov
58. Pamela Diggs	Director of Local Program Development & Regulations	pamela.diggs@dhhs.nc.gov
<i>Branch Partners</i>		
59. Adam O. Goldstein	UNC Family Medicine	aog@med.unc.edu
60. Bronwyn Lucas	Youth Empowered Solutions	bronwyn@youthempoweredolutions.org
61. Pam Seamans	North Carolina Alliance for Health	pamseamans@nc.rr.com
62. Peg O'Connell	North Carolina Alliance for Health	poconnell@fuquaysolutions.com
63. Lisa Johnson	Asthma Alliance	lcjohnso@vidanthealth.com
State Center for Health Statistics		
64. Karen Knight	Director	karen.knight@dhhs.nc.gov
65. Kathleen Jones-Vessey	Statistical Services Manager	kathleen.jones-vessey@dhhs.nc.gov
NC LOCAL HEALTH DIRECTOR ASSOCIATION		
66. Beth Lovette	Watagua County	beth.lovette@apphealth.com
67. Christopher Szwagiel	Franklin County	cszwagiel@franklincountync.us
68. Helene Edwards	Hoke County	hedwards@hokehealth.org
69. John Morrow	Pitt County	john.morrow@pittcountync.gov
70. Michael Rhodes	Greene County	mrhodes@co.greene.nc.us
71. Paula Carden	Jackson County	paulacarden@jacksonnc.org

APPENDIX E. APRIL 29, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Sub-Appendix E-2: Meeting Agenda

Time	Activity
9:00 am	Meeting Start: Wake Commons Building, 4011 Cary Drive, Raleigh, NC 27610
9:00 am	Welcome and Introductions – Dr. Ruth Petersen
9:15 am	Overview of the CCDIHP State Plan and Vision for its Use – Christine Ogden
9:20 am	Summary of Progress to Date – UNC
9:45 am	Building Consensus on State Plan Strategies -- <u>Break Out Session #1: Small Groups by Branch</u> This session is designed to engage Branches and their partners in the review of a (condensed) list of strategies/priorities identified for inclusion in the CCDIHP State Plan (this session includes a break). <i>Note: the table you were assigned to upon arrival is your break-out group #1.</i>
12:15 pm	Lunch (provided) and Networking Time
1:00 pm	Large-Group Debrief of Break-Out Session #1
1:15 pm	Implementation Opportunities for State Plan – <u>Break-Out Session #2: Mixed Small Groups</u> This session provides an opportunity to engage attendees about opportunities to implement strategies in a coordinated manner among state staff, local health departments, and other partners. <i>Note: Please refer to the <u>Small Group Seating Summary</u> to locate your break-out group.</i>
2:45 pm	Break
3:00 pm	Communication Approaches for Coordinated Chronic Disease & Injury Prevention – <u>Break-Out Session #3: Small Groups by Meeting Attendee Category</u> Meeting attendees will discuss and provide input on communication approaches for coordinated chronic disease and injury prevention activities. <i>Note: Please refer to the <u>Small Group Seating Summary</u> to locate your break-out group.</i>
3:45 pm	Large Group Overview of Future Partnership Opportunities Meeting attendees will discuss how future meetings may assist with coordination among partners to prevent chronic disease and injury in North Carolina.
4:00 pm	Review of Next Steps and Feedback Session – UNC This session will provide an overview of the next steps in the state plan development process. Meeting attendees will also complete a feedback form.
4:15 pm	Comments/Questions & Answers – Dr. Ruth Petersen, Christine Ogden, UNC
4:30 pm	Meeting End

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NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Sub-Appendix E-3: Meeting Summary

Background: On April 29, 2013 team members from the University of North Carolina Gillings School of Global Public Health (Carolyn Crump, Robert Letourneau, and Rachel Page) and members of the Coordinated Chronic Disease and Health Promotion (CCDP) Project Work Team facilitated a strategic planning meeting for 71 public health professionals representing the following entities: 1) NC Division of Public Health Chronic Disease & Injury (CDI) Section leadership and staff members; 2) representatives from the NC Local Health Directors Association; 3) and Section and Branch partners at the state, regional, and local/community level. The purpose of the strategic planning meeting was to gather partner input for the NC Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan as part of the Section's CDC-funded CCDP Project. Using a four-question written survey, participants were asked to provide feedback about the strategic planning meeting. Of the 71 meeting attendees, 56 submitted a feedback form at the end of the day (response rate = 79%). This appendix provides a summary of the feedback survey results.

Question 1

Using a six-point Likert scale (with 1=not useful and 6=very useful), participant were asked ***how well the meeting helped them understand the purpose of the NC CCDIHP State Plan.*** The average response and Standard Deviation for each category of attendee, and total, is presented below:

Attendee Category	Average	Standard Dev.
NC CDI Section Staff (n=30)	4.6	0.9
External Partners (n=19)	4.8	0.6
Local Health Director (n=5)	5.2	0.4
Other (n=2)	6.0	0.0
Total (n=56)	4.8	0.8

Question 2

Using a six-point Likert scale (with 1=not well and 6=very well), participant were asked ***how effectively the meeting provide an opportunity for you to provide input into the CCDIHP State plan.*** The average response and Standard Deviation for each category of attendee, and total, is presented below:

Attendee Category	Average	Standard Dev.
NC CDI Section Staff (n=30)	4.7	0.8
External Partners (n=19)	5.1	0.9
Local Health Director (n=5)	5.2	1.3
Other (n=2)	6.0	n/a ^a
Total (n=56)	4.9	0.9

^a One respondent did not include an answer for Question 2. Standard Deviation calculations could not be performed.

Question 3

Using an open-ended question format, participants were asked ***what they liked best about the meeting.*** The following responses were provided, grouped by response them and meeting attendee category:

4. Stakeholder/Partner Interaction and Engagement (n=26)

CDI Staff (n=14)

- Partners
- Meeting all of the community partners and stakeholders throughout the state.
- Meeting w/ partners.
- Efforts to bring partners together.
- Hearing from partner groups. Thank you for providing lunch and breakfast.

APPENDIX E. APRIL 29, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

- Expanding the discussion beyond the CWT work groups to get extremely valuable input from our partners.
- Opportunity to interact w/ other branches and their partners.
- Networking opportunity for new partnerships.
- Opportunity to meet staff across the section & talk about what common strategies we use.
- Hearing from partners.
- Engaging w/ new partners! Learning about specific efforts in an area that I'm not currently engaged. Meeting new stakeholders. Thoughtful process about how to collaborate & address this approach.
- Time to hear from partners and learn about the process thus far - and provide input.
- Broad partner representation!
- The opportunity to meet different partners.

External Partners (n=9)

- Interacting with organization/people that are working on the same stuff, but our paths haven't crossed yet.
- Diversity/inclusion of participants; opportunities for input and being heard.
- Opportunities for interaction with staff & partners from multiple diseases, conditions, etc.
- Seeing the different partners/organizations & hearing their input.
- Opportunity to interact with different groups of individuals.
- The ability to meet new partners for my network of people interested in promoting health in NC. The models to help understand the CCDIHP State Plan.
- Dr. Crump and her team always do a good job. Enjoyed working with others across the state.
- Meeting a lot of people from different areas. Thinking about common issues.
- Opportunity to network with relevant partners.

Local Health Directors (n=2)

- Interaction with different group members - learning about activities & programs.
- Bringing partners together.

Other (n=1)

- This meeting allowed an opportunity to see the challenges & strengths around obtaining consensus and support for the state plan. The value of engaging many stakeholders.

5. Small Group Discussion Groups and Interactions (n=22)

CDI Staff (n=12)

- Small groups gave plenty of opportunities for everyone to share. Framed up well for purpose (input not decisions and background).
- Break outs 1 & 3 - two was a little too nondescript. I loved the session/overview from Carolyn - it was a great timeline (summary & detail, but not too long).
- Group discussions; hearing from partners about what was messy in the plan; attempting creative cross-cutting coordination - some good ideas; time to talk to peers; great lunch!
- Small group discussions, particularly 1 & 2.
- Small breakout sessions were great - very interesting to hear perspectives from lots of folks (especially community partners).
- Small group discussions provided great opportunities to provide feedback/input.
- Work group sessions - well-organized, good discussions.
- The interaction with other groups. Moving around three times kept it fresh.
- I really liked being at different small groups to get to know the various partners better. I think I made a new connection.
- Liked varied group structure. Learning about thoughts of new people I didn't know before. Feedback from so many that will allow us to "refocus", "regroup". Challenging questions to consider.
- Being seated w/ various people (Breakouts #2 & #3).
- Engaging; group discussion. Clearly well thought-out.

APPENDIX E. APRIL 29, 2013 PARTNER ENGAGEMENT MEETING SUMMARY

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

External Partners (n=7)

- Different round table discussions.
- The moving into different groups that enables conversation from different groups and perspectives.
- Overview & group discussions.
- Small group facilitated discussions.
- I really enjoyed changing groups to have the opportunity to talk with everyone and get different perspectives. Materials given to the group were comprehensive.
- Discussions in the breakout groups and the changing from one group to another.
- Small groups 1 & 3 were good. We do need to integrate this process with NCA4C and other stakeholders as we move forward.

Local Health Directors (n=2)

- Great variety of representation. Small table setting worked well.
- Break out groups with different stakeholders. Meeting space great, facilitators great.

Other (n=1)

- I was impressed with the process of coordinating the groups and facilitating the process.

6. Other Comments (n=6)

CDI Staff (n=2)

- Health disparities conversation/questions.
- Talking about exciting ideas with smart people.

External Partners (n=3)

- Positive attitudes and perspectives of public health community during particularly difficult times.
- Opportunity to give feedback on strategic plans.
- Seeing that state health leadership understand commonalities of disease risk and are trying to do something.

Local Health Directors (n=2)

- AAHAA! Moments

Question 4

Using an open-ended question format, participants were asked **what they liked least about the meeting**. The following responses were provided, grouped by category:

5. Meeting Length, Breaks, and Lunch (n=12)

CDI Staff (n=7)

- No time to talk to key partners.
- Not enough time to read/digest strategies. THANK YOU!!
- Just a lot to cover in a short amount of time!
- A bit lengthy...
- Too much sitting; no time for PA break (n=3)

External Partners (n=3)

- Ending time challenging for long drive back to mountains.
- Lunch could have been healthier - whole grain bread, smaller cookie.
- Sometimes a bit unfocused. Room too noisy for group discussion. Unhealthy food: cookies, chips.

Local Health Directors (n=2)

- The length, but could not have been shorter to accomplish this.
- Length

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

6. Small Group Discussion Groups and Interactions (n=11)

CDI Staff (n=7)

- Breakout 2.
- Sometimes the breakouts got off track and didn't stick to the assigned topic.
- It would have helped if all questions to be discussed had been written out for all to read and consider - not just facilitation.
- Breakout sessions all took place in the same room. It was too loud. People need to be more involved throughout the process.
- I thought there needed to be additional time built in to 1st session for overall reaction to plan/questions, etc. Hard for group to jump in to questions.
- Being seated w/ various people (Breakouts #2 & #3).
- Not clear how to engage group going forward. Hope this is resolved soon. Self-facilitation didn't work as well in the last session but could have been because so tired.

External Partners (n=3)

- Amount of time - 2nd breakout session instructions seemed unclear.
- Facilitators at 2 of my 3 small group tables were not prepared in advance. It made the discussion difficult and unclear.
- Small group #2 was a struggle.

Local Health Directors (n=1)

- People off topic.

7. Lack of Clarity about Process, Strategies, and Next Steps (n=11)

CDI Staff (n=4)

- Seemed too soon to have meeting - more prep needed.
- What the final product will look like is still unclear.
- Lots of information. Little unsure about the future of this group but optimistic.
- Probably needed more details about communication plan.

External Partners (n=6)

- I feel the list of strategies used at the meeting were not ready for discussion. The leadership of DPH should have taken the first stab at some sort of prioritization and consistency. We need your leadership in working in the highest need areas. Drastic cuts should lead to letting things go - what are those things? You simply CANNOT continue to do all the things you have in the past.
- Wanted more info on assessment of disparities & feasibility elements.
- The process of strategy development and mechanisms for moving forward were a little opaque. Be concrete with examples while being non-directive. Alphabet soup occasionally confusing. Seems like meeting was DPH staff-heavy & partner-lite.
- So much new information, rushed. Even with prep ahead, and knowledge of the changes, it was a challenge to keep abreast. Hoped for a summary plan - would definitely like a follow-up report from Leadership re: how this info was used, follow-up to plan prior to submission & plan going forward.
- Still some vagueness about the entire process and the ultimate outcome (e.g., what does it mean to "increase" or "improve" a particular domain?)
- Frustrating to see the coordinated state plan strategies were, in fact, not coordinated - they were very siloed/fragmented. Also frustrating that the strategies weren't tied to data/burden (or, if they were, it wasn't apparent).

Local Health Directors (n=1)

- The vagueness of the strategies.

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8. Concerns about Participation in the Process (n=4)

CDI Staff (n=2)

- Follow up & next steps still seem to be going back to upper level management. That leaves the community we serve out of the decision-making process. Partners are giving input on plans already developed. They should be part of the planning throughout - some branches are doing that more than others.
- Probably still need more local community representation.

External Partners (n=2)

- N/A though would have liked to see more representation from faith and community based organizations and other non-traditional partners.
- Not seeing as many community partners.

9. "Not-Applicable" (n=7)

CDI Staff (n=3)

- Nothing - great job.
- N/A
- N/A

External Partners (n=1)

- N/A

Local Health Directors (n=1)

- N/A

Other (n=2)

- All was great!
- N/A

APPENDIX F. DETAILED STRATEGIES USED TO DEVELOP FINAL PLAN STRATEGIES

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Introduction

This appendix provides a list of the coordinated strategies (n=77) proposed by CDI Section Branches for consideration in the North Carolina Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan. Two summary tables were developed to organize the coordinated strategies, as follows: Strategy Distribution by CDC Domain, by Section, and by Branch (Table F-1); and Strategy Distribution by CDC Domain and Number of Branches identified for Coordination (Table F-2).

The 77 (Tables F-3, F-4, F-5, and F-6) strategies were reviewed and discussed at a facilitated SMT meeting on June 12, 2013. During this meeting, SMT members reviewed the strategies, discussed the degree of ‘coordination’ identified for the strategies, and distilled the list of 77 strategies to a revised list of 48 by combining strategies that were similar in focus and/or target group/setting. Branch managers next voted on strategies they felt were ‘most important’ for the state plan (10 votes each).

Of the 48 strategies, a total of 9 strategies received three or more “votes” from seven voting Branch Managers (senior management at the meeting did not vote), and a total of 21 strategies received at least one vote. Based upon SMT discussion at a meeting held one week later, the list of nine strategies was reduced to eight (two were combined into one). In October 2013, the CDI Management team revised the number strategies to better align with current events in public health. The final number of strategies included in the State Plan is nine.

APPENDIX F. DETAILED STRATEGIES USED TO DEVELOP FINAL PLAN STRATEGIES

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

Table F-1. Strategy Distribution by CDC Domain; by Section and by Branch (n=77).

	Section		Asthma		Tobacco		Cancer		Diabetes		HDSP		PAN		IVP/FTA	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
D1: Epidemiology & Surveillance	8	11%	2	25%	3	19%	3	21%	0	0%	0	0%	0	0%	0	0%
D2: Strategies to Support and Reinforce Healthy Behaviors	40	53%	3	38%	10	63%	4	29%	1	14%	6	67%	9	100%	8	57%
D3: Health Systems	11	14%	0	0%	3	19%	1	7%	3	43%	2	22%	0	0%	2	14%
D4: Community-Clinical Linkages	17	22%	3	38%	0	0%	6	43%	3	43%	1	11%	0	0%	4	29%
Total	77	100%	8	100%	16	100%	14	100%	7	100%	9	100%	9	100%	14	100%

Table F-2. Strategy Distribution by CDC Domain; by Section and by Branch and Number of Branches Identified for Coordination (n=77).^a

	7 Branches (ALL)		6 Branches		5 Branches		4 Branches		3 Branches		2 Branches		1 Branch	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
D1: Epidemiology & Surveillance (n=8)	2	3%	0	0%	1	1%	1	1%	0	0%	1	1%	3	4%
D2: Strategies to Support and Reinforce Healthy Behaviors (n=41)	12	16%	7	9%	8	10%	9	12%	3	4%	2	3%	0	0%
D3: Health Systems (n=11)	3	4%	2	3%	3	4%	1	1%	1	1%	1	1%	0	0%
D4: Community-Clinical Linkages (17)	2	3%	1	1%	4	5%	3	4%	4	5%	2	3%	1	1%
Total (n=77)	19	25%	10	13%	16	21%	14	18%	8	10%	6	8%	4	5%

^aWe excluded from Branch coordination counts any entity other than the seven CDI Section Branches (e.g., AST, TOB, CAN, DBT, HDSP, PAN, and IVP/FTA). There were 29 strategies that, in addition to being coded for these seven branches, identified “other” non-Branch entities (e.g. State Center for Health Statistics, School Health) or other programs (e.g. Community Transformation Grant).

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Table F-3. Domain 1 Strategies (n=8).

Domain 1 Epidemiology and Surveillance <i>Gather, analyze, and disseminate data and information and conduct evaluation to inform, prioritize, deliver, and monitor programs and population health. This may include the creation of inventories or conducting research</i>	
1.	Promote translation of primary prevention research into practice through collaboration with research partners for the development of programmatic interventions.
2.	Increase awareness and knowledge of issues relevant to cancer survivors through collaboration with research partners to assess health risks associated with cancer treatments.
3.	The Asthma Program will collaborate with other Chronic Disease branches to conduct evaluation studies to evaluate the health and economic impact of policies and interventions implemented by other branches. For example, The Asthma Program will work with the Tobacco Prevention and Control Branch to study the impact of Smoke-Free Restaurants and Bars Law on Asthma ED visits.
4.	Create, conduct and disseminate evaluation studies to build support for evidence based interventions. For example, conduct evaluation studies to identify the health and economic impact of smoke-free restaurants and bars law on North Carolina residents.
5.	Maintain surveillance systems to monitor and respond to health behavior trends (tobacco use, cigarette smoking, smokeless tobacco, other tobacco products, and the use of emerging products, others?), as well as attitudes. For example, TPCB will conduct the Youth Tobacco Survey (YTS), support the Youth Risk Behavior Survey (YRBS), and work in collaboration with the State Center for Health Statistics to support the Behavior Risk Factor Surveillance System (BRFSS).
6.	Work in collaboration with the State Center for Health Statistics to support and utilize monitoring and surveillance of chronic diseases (specifically asthma), risk factors, and health behaviors through YRBS, CHAMP, BRFSS, hospitalization data, and other data available. The Asthma Program will also work with NC DETECT to collect and monitor the ED visits for Asthma.
7.	Promote health equity through enhancement of existing data sources to collect and report incidence, prevalence, morbidity and mortality among subpopulations: by age, gender, race/ethnicity, income, educational level attained, health literacy, health insurance status, geographic location, language or other socio-demographic factors.
8.	Coordinate with state surveillance system to collect population- based information on demographics, incidence, and mortality in order to enhance the quality, timeliness, and public health impact of efforts to translate research into practice for segments of the high risk populations.

Table F-4. Domain 2 Strategies (n=41).

Domain 2 Strategies to Support and Reinforce Healthy Behaviors <i>Environmental approaches that promote health, and support and reinforce healthful behaviors in diverse settings including schools, worksites, and communities. These might include efforts to increase or decrease access, changes to state/local policy, changes to built environments, implementing nutrition standards, and worksite wellness initiatives. Also includes development, advocating for, enactment, or enforcement of policies or general statements about the “social” or “normative” environment.</i>	
9.	Provide educational training to DPH staff and partners on what works to prevent and reduce the burden of chronic diseases and injury in North Carolina.
10.	Develop policy agenda through engagement and education of policy makers and key stakeholders on disease burden with inclusion of evidence based interventions for effective primary prevention.
11.	Promote sustainable population-based interventions through the utilization of incidence, mortality and behavioral risk factor data in order to develop common cancer prevention goals, objectives, and action plans that use policy, systems and environmental changes.
12.	Implement primary prevention through formal agreements that are consistent with chronic disease partner messages through coordination with partners, such as tobacco, physical activity, nutrition, obesity, vaccination, and diabetes to maximize resources and ensure use of consistent messaging.
13.	Advocate for community planning, roadway and community design, construction and maintenance that supports evidence-based strategies that improve health and reduce injury. Examples include: safe use by motor vehicles, bicycles, and pedestrians, tobacco-free environments, and reduced tobacco retailer density and advertising near youth-focused venues.

APPENDIX F. DETAILED STRATEGIES USED TO DEVELOP FINAL PLAN STRATEGIES

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Table F-4. Domain 2 Strategies (n=41).

Domain 2 Strategies to Support and Reinforce Healthy Behaviors <i>Environmental approaches that promote health, and support and reinforce healthful behaviors in diverse settings including schools, worksites, and communities. These might include efforts to increase or decrease access, changes to state/local policy, changes to built environments, implementing nutrition standards, and worksite wellness initiatives. Also includes development, advocating for, enactment, or enforcement of policies or general statements about the “social” or “normative” environment.</i>	
14.	Utilize task forces and councils to promote evidence-based public health policy to prevent and manage chronic diseases, injury, and related risk factors (e.g., Justus-Warren Heart Disease and Stroke Prevention Task Force, Diabetes Advisory Council, and the Eat Smart, Move More, N.C Leadership Team).
15.	Promote a coordinated communications campaign through various channels (e.g., mass, small, social media or interpersonal communication) to influence active living and healthy eating behaviors of target audiences via Eat Smart, Move More NC messages.
16.	Promote healthy behaviors and the environments that support them in worksites.
17.	Educate the public and decision-makers of the health and economic benefits of price increases on tobacco products, to prevent young people from becoming addicted and helping tobacco users who want to quit. Or---Educate the public and decision-makers on the health and economic benefits of price increases on tobacco products, alcohol, and empty calorie foods while at the same time making healthy foods more accessible. Note: decision-makers may be public or private, depending on the legal or policy context. Through: Increase the price of cigarettes to the national average and other tobacco products by increasing the tax to an amount equivalent to the tax on cigarettes by modernizing the tax of the product wholesale price. (ADD specifics for alcohol and empty calorie foods here). These revenues should be used for a broad range of prevention activities including preventing and reducing dependence on tobacco, alcohol –related injuries, and-obesity. Or?? IVP?? PAN?? How would you edit for alcohol and food?
18.	Incrementally increase recurring funding for evidence based tobacco control and chronic disease and injury prevention programs in order to save lives and reduce avoidable health care costs. Consider sources to include public funds, including MSA funds, tobacco taxes, alcohol taxes, empty calorie food taxes, as well as partnerships with Medicaid, hospitals, health insurers, health foundations, and other stakeholders in healthy schools, communities, workforces and/ or healthy populations.
19.	Work with state and local coalitions and partners to maintain a statewide smoke-free law for all NC restaurants and bars, and to build support for a comprehensive smoke-free law and other evidence-based tobacco-free policies for local government buildings, government grounds, public places, and college campuses.
20.	Utilize media campaigns/social marketing/social media, in collaboration with other evidence-based strategies, to influence behaviors and increase awareness regarding chronic disease and injury prevention, along with relevant risk factors.
21.	Build and sustain existing policy committees or workgroups dedicated to planning and implementing policy and environmental changes as part of the existing Advisory Committee/task force council.
22.	Promote reimbursement strategies to reduce patient out-of-pocket costs for medications to control high blood pressure, high cholesterol, diabetes, and other chronic diseases and related risk factors in combination with improved patient-provider interaction and patient knowledge (e.g., team-based care with medication counseling and patient education).
23.	Promote the awareness, adoption and implementation of food service guidelines/nutrition standards (including sodium intake) in early care and education.
24.	Promote the adoption of physical education/physical activity in K-12 schools.
25.	Promote the implementation of physical activity programming in early care and education (ECE) and the implementation of ECE standards for physical activity.
26.	Increase physical activity access by creating and/or enhancing access to places for physical activity with focus on walking combined with informational outreach.
27.	Increase physical activity access and outreach through increasing and supporting streets and communities designed for physical activity.
28.	Work with partners to disseminate elements of an existing mass media campaign, such as CDC’s Tips from Former Smokers, to educate about the addictiveness and harms of tobacco use, and the harms of exposure to secondhand smoke with the purpose of preventing tobacco use among young people and encouraging cessation among users of all ages. Messages modified and placed to reach specific disparate audiences as well as a general audience. Earned and social media to support campaign.

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Table F-4. Domain 2 Strategies (n=41).

Domain 2 Strategies to Support and Reinforce Healthy Behaviors <i>Environmental approaches that promote health, and support and reinforce healthful behaviors in diverse settings including schools, worksites, and communities. These might include efforts to increase or decrease access, changes to state/local policy, changes to built environments, implementing nutrition standards, and worksite wellness initiatives. Also includes development, advocating for, enactment, or enforcement of policies or general statements about the “social” or “normative” environment.</i>	
29.	Ensure that schools are safe and healthy environments for all students (especially for children with asthma and other chronic conditions). Ways to ensure this is by promoting EPA’s Indoor Air Quality Tools for Schools Action Kit, implementing school-based policies such as 115C-375.2 and the Children’s Health Act of 2006), promote new policies as they relate to air quality and physical environment by working with various state agencies, and promoting 100% Tobacco-Free Schools compliance.
30.	Ensuring that all schoolchildren with chronic conditions have care plans.
31.	Educate NC residents about .08% BAC laws and impact of driving after drinking through mass media campaigns, as well as presence and enforcement of laws at sobriety checkpoints. If other branches identified conducting media campaigns about the effects of alcohol and health, this strategy should be combined with alcohol messages. The branches checked have alcohol as contributing factors in health conditions worked on by the branch.
32.	Increase enforcement of .08% BAC laws through placement of BAT Mobiles and sobriety checkpoints across the state. The presence of BAT Mobiles and sobriety checkpoints will also increase visibility of enforcement of .08% BAC laws. Alcohol is a major contributing factor in chronic disease, opportunities for intervention following a DWI arrest is an effective strategy in addressing alcohol abuse.
33.	Advocate for legislation, enforcement, and proper implementation of programs that require the installation of an automobile alcohol detection interlock device that prevents the ignition of a motor vehicle when alcohol is detected on a driver’s breath in jurisdictions across North Carolina. Alcohol is a major contributing factor in chronic disease, opportunities for intervention following a DWI arrest is an effective strategy in addressing alcohol abuse.
34.	Advocate for the enactment, implementation and enforcement of legislation lowering the legal blood alcohol concentration for young and/or inexperienced motor vehicle drivers across North Carolina. Alcohol is a major contributing factor in chronic disease, effective early intervention in alcohol abuse is an effective strategy in addressing alcohol abuse.
35.	Advocate for legislation to retain North Carolina’s Alcohol Beverage Control system and limit the privatization of retail alcohol sale control. This evidence-based strategy retains community control of the alcohol availability across North Carolina. Alcohol is a major contributing factor in chronic disease, this environmental strategy impacts multiple branches where alcohol is a contributing strategy.
36.	Increase adherence of medical providers to clinical guidelines by providing training on the accurate methods to take BP measurement (e.g., NC BP Measurement Mini course).
37.	Collaborate with local health departments and local housing authorities to help ensure that homes are safe and healthy environments and promoting healthy home environments. Focus-on known health and injury risks such as asthma triggers (mold, lead, allergens, secondhand smoke, pesticides, and air filtration); fire and injury prevention, prevention of exposure to carcinogens such as radon, etc. One way to do this would be to train and educate environmental technicians on how to conduct environmental assessments in homes; eg. “Healthy Homes” assessments. During these assessments, the technicians will assess the indoor and outdoor environment of the homes to identify possible asthma triggers that can impact the residents’ health.
38.	Develop and implement healthy worksite nutrition strategies (including sodium) that combine: education; wellness teams and comprehensive food policies; marketing techniques and incentives.
39.	Promote the awareness, adoption and implementation of food service guidelines/nutrition standards (including sodium intake) in schools.
40.	Advocate for the implementation of fall injury prevention programs that develop muscle strengthening of people vulnerable for fall injuries.
41.	Collaborate with the Department of Mental Health, Developmental Disabilities and Substance Abuse Services and other partners to provide training, technical assistance and resources to promote adoption of Mental Health/ Developmental Disabilities facilities and Substance Abuse Services State facilities that have tobacco-free campuses to reach high risk population.

APPENDIX F. DETAILED STRATEGIES USED TO DEVELOP FINAL PLAN STRATEGIES

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Table F-4. Domain 2 Strategies (n=41).

Domain 2 Strategies to Support and Reinforce Healthy Behaviors <i>Environmental approaches that promote health, and support and reinforce healthful behaviors in diverse settings including schools, worksites, and communities. These might include efforts to increase or decrease access, changes to state/local policy, changes to built environments, implementing nutrition standards, and worksite wellness initiatives. Also includes development, advocating for, enactment, or enforcement of policies or general statements about the “social” or “normative” environment.</i>	
42.	Work with partners to distribute coordinated paid, earned and social media messages to support smoke-free and tobacco-free environments, such as multi-unit housing, public places and college campuses. Campaign to be managed and placed by local communities working on smoke-free and tobacco-free issues and policies locally. Messages and planning tailored to reach critical populations through various media, as selected locally.
43.	Work with CTG Project, state and local grantees and partners to reach multi-unit housing managers, owners and public housing authorities to provide training, technical assistance and resources to promote effective adoption and implementation for smoke-free multi-unit housing. The emphasis will be on public housing and affordable housing; however strategies to work with market rate multi-unit housing will also be included as resources allow.
44.	Increase healthy food access and outreach by creating and/or enhancing places where fruits and vegetables (and other healthy foods) are available.
45.	Support low-sodium food procurement policy change among State and local governments, school systems, work sites, hospitals, institutionalized populations, assisted living communities, colleges and universities, community-based organizations (including faith-based organizations), and day care centers.
46.	Coordinate with the Department of Public Instruction, School Health Advisory Committees, local school districts, school leaders and school health programs to assure compliance with the 100% tobacco-free school policy.
47.	Work toward increasing information and evidence regarding improving health outcomes and reducing injury through point of sale interventions for tobacco prevention and control, healthy eating and alcohol consumption. Strategies may include: 1) convening meetings to increase understanding of the research, as well as the legal and policy context; 2) conduct store observations; (standardized core and supplemental templates are under development for tobacco for 2014); 3) mapping retailers (two data sources have been identified); 4) conducting public opinion polls; and 5) building coalitions - especially of youth, tobacco users who want to quit, and survivors of tobacco attributable diseases?
48.	Promote safe storage of firearms to reduce the risk of unintentional and violent injury and death among North Carolina residents through education of the Safe Firearms Storage Act to increase the safe storage of firearms. This would be part of a home visitation program proposed by TOB.
49.	Advocate for roadway design, construction and maintenance that includes safe roadway use by motor vehicles, bicycles, and pedestrians across North Carolina.

Table F-5. Domain 3 Strategies (n=11).

Domain 3 Health Systems Change <i>Health system interventions to improve the effective delivery and use of clinical and other preventive services in order to prevent disease, detect diseases early, and reduce or eliminate risk factors and mitigate/manage complications. Includes: prompting electronics (electronic health records), quitlines, screening.</i>	
50.	Improve the coordination and management of primary care using a team-based approach (health care providers, allied health providers, and non-traditional providers such as community health workers) to control blood pressure, cholesterol, diabetes, and other chronic disease conditions and risk factors.
51.	Educate and prompt healthcare providers to identify and intervene with patients with high risk factors for chronic diseases such as tobacco-using clients using electronic health records and evidence based strategies from the Clinical Practice Guidelines. Provide additional educational materials in Community Health Centers, Community Care Centers of North Carolina networks, Free Clinics and mental health and substance abuse treatment facilities.
52.	Promote the use of Electronic Health Records (EHRs) as a clinical patient quality improvement strategy that tracks blood pressure, cholesterol, blood glucose, and other chronic disease indicators.
53.	Encouraging medical practices to use quality of care standards and continuously improve the quality of their care delivery.

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Table F-5. Domain 3 Strategies (n=11).

Domain 3 Health Systems Change

Health system interventions to improve the effective delivery and use of clinical and other preventive services in order to prevent disease, detect diseases early, and reduce or eliminate risk factors and mitigate/manage complications. Includes: prompting electronics (electronic health records), quitlines, screening.

54.	Change health systems to implement clinical practice guidelines and develop and implement an electronic referral system to chronic disease self-management programs, including QuitlineNC for tobacco users who want to quit, add others here.
55.	Utilize Team Up, Pressure Down to institute a team based approach to improve blood pressure control with nurses and pharmacists working in collaboration with primary care providers, patients, and other professionals.
56.	Assure that medical providers are trained in evidence-based electronic screening for alcohol abuse and brief intervention counseling for patients in a clinical setting.
57.	Assure that population-based approaches to tobacco dependency treatment including but not limited to QuitlineNC includes the evidence based combination of coaching plus FDA approved tobacco treatment medications, such as the provision of nicotine replacement therapy as it is evidence-based to increase quit rates and create a higher return on investment.
58.	Assure the screening of patients for fall risk factors by medical providers with follow-up muscle strengthening and/or balance training in home or community settings.
59.	Identifying women who have had gestational diabetes and offer them information about maintaining a healthy weight to prevent diabetes and/or management education and materials about prevention.
60.	Reimbursing for diabetes primary prevention.

Table F-6. Domain 4 Strategies (n=17).

Domain 4 Community Clinical Linkages

Strategies to improve community-clinical linkages ensuring that communities support and clinics refer patients to programs that improve management of chronic conditions. Such interventions ensure those with or at high risk for chronic diseases have access to quality community resources to best manage their conditions or disease risk. Includes lifestyle-change programs (e.g., YMCA, Senior Centers), such as self-management.

61.	Provide training on 5A's of Behavioral Counseling Framework to promote lifestyle behavior changes.
62.	Utilize small media as a population-based health promotion tool. Videos and printed materials such as letters, brochures, and newsletters can educate and motivate people to develop healthy lifestyle behaviors. These materials can be distributed through population-based health interventions, community settings or healthcare systems and do not have to be tailored to specific populations.
63.	Promote increased numbers of schools nurses to achieve the goal of one nurse per 750 students and increase the number of schools with full-time nurses on staff.
64.	A New Leaf Choices for Healthy Living structured assessment and counseling tool that emphasizes practical strategies for making changes in dietary and physical activity behaviors.
65.	Increasing access to Diabetes Self-Management Education in communities through encouraging participation in recognized programs.
66.	Encouraging the use of community health workers to promote health and extend health services.
67.	Collaborate with Project Lazarus to address prescription drug overdoses among North Carolina residents through community activation and coalition building, monitoring and surveillance of data, educating community members on the use of opioid antagonists and necessity of seeking medical attention for persons suffering from an overdose.
68.	Promote chronic disease self-management programs and tools such as asthma action plans. Through the Asthma Education trainings and collaborating with local health departments, school nurses, and CCNC network we can provide educational outreach on the level of importance of providers, schools, and parents utilizing a specified action plans for kids living with asthma. This could also be done by encouraging healthcare providers to include chronic disease self-management templates in their Electronic Health Record systems.
69.	Increase number of Referral to Chronic Disease Self Management Program (CDSMP) for people who have taken DSME for continued education (Community settings, e.g. senior centers or Dr office).
70.	Assure the available to evidence-based balance training for patients screened for fall risks.

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Table F-6. Domain 4 Strategies (n=17).

Domain 4 Community Clinical Linkages <i>Strategies to improve community-clinical linkages ensuring that communities support and clinics refer patients to programs that improve management of chronic conditions. Such interventions ensure those with or at high risk for chronic diseases have access to quality community resources to best manage their conditions or disease risk. Includes lifestyle-change programs (e.g., YMCA, Senior Centers), such as self-management.</i>	
71.	Conduct asthma education train-the-trainer trainings with a standardized curriculum for school nurses, child care providers, and other healthcare providers in order to educate them on asthma triggers, asthma self-management, availability of resources, and the importance of understanding the cultural sensitivity when working with individuals with asthma.
72.	Provide Blood Pressure Measurement training to HEALTHCARE Professional providers/coordinators to produce accurate blood pressure readings for more effective diagnosis of hypertension.
73.	Assure the provision of suicide risk identification and intervention Gate Keeper Training at institution such as schools, detention centers, and elder homes to ensure individuals exhibiting suicide ideation and behavior are referred to appropriate behavioral health services.
74.	Improve blood pressure control through promotion of Self-Measured Blood Pressure Monitoring (SMBPM), combined with additional support (i.e., beyond usual care) (e.g., by expanding the Roanoke-Chowan FQHC's telemonitoring initiative and the Heart Healthy Lenoir project models).
75.	Link diabetic WISEWOMAN patients to Diabetes Self-Management Education curriculum provided through Diabetes Education Recognition Program.
76.	Promote drug take-back events giving law enforcement the opportunity to collect and destroy unused or expired prescription medications from NC residents, in order to keep them out of the hands of those who could use or abuse them. This strategy can be combined with a home visitation strategy proposed by TOB.
77.	Coordinate with key stakeholders to implement and sustain programs intended to enhance early detection and treatment activities through use of patient navigator programs and/or community health worker programs, in particular community health workers.

APPENDIX G. ACKNOWLEDGEMENTS

NC Coordinated Chronic Disease, Injury, and Health Promotion State Plan

The Chronic Disease and Injury (CDI) Section acknowledges the contributions of many who helped develop the *NC Coordinated Chronic Disease, Injury, and Health Promotion (CCDIHP) State Plan*. Over the course of 15 months (June 2012-August 2013), five working groups/teams were established, comprised of staff from CDI Section Branches and assisted by a team from the Department of Health Behavior at the Gillings School of Global Public Health at The University of North Carolina at Chapel Hill. The roles of the groups/teams, member names, and positions (during the time the plan was being developed) are described in this section.

COORDINATED WORK TEAM (CWT):

This team was the main working group formed to develop the *NC CCDIHP State Plan*. Members of CWT included representatives from Section Leadership and individuals identified with domain focus expertise, health disparity/ health equity expertise, and subject matter expertise across the chronic disease/ injury/ and health promotion programs.

Monique Bethell, Ph.D., Health Equity Coordinator, Community Transformation Project (CTGP)
Alan Dellapenna, Jr., MPH, RS, Injury and Violence Prevention (IVP) Branch Manager
Leigh Hayden, MA, Evaluator, Heart Disease and Stroke Prevention Branch (HDSP)
Karen Knight, MS, State Center for Health Statistics (SCHS) Director
Mary Bea Kolbe, MPH, RD, LDN, Healthy Communities Manager, Physical Activity and Nutrition Branch (PAN)
Jim Martin, MS, Director of Policy and Programs, Tobacco Control and Prevention Branch (TCPB)
Debi Nelson, MAEd, Cancer Prevention and Control Branch (CPCB) Manager
Christine Ogden, RN, BSN, MSL, CDI Section Operations Manager/Coordinated Project Lead
Sharon Rhyne, MHA, MBA, CDI Section Programs Manager
April Reese, MPH, Diabetes Prevention and Control Branch (DPCB) Manager/Coordinated Project Co-Lead

COORDINATED ADVISORY TEAM (CAT)/SECTION MANAGEMENT TEAM (SMT):

This group provided focused discussion and input for the *CCDIHP State Plan*, particularly for the final selection of Coordinated strategies, process as well as other Coordinated Grant activities. Members included: CWT members listed above; the Section Chief; and the Branch Managers for all remaining programs in the Section (i.e., Section Management Team members not on the CWT Team).

Sharon Boss-Nelson, MPH, CTGP Manager
Paul Glover, MS, DFTCB, Forensic Tests for Alcohol Branch Manager
Sally Herndon, MPH, TCPB Manager
Anita Homes, JD, MPH, HDSP Branch Manager
Ruth Petersen, MD, MPH, CDI Section Chief
Cathy Thomas, MAEd, PAN Branch Manager

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DATA WORK GROUP (DWG):

This group led the development of the burden of chronic disease and injury and presentation of data for strategy prioritization activities. Members included CDI Section and Coordinated Grant Leadership as well as State Center for Health Statistics experts.

Kathleen Jones-Vessey, MS, Statistical Services Unit Manager, SCHS
Karen Knight, MS, SCHS Director
Christine Ogden, RN, BSN, MSL, CDI Section Operations Manager/Coordinated Project Lead
Ruth Petersen, MD, MPH, CDI Section Chief
April Reese, MPH, DPCB Manager/Coordinated Project Co-Lead
Sharon Rhyne, MHA, MBA, CDI Section Programs Manager

STATE PLAN EVALUATION TEAM:

This team assisted with the development of the evaluation plan for the *NC CCDIHP State Plan*, including the identification/development of objectives and measurable outcomes/indicators. Members included select Section leadership and staff with evaluation and epidemiology expertise. The evaluation plan was finalized in October 2013 by members of the Health Data Community of Practice.

Jenni Albright, RD, MPH, PAN Evaluator
Eleanor Fleming, PhD, DDS, CDI Epidemiologist
Leigh Hayden, MA, Evaluator, CPCB
Karen Knight, SCHS Director
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April Reese, MPH, DPCB Manager/Coordinated Project Co-Lead

Health Data Community of Practice members:

- Robert Albury, MS, WiseWoman Data Manager, CPCB
- Matt Avery, MA, Supervisor, Vital Statistics, SCHS
- Kathleen Creppage, MPH, CDC/CSTE Applied Epidemiology Fellow, IVP
- Lydia Dedner, BS, Evaluator, Community and Clinical Connections for Prevention and Health Branch (CCCPH)
- Terence Fitz-Simmons, Phd, Breast and Cervical Cancer Control Epidemiologist, CPCB
- Jasmine Hawthorne, MPH, Evaluator, CPCB
- Danielle Hewson, MPH, CHES, CDC Public Health Prevention Services (PHPS) Fellow, CCCPH
- Karen Hoeve, M.Ed, Social/Clinical Research Specialist, SCHS
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- Sam Lahsae, MS, Asthma Epidemiologist, TPCB
- Tanha Patel, MPH, Evaluator Tobacco Prevention and Control
- Scott Proescholdbell, MPH, Head, Injury Epidemiology and Surveillance Unit, IVP
- Jill Rushing, MS, CTGP Evaluator
- Sammy Tchwenko, MD. MPH, Epidemiology and Evaluation Unit Manager, CCCPH
- Sam Thompson, MSW, Evaluator, CCCPH

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STATE PLAN COMMUNICATION TEAM:

This team developed the communication plan for the *NC CCDIHP State Plan*. Members included Section leadership, staff with communication expertise, and UNC Team members.

Kristin Kearns, MPA, Communications Specialist, CTGP
Elaine Lo, MPH, Coordinated Consultant
Mary Beth Locklear, MPA, Communications Specialist, CCPH
Debi Nelson, MAEd, CPCB Manager
Anne Staples, MCHES, Director of Public Education & Communication, TPCB

UNIVERSITY OF NORTH CAROLINA TEAM:

Faculty and staff from the University of North Carolina at Chapel Hill, Gillings School of Global Public Health, Department of Health Behavior facilitated the CCDIHP State plan development process, provided external review and suggestions, and assisted the Section's collaborative efforts with internal/external partner groups and partners.

Carolyn Crump, PhD, Research Associate Professor
James Emery, MPH, Research Associate
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