

# LIVE HEALTHY CONNECTICUT

## A Coordinated Chronic Disease Prevention and Health Promotion Plan

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Commissioner of Public Health  
State of Connecticut

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## Acknowledgements

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## Executive Committee Members

The Department appreciates the efforts of a dedicated group of experts who provided significant input into the development and completion of this plan. Executive Committee members participated in strategy sessions, facilitated access to information, and reviewed the plan.

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# Letter from the Commissioner



Dear Friends,

More than two million Connecticut residents - or 57% of the total population - suffer from one or more chronic diseases such as asthma, cancer, diabetes, or heart disease.

We know that we can prevent and reduce the impact of chronic disease. We know that healthy kids perform better in school. We know healthy adults perform better at home and at work. We know healthy neighborhoods and communities create a renewable and sustainable level of vitality for our State.

Preventing and reducing the impact of chronic disease requires a broad call to action and forward thinking about how to support healthy lifestyles at the individual, family, neighborhood, and community levels. It requires us to think differently and act collectively on issues that impact health. How do we increase the use of our parks and green spaces? How do we promote walking and cycling? How do we make health services more accessible and affordable? How do we support Connecticut residents in living healthy lifestyles?

Answers to these questions require the Connecticut Department of Public Health, all local health departments and health districts as well as our partners to change public health strategies and to focus on social determinants of health and population-based approaches that will result in greater health equity for all residents. Addressing chronic disease and health inequities requires a coordinated response from individuals, families, communities, local and state agencies, healthcare providers and business and government.

*Live Healthy Connecticut* identifies 12 priority areas to address chronic disease with a focus on promoting health equity. The plan identifies ambitious, achievable and measurable objectives in each of these 12 priority areas. *Live Healthy Connecticut* addresses root causes and shared risk factors across diseases, and defines strategies for a comprehensive *proactive* approach in modifying chronic disease risk factors.

Please join our efforts to prevent and reduce the impact of chronic diseases. Together, we can *Live Healthy Connecticut*.

Very sincerely,

A handwritten signature in black ink that reads "Jewel Mullen, MD". The signature is written in a cursive style.

Jewel Mullen, MD, MPH, MPA  
Commissioner

# Introduction

## Connecticut's Disease Burden

More than two million Connecticut residents - or 57% of the total population - suffer from one or more chronic diseases such as asthma, cancer, diabetes, and heart disease.<sup>1</sup> Chronic diseases account for more than 6 out of 10 deaths.<sup>2</sup> Almost 91% of Connecticut adults report at least one of the following unhealthy behaviors: smoking, being overweight or obese, eating less than five servings of fruits and vegetables per day, and not meeting physical activity recommendations.<sup>3</sup> Nationally, chronic diseases account for \$0.75 of every health care dollar, 81% of hospital admissions, 91% of all filled prescriptions, and 76% of all physician visits.<sup>4</sup>

Chronic diseases disproportionately affect vulnerable population groups based on race, ethnicity, age, gender, socioeconomic position, immigrant status, sexual minority status, language, disability, homelessness, mental illness, and geographic area of residence. For example, adults earning less than \$25,000 per year experience higher rates of diabetes, obesity, high blood pressure, smoking and physical inactivity.<sup>5</sup>

## A Vision for a Healthier Connecticut

A clear and compelling vision guides the Department's efforts: **healthy people in healthy Connecticut communities**. To answer this vision *Live Healthy Connecticut* envisions a future where healthy choices are easy choices, high-quality prevention-oriented health care is widely accessible and high quality community-based prevention programs link closely with clinical systems.

*Live Healthy Connecticut* aims to elevate policy and systems change approaches which are likely to have the broadest and longest lasting impact. *Live Healthy Connecticut* places a premium on achieving health equity - a core component of the Department's mission. Finally the plan emphasizes the critical role of partners and acknowledges the goals set forth in this plan can only be achieved through working collaboratively.

## Setting Goals and Tracking Progress

*Live Healthy Connecticut* identifies ambitious yet achievable goals in 12 priority areas. A comprehensive set of indicators track progress in each of these priority areas. The plan also establishes specific five-year targets to promote accountability and engage partners around common objectives.

## Coordinated Strategies

The strategies and interventions in this plan fall into three broad categories:

- **Environmental approaches that promote health and support and reinforce healthful behaviors.** This strategy focuses on developing and implementing policies and practices that make the healthy choice the default choice such as promoting smoke free policies, school wellness policies and healthy food procurement by large purchasers.
- **Health system interventions to improve the delivery and use of clinical preventive services.** This strategy focuses on establishing policies and practices in health systems that ensure that individuals are receiving the highest standard of preventive care. Examples include cancer screenings, quality dental care, blood pressure control and comprehensive diabetes care.
- **Strategies to improve linkages between community resources and clinical settings.** This strategy focuses on establishing policies and practices to promote use of community-based preventive services and strengthening coordination with clinical services. Examples include home-based asthma interventions, diabetes education and prevention programs and use of community health workers to gather family health history.

## Organizational Alignment

*Live Healthy Connecticut* aligns with the Department's vision, mission and the State Health Improvement Plan. A Public Health Systems Improvement Office provides dedicated staff and accountability for performance management, quality improvement, and is working towards national accreditation.

# Indicators and Targets

*Live Healthy Connecticut* identifies 12 priority areas. Indicators within each priority area identify ambitious, achievable, and measurable targets. The indicators include a core indicator (shown below), secondary or additional indicators, and health equity-related indicators.

The baseline levels for the indicators reflect the current status or disease burden. The 5-year targets allow Connecticut to assess progress toward each goal. The subsequent sections provide more information for each of the 12 priority areas.

## Live Healthy Connecticut Priority Areas and Core Indicators with Baseline and Five-year Targets.

Priority Area	Core Indicator	Baseline (data source)	5-year Target	
<b>1</b>	<b>Health Equity</b>	Percent of DPH databases that meet data collection policy standards	<b>5.4%</b> (2012 Data Quality Improvement Project)	<b>54.0%</b>
<b>2</b>	<b>Nutrition and Physical Activity</b>	Percent of adults (18+y) who meet the recommended 150 minutes or more of aerobic physical activity per week	<b>52.6%</b> (2011 BRFSS)	<b>55.2%</b>
<b>3</b>	<b>Obesity</b>	Percent of children (5-12y) who are obese	<b>18.8%</b> (2008-2010 BRFSS)	<b>17.9%</b>
<b>4</b>	<b>Tobacco</b>	Percent of adults (18+y) who currently smoke cigarettes	<b>17.1%</b> (2011 BRFSS)	<b>15.0%</b>
<b>5</b>	<b>Heart Health</b>	Rate of premature deaths (<75 years of age) from cardiovascular disease	<b>889.0 per 100,000</b> (2007-2009 Death Registry)	<b>540.0 per 100,000</b>
<b>6</b>	<b>Cancer</b>	Percent of adults (50+y) who have ever had a sigmoidoscopy/colonoscopy	<b>75.7%</b> (2010 BRFSS)	<b>79.5%</b>
<b>7</b>	<b>Diabetes</b>	Percent of adults (18+y) with diagnosed diabetes	<b>8.5%</b> (2011 BRFSS)	<b>8.0%</b>
<b>8</b>	<b>Asthma</b>	Rate of ED visits among all CT residents for which asthma was the primary diagnosis	<b>73.0 per 10,000</b> (2009 HDD)	<b>69.4 per 10,000</b>
<b>9</b>	<b>Oral Health</b>	Percent of adults (18+y) who have visited a dentist or dental clinic in the last year	<b>80.6%</b> (2010 BRFSS)	<b>84.0%</b>
<b>10</b>	<b>Genomics and Health</b>	Percent of adults who have collected health information from their relatives for the purpose of developing their family health history	<b>54.0%</b> (2011 BRFSS)	<b>60.0%</b>
<b>11</b>	<b>Health Care Quality</b>	Rate of preventable hospitalizations among all CT residents	<b>1,526.0 per 100,000</b> (2008 HDD)	<b>1,450.0 per 100,000</b>
<b>12</b>	<b>Health Care Access</b>	Percent of adults (18+y) who have a regular source of care	<b>83.9%</b> (2011 BRFSS)	<b>93.0%</b>

## A Better Future within Reach:

### Healthy Environments, Prevention-focused Health Care and a Link to Community Resources

Janice's doctor encourages her to quit smoking, exercise, eat healthy, and take her blood pressure medications as prescribed. She knows these changes would help her reduce her risk of diabetes, cancer and heart disease. She's also worried that her son Carlos may follow in her footsteps, he already eats too much junk food, is getting cavities and rarely exercises. She knows there needs to be a change for herself and her son, but at times she feels overwhelmed and discouraged. She is not able to find a dentist for Carlos. It's difficult to find healthy food and opportunities for exercise in the neighborhood. Smokers live in the apartment unit directly below her - exposing her son to secondhand smoke and making quitting smoking difficult. Often she has questions about her blood pressure medications and her risk for diabetes, but isn't quite sure where to turn between her doctor's appointments.

**It's 2018 . . .** New polices have led to recent changes in Janice's town, neighborhood and doctor's office. These changes are giving Janice and Carlos a much better chance to live a healthy lifestyle.

- **Healthy Environments.** As part of a new transportation policy, the town fixed the sidewalk surrounding the apartment complex and now Janice walks her son Carlos to school most days as part of the school's walking club. She's started taking the stairs in her apartment building – which are now accessible and well-lit. On Saturdays, Janice and Carlos shop at the new neighborhood farmer's market. Carlos' school has a new partnership with a local farm, which means more fresh fruits and vegetables at lunch. Her apartment building is now smoke-free and the corner store has stopped selling tobacco eliminating temptation for a quick "fix."
- **Prevention-focused Health Care.** The doctor now has a health team that helps keep Janice on track. In between her doctor's visits, a nurse checks in with Janice about her blood pressure medications and makes sure she's up to date on her cancer screenings. With a quick lesson from the health team, Janice learned to take and record her own blood pressure which empowers her to track and manage her own condition. When she was ready to quit smoking, the doctor recommended nicotine replacement therapy and the health team reached out to her regularly during the quitting process to support her. Carlos now gets regular dental checkups at a school-based clinic.
- **A Link to Community Resources.** Janice has also developed a bond with Rosa, a Community Health Worker who lives in the neighborhood and works for a local non-profit. Rosa stops by every month to check on how Janice and Carlos are doing. Rosa encourages Janice and seems to have a new idea each time they talk – whether it is a new healthy twist on an old family recipe or strategies for coping with stress. Rosa also connected Janice to a Diabetes Prevention class being offered by the local health department. Janice is looking forward to taking concrete steps to reduce her risk of developing diabetes.

Janice's health problems may never fully disappear. She feels much better and sees how all her efforts are paying off. Importantly, she sees a bright future for her son where a healthy environment supporting healthy choices are much greater than she ever imagined less than a decade ago. The strategies presented in this plan will help people like Janice dramatically reduce their risk for chronic diseases and their costly complications.

# 1 Health Equity



Our work is predicated on the belief that all Connecticut residents hold a right to enjoy optimal health. Avoidable differences among specific population groups in disease risk, incidence, prevalence, morbidity, and mortality and other adverse conditions should be eliminated. This means, for example, creating equal access to healthy living environments and quality health care, particularly services that reduce modifiable risk factors that result from cumulative social disadvantages.

## Health Disparities

Health disparities exist by gender, race, ethnicity, income and education. Connecticut residents with lower incomes and education levels experience higher rates of asthma, cardiovascular disease and diabetes, and have less access to quality healthcare than higher income and more highly educated residents.<sup>6</sup> For example, adults who did not graduate from high school are about three times more likely to smoke cigarettes daily than college graduates.<sup>7</sup> Adults earning less than \$25,000 per year experience higher rates of diabetes, obesity, high blood pressure, smoking and physical inactivity.<sup>8</sup>

Many more Hispanic and black non-elderly adults lack health insurance, compared with white adults (Hispanic=36.6%; black=25.7%; white=10.1%).<sup>9</sup> Hispanics experience significantly higher rates of diabetes (17.6%) than black (15.4%) adults and white (7.0%) adults.<sup>10</sup> Black adults have higher rates of illness and death from cardiovascular disease, some cancers, and asthma than other racial and ethnic groups.<sup>11</sup>

## Economic Impact

Racial and ethnic disparities have cost the United States \$1.24 trillion between 2003 and 2006 with \$229.4 billion for direct medical care expenditures and \$1 trillion for the indirect costs of disparities.<sup>12</sup> The indirect costs of chronic diseases are associated with lost productivity from illness and premature death. Some chronic diseases such as diabetes and cardiovascular disease (CVD) are major causes of disability, limiting an individual's ability to live independently and negatively impacting the quality of life for individuals and families. For these reasons, diabetes and CVD can incur enormous indirect economic impacts, and these costs exert a greater burden on minority families.

Health Equity Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of DPH databases that meet data collection policy standards	5.4% (2012 Data Quality Improvement Project)	54.0%
Health Equity	The number of state policies that mandate standardized collection of sociodemographic information (race and ethnicity and other as appropriate) in state databases	0 (2012 Data Quality Improvement Project)	1
Add'l	The number of staff training modules on DPH Data collection standards	0 (2012 Data Quality Improvement Project)	1
Health Equity	The percent of chronic disease publications that state relevant health equity definitional issues	0% (2012 Data Quality Improvement Project)	100%

A recent *CDC Health Disparities and Inequalities Report* concluded that, if non-Hispanic blacks had experienced the same adjusted rate of preventable hospitalizations as non-Hispanic whites from 2004 to 2007, there would be 430,000 fewer hospitalizations for non-Hispanic blacks.<sup>13</sup>

## Key Strategies and Interventions

In 2008, the Connecticut General Assembly signed into law the establishment of the Connecticut Commission on Health Equity which develops strategies and solutions to eliminate health disparities in Connecticut. This plan fits well with the Commission on Health Equity's work: serving as a source for health equity information; enhancing state agency and legislative understanding of social determinants of health; engaging the public in conversations on health disparities and health inequities; and supporting or proposing legislation and policies to improve the health of vulnerable populations.

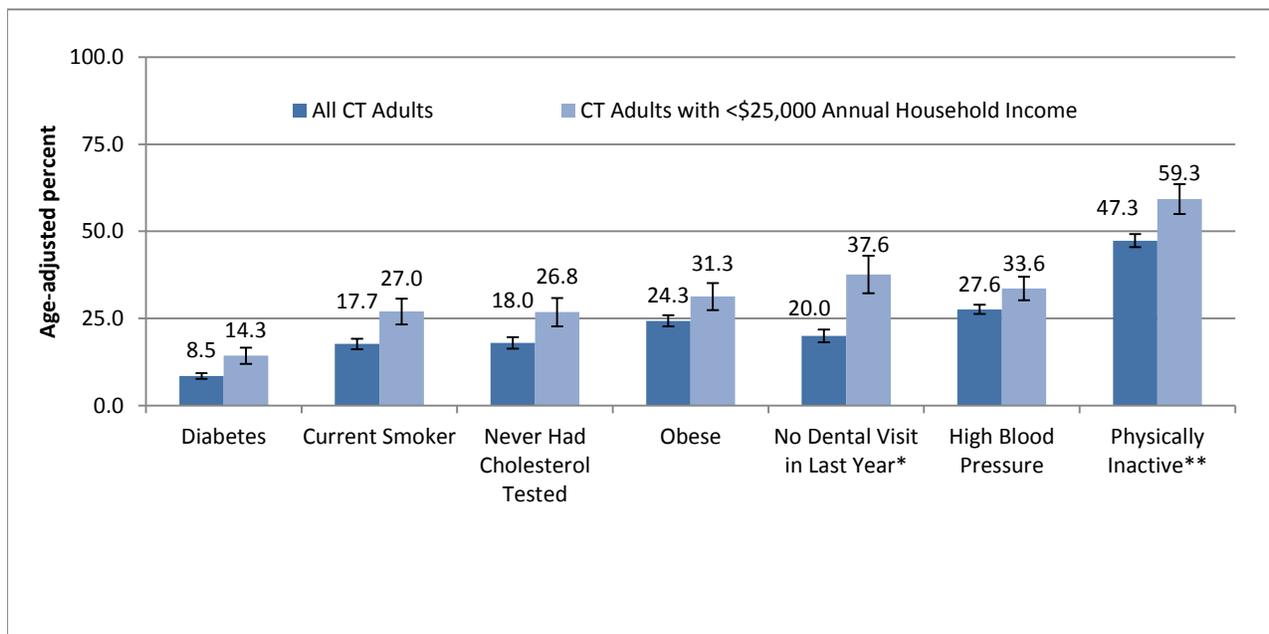
# 1 Health Equity



As a first step, the Department will collect timely and appropriate data on the social determinants of health and indicators of social disadvantage like income and education level. The Plan identifies health equity indicators across all priority areas. Seventeen (17) indicators in the full set (see pages 20 – 23) track a dimension of health equity. The Plan identifies Health Equity indicators that will help strengthen Department’s capacity to implement and monitor data collection as outlined in the *DPH Policy on Collecting Sociodemographic Data (2008)*.

The Plan builds on promising recent efforts. Since 1998, the Department Office of Multicultural Health has worked collaboratively with partners, most notably, the Connecticut Multicultural Health Partnership, to address health disparities through systems changes. These efforts have included the statewide promotion of the Culturally and Linguistically Appropriate Services (CLAS) Standards, and the Department’s chronic disease programmatic and data and surveillance activities related to specific priority populations.

**Age-Adjusted Prevalence of Modifiable Risk Factors among Connecticut Adults and Connecticut Adults with Annual Household Incomes Less than \$25,000**



Source: 2011 BRFSS data; \*2010 BRFSS data; \*\*Not meeting aerobic activity recommendation.

# 2 Nutrition and Physical Activity

A healthy lifestyle includes healthy eating, regular physical activity, and balancing the number of calories consumed with the number of calories the body needs.

Healthful eating means reducing the intake of saturated fats, salt and added sugars, and increasing the consumption of fruits, vegetables, and whole grains. Eating five or more daily servings of fruits and vegetables may reduce the risk of chronic disease<sup>14</sup> and prevent 30% of cancer deaths.<sup>15</sup> However, only one out five (20.5%) adults in Connecticut consume the recommended servings of fruits and vegetables. A deliberate effort to reduce sodium intake can prevent hypertension by nearly 20%.<sup>16</sup>

Regular physical activity means engaging in a moderate activity like brisk walking for at least 30 minutes five or more times per week and muscle-strengthening activities two or more days per week.<sup>17</sup> Increasing physical activity will help control weight, reduce risks for heart disease, Type 2 diabetes and some cancers, strengthen bones and muscles, improve mental health, and prevent falls among older adults.<sup>18</sup> Meeting the recommended activity levels can reduce the risk of stroke by 11% and of diabetes by 60%.<sup>19</sup> However, only half (52.6%) of adults in Connecticut meet or exceed recommended activity levels, and half (50.7%) of students did not pass all four components of the physical fitness assessment (2010-2011).<sup>20</sup>

## Health Disparities

Nutritional habits and physical activity vary in Connecticut based on race, gender, education and socio-economic status. Among adults, only 21% of whites, 16.6% of blacks and 19.1% of Hispanics consumed five or more fruits and vegetables a day.<sup>21</sup> Only 1 in 7 (14.0%) adults who did not graduate high school eat 5+ servings of fruits and vegetables daily compared to 1 in 4 (25.4%) college graduates.<sup>22</sup> Lower income adults are significantly more sedentary than higher income adults.<sup>23</sup>

## Economic Impact

Physical inactivity costs the United States an estimated \$75 billion in medical costs each year.<sup>24</sup>

Nutrition & Physical Activity Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+y) who meet the recommended 150 minutes or more of aerobic physical activity per week	52.6% (2011 BRFSS)	55.2%
Health Equity	Percent of adults (18+y) with a household income of <\$25,000 who meet the recommended 150 minutes or more of aerobic physical activity per week	40.7% (2011 BRFSS)	42.7%
Add'l	Percent of adults (18+y) who consume fruits and vegetable five or more times per day	20.5% (2011 BRFSS)	21.5%
Add'l	Percent of children (5-12y) who drink at least one 12-ounce soda or sugar sweetened beverage on an average day	29.1% (2008-2010 BRFSS)	27.6%
Add'l	Percent of youth (high school) who were physically active for a total of at least 60 minutes per day on five or more of the past seven days	49.5% (2011 CSHS YBC)	52.0%

## Key Strategies and Interventions

The CDC identifies improving nutrition and physical activity as “winnable battles” in public health. Building on previous efforts, the Department will:

- Partner with the Connecticut State Department of Education to work with schools and early child education centers to adopt and implement policies that create a healthy nutrition environment and promote daily physical activity.
- Work with communities and existing coalitions to advance local policies and systems changes that promote healthy eating and active living.
- Work with local public health partners and schools to establish school and community gardens.
- Work with local public health partners including local transportation authorities to promote bicycle- and pedestrian-friendly communities.

# 3 Obesity



Health care experts use height and weight to calculate a body mass index (BMI). The BMI represents an easy, inexpensive, and reliable method to assess weight. Excess weight may lead to health problems such as an increased risk for heart disease, high blood pressure, stroke, Type 2 diabetes, arthritis-related disability, and cancer. Maintaining a healthy weight involves choosing healthy foods, regular physical activity, and consuming about the same number of calories as your body needs.

In Connecticut, obesity<sup>25</sup> affects nearly one in five (24.5%) adults and one in eight (12.5%) high school students.<sup>26</sup> Moreover, obese adults are twice as likely to rate their health as “fair” or “poor” compared to non-obese adults.<sup>27</sup>

## Health Disparities

Connecticut’s obesity rates differ by income, race, gender, and age.<sup>28</sup> Lower income adults are more likely to be obese than higher income adults (29.9 % vs. 20.7%). Blacks are more likely to be obese compared with Hispanic and white adults (black=32.5%; Hispanic=32.69%; white=23.0%). Men (25.4%) are more likely to be obese than women (23.6%). Older adults are more likely to be obese than younger adults. Approximately 16 % of adults ages 18-24 years are obese, compared with 28 % of adults aged 45-64 years.<sup>29</sup>

## Economic Impact

In 2008 dollars, obesity-related medical care costs in the United States totaled about \$147 billion.<sup>30</sup>

Obesity Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of Children (5-12 years) who are obese	18.8% (2008-10 BRFSS)	17.9%
Health Equity	Percent of children (5-12y) with a household income of <\$25,000 who are obese	38.0% (2008-10 BRFSS)	36.1%
Add'l	Percent of youth (high school) who are obese	12.5% (2011 CSHS YBC)	11.9%
Add'l	Percent of adults (18+y) who are obese	24.5% (2011 BRFSS)	23.3%

## Key Strategies and Interventions

The CDC identifies obesity as a winnable battle. Building upon foundational work done by numerous stakeholders throughout the state, the Department will:

- Work with hospitals, workplaces and health care providers to adopt and implement breastfeeding friendly practices.
- Actively participate on and provide expert information and guidance to various task forces aiming to address obesity.
- Continue to educate and inform stakeholders on the importance of addressing the root causes of obesity.

# 4 Tobacco

Tobacco use is the leading cause of preventable illness and death in the United States.<sup>31</sup> Smoking is the number one cause of heart disease.<sup>32</sup> Every year more than 4,700 Connecticut residents die as a result of their own smoking<sup>33</sup>. Smoking cigarettes accounts for 80% of the state’s lung-cancer deaths.<sup>34</sup>

In addition to heart disease, smoking greatly increases the risk of, stroke, cancer, and many other illnesses. Exposure to second-hand smoke can lead to many of the same health problems. Infants whose parents smoke are more likely to die of sudden infant death syndrome (SIDS), and children who live with a smoker are more likely to have asthma, bronchitis, ear infections, and pneumonia, and are twice as likely to become smokers themselves.<sup>35</sup>

One in six Connecticut adults smoke,<sup>36</sup> and 186,000 Connecticut kids are exposed to secondhand smoke in their own homes.<sup>37</sup> Almost 80,000 middle school and high school students have tried cigarette smoking and each year 4,300 kids become daily smokers.<sup>38</sup>

### Health Disparities

Smoking rates vary by age, income and education level. More than two times as many adults with household incomes under \$25,000 were current smokers than adults with household incomes over \$75,000 (25.0% v 10.9%).<sup>39</sup> Nearly four (4) times as many young adults (ages 18-24) currently smoked cigarettes compared with adults over age 65 (21.5% v 5.7%).<sup>40</sup>

### Economic Impact

Each year in the United States, cigarette smoking costs more than \$193 billion in lost productivity and health care expenditures.<sup>41</sup> Exposure to second-hand smoke costs more than \$10 billion in health care expenditures, morbidity, and mortality. Smoking and exposure to tobacco smoke cause \$92 billion in productivity losses each year.<sup>42</sup>

### Key Strategies and Interventions

The Connecticut Department implements a Tobacco Use Prevention and Control Program and works with a strong coalition of allies. In continued partnership, Department will:

Tobacco Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+y) who currently smoke cigarettes	17.1% (2011 BRFSS)	15.0%
Health equity	Percent of adults (18+y) with a household income of <\$25,000 who currently smoke cigarettes	25.0% (2011 BRFSS)	23.0%
Add'l	Percent of youth (high school) who currently smoke cigarettes	14.0% (2011 CSHS YTC)	13.0%
Add'l	Percent of youth (high school) who were exposed to secondhand smoke in a public place	47.1% (2011 CSHS YTC)	40.0%

- Offer cessation resources such as the tobacco use cessation telephone Quitline, available through 1-800-QUIT-NOW (1-800-784-8669) or 1-855-DEJELO.YA for Spanish.
- Work with the Department of Mental Health and Addiction Services on limiting youth access to tobacco products.
- Develop and maintain statewide education efforts to extend state and federally funded media campaigns.
- Engage stakeholders through regular communications including a tobacco newsletter and ongoing training opportunities.
- Provide education on the benefits of smoke free/tobacco free policies, and offer technical assistance for those adopting voluntary policies (e.g., multi-unit housing complexes, workplaces, and school, college and university campuses).
- Initiate and support policy and systems changes that would reduce access to and availability of tobacco products.
- Explore and respond to emerging potential health threats such as e-cigarettes and other tobacco products.

# 5 Heart Health



Cardiovascular disease (CVD) refers to disorders of the heart and blood vessels that can lead to heart attack and stroke. Risk factors for CVD include family history, tobacco use, alcohol use, physical inactivity, poor nutrition, and obesity. High blood pressure, high cholesterol and diabetes also increase the risk.

Heart diseases are the leading cause of death for Connecticut residents and account for about one-quarter of all deaths.<sup>43</sup>

### Health Disparities

Black residents suffer disproportionately from heart disease and stroke. For example, black residents die significantly earlier due to cardiovascular disease than white and Hispanic residents.<sup>44</sup>

Black males have the highest heart disease mortality rate of all Connecticut residents (black=117.5; white=103.3; Hispanic=69.8 per 100,000). Black women are almost three (3) times more likely to die from a stroke before age 75 than white women.<sup>45</sup> Black residents are significantly more likely to be diagnosed with high blood pressure compared with white adults (40.1% vs. 26.2%).<sup>46</sup>

### Economic Impact

The economic impact of CVD in Connecticut is estimated at \$5.8 billion annually.<sup>47</sup> In 2011, CVD accounted for about 17% of all non-pregnancy related hospital discharges and about 21% of all hospital billing charges in Connecticut.<sup>48</sup> In 2011, stroke hospitalization charges in Connecticut amounted to \$351 million. The median Connecticut hospital charge for stroke was \$26,742.<sup>49</sup>

### Key Strategies and Interventions

Million Hearts™ is a national initiative that involves multiple federal agencies and key private organizations to prevent 1 million heart attacks and strokes in the U.S. by 2017. The Department is working with partners to promote initiatives that leverage and support cardiovascular disease prevention strategies.

Heart Health Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Rate of premature deaths (<75 years of age) from cardiovascular disease	889.0 per 100,000 (2007-2009 Death Registry)	540.0 per 100,000
Health Equity	Rate of premature deaths (<75 years of age) from cardiovascular disease in black adults aged 18 and older	1,737.6 per 100,000 (2007-2009 Death Registry)	860.0 per 100,000
Add'l	Percent of adults (18+y) with diagnosed hypertension who are taking medication to control hypertension	60.1% (2011 BRFSS)	65.0%
Add'l	Percent of adults (18+y) who have had their blood cholesterol checked within the last five years	78.9% (2011 BRFSS)	87.0%

The Department will:

- Assist health systems to establish policies for self-blood pressure monitoring in patients with uncontrolled high blood pressure.
- Identify and support food procurement policy changes to reduce the sodium content in food, with a focus on institutional food purchasers.
- Work with academic partners and community pharmacies to develop and implement a medication therapy management pilot for at risk patients with high blood pressure and diabetes to promote better control of these chronic illnesses.
- Collaborate with the Office of Genomics and the American Heart Association to offer a cardiovascular disease genomics symposium for health care professionals to raise awareness concerning the role genetics plays in heart disease.
- Promote the use of health information technology strategies and population health management tools to improve the quality of preventive care.

# 6 Cancer

Cancer refers to diseases in which abnormal cells divide uncontrollably and may invade other tissues or body parts. Cancer is the second leading cause of death in Connecticut and four types of cancer account for more than half of all new cancers and cancer deaths: lung, colorectal, breast, and prostate.<sup>50</sup> Approximately 1 in 2 men and 1 in 3 women will develop cancer during their lifetimes.<sup>51</sup> Survivorship rates continue to increase. However, methods to diagnose and treat cancer can diminish productivity and decrease the quality of life substantially.

Common risk factors for cancer include aging, tobacco use, exposure to sunlight, ionizing radiation, chemicals, viruses and bacteria, hormones, family history of cancer, alcohol, poor diet, lack of physical activity, and obesity. Awareness of a family history of cancer can lead an individual to focus on prevention and early detection. For some cancers, screening can detect cancers early which can often increase survival.

## Health Disparities

Statewide, cancer outcomes differ by age, race, gender, and income. Black males have the highest rate of new cancer cases overall.<sup>52</sup> Despite having the lowest incidence of breast cancer, black women have the highest mortality rate from breast cancer.<sup>53</sup> African American women are more likely to be diagnosed with Triple-Negative Disease. Triple negative breast cancers are more aggressive, harder to treat, more likely to come back and are associated with shorter survival. Mortality for lung cancers was highest in black men and white men.<sup>54</sup> Among women over age 50, only 74.0% of women with an income less than \$25,000 had a mammogram in the past two years, compared to 87.5% of women with an income over \$50,000.<sup>55</sup>

## Economic Impact

In Connecticut, cancer-related hospitalization charges exceeded \$809 million in 2009 (7.6% of all hospitalization charges).<sup>56</sup> Inpatient hospital charges for lung cancer were \$88.4 million (\$47,724 per hospitalization) in 2009.<sup>57</sup> Mean healthcare expenditures for cancer treatment was an estimated \$7,687 per cancer patient in 2007.<sup>58</sup>

## Key Strategies and Interventions

A public health approach to cancer includes prevention, screening and early detection, treatment, survivorship, and palliative and end-of-life care. The Connecticut

Cancer Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (50+y) who have ever had a sigmoidoscopy / colonoscopy	75.7% (2010 BRFSS)	79.5%
Health Equity	Percent of adults (50+y) with a household income of <\$25,000 who have ever had sigmoidoscopy / colonoscopy	64.9% (2010 BRFSS)	68.2%
Health Equity	Percent of women (18+y) with a household income of <\$25,000 who have had pap-test within the past three years	70.7% (2010 BRFSS)	74.2%
Health Equity	Percent of women (50+y) with a household income of <\$25,000 who have had a mammogram within the past two years	74.0% (2010 BRFSS)	77.7%

Comprehensive Cancer Program engages partners across this continuum. The Department will:

- Work with healthcare providers to offer breast and cervical cancer screening, diagnostics, case management, and treatment referral services to medically underserved women.
- Work with healthcare providers to offer colorectal cancer screening, diagnostics, case management, and treatment referral services to medically underserved men and women.
- Enhance population-based approaches to cancer screening through targeted outreach; patient navigation services; high quality screening services; and education and training to health professionals.
- Work with the Connecticut Cancer Partnership to implement the Connecticut Cancer Plan, 2014-2017.
- Identify and work with partners to support policies and practices that enhance primary prevention of cancers such as restricting tanning bed use and promoting Human Papilloma Virus (HPV) vaccinations,
- Promote the awareness of evidence-based recommendations for hereditary cancers and other resources available from the Department’s Genomic Office.

# 7 Diabetes

Diabetes is a group of diseases characterized by abnormal metabolism of glucose, a type of sugar. Diabetes can lead to serious health issues such as blindness, kidney failure, lower extremity amputations, stroke, and heart disease.

The prevalence of type 2 diabetes, formerly known as adult-onset diabetes, has increased significantly since the 1990s. Over 250,000 Connecticut adults (8.5%) currently have diagnosed diabetes. Additionally, over 80,000 are estimated to have undiagnosed diabetes. The CDC estimates that nationally up to 35% of adults have pre-diabetes which puts them at high risk for developing diabetes in the future.<sup>59</sup>

Prevention and disease management are critical to reduce the burden of diabetes. For example, a 10 to 15 pound weight loss can reduce the risk of getting Type 2 diabetes by 58%.<sup>60</sup> Attendance in diabetes management classes is associated with better care based on standard quality measures.<sup>61</sup>

## Health Disparities

Diabetes and diabetes-related outcomes differ across age, race, and income levels. Blacks and Hispanics experience higher rates of diabetes than whites (black=15.4%; Hispanic=17.6%; white=7.0%).<sup>62</sup> In 2011, black adults had 4.3 times the rate of hospitalizations for diabetes and 3.8 times the rate of diabetes-related lower extremity amputations compared with white adults.<sup>63</sup> Also, Hispanic adults had 2.4 times the rate of hospitalizations for diabetes and 2.4 times the rate of hospitalizations for diabetes-related lower extremity amputations compared with white adults.<sup>64</sup> Black adults have the highest diabetes and diabetes-related mortality rates, followed by Hispanic residents.<sup>65</sup> Adults with annual household incomes of less than \$25,000 are almost three times as likely to have diagnosed diabetes compared with adults with annual household incomes over \$75,000.<sup>66</sup>

Diabetes Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+y) with diagnosed diabetes	8.5% (2011 BRFSS)	8.0%
Health Equity	Percent of adults (18+y) with a household income of <\$25,000 who have diagnosed diabetes	14.3% (2011 BRFSS)	12.0%
Add'l	Percent of adults (18+y) with diagnosed diabetes who received self-management education	41.6% (2011 BRFSS)	55.0%

## Economic Impact

Medical expenses for people with diabetes are more than twice as much as expenses for people without diabetes. The cost of diabetes in the United States totaled \$245 billion.<sup>67</sup> The total cost of diabetes in Connecticut was estimated to be \$2.43 billion.<sup>68</sup>

## Key Strategies and Interventions

To promote diabetes prevention and high quality disease management the department will:

- Work in partnership with the Department on Aging and other partners to increase use of diabetes and chronic disease self-management programs in community settings and offer programs in Spanish and English.
- Increase use of evidence-based lifestyle intervention programs by actively supporting organizations applying for CDC-recognition.
- Partner with health care systems to use health information technology to identify, refer and track eligible patients to diabetes prevention and diabetes self-management education programs.

# 8 Asthma

Asthma is a chronic respiratory disease characterized by blockages and chronic inflammation of the passages or airways that take air into the lungs. Currently, no cure exists for asthma. Asthma symptoms can be controlled and are reversible with treatment.

Effective strategies to manage asthma include patient education, use of appropriate medication, avoidance of environmental triggers and use of an asthma action plan (AAP).

In Connecticut, 89,300 (11.3%) of children and 246,100 (9.2%) of Connecticut adults suffered from asthma. Between 2000 and 2010, the current prevalence of asthma in Connecticut adults increased 17.9% (7.8% to 9.2%). From 2005 to 2010, the prevalence of asthma in Connecticut children increased 7.6% (10.5% to 11.3%). Since 2000, asthma prevalence in Connecticut adults and children has been higher than national prevalence rates.<sup>69</sup>

## Health Disparities

Asthma prevalence varies significantly by race, ethnicity and income level. Risk factors for asthma such as obesity, exposure to smoke, and poor housing conditions, disproportionately affect low-income families, especially in Connecticut's five largest cities. Between 2005 and 2009, the rate of asthma-related emergency room visits for Hispanic children increased 50.9%.<sup>70</sup> Black children have the highest annual rates of asthma hospitalizations.<sup>71</sup>

## Economic Impact

Asthma costs the United States \$56 billion each year.<sup>72</sup> In 2009, hospital discharge data for in-patient and emergency department care for asthma totaled \$112.8 million.<sup>73</sup> According to the report *The Burden of Asthma in Connecticut – 2012 Surveillance Report*, adults with asthma in Connecticut reported they were unable to work or do their usual activities for approximately 303,366.5 days annual because of asthma. School-aged children in Connecticut missed approximately 59,814 days from school or day care each year due to asthma.<sup>74</sup>

Asthma Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Rate of ED visits among all CT residents for which asthma was the primary diagnosis	73.0 per 10,000 (2009 HDD)	69.4 per 10,000
Health Equity	Rate of ED visits among all Hispanic CT residents for which asthma was the primary diagnosis	170.5 per 10,000 (2009 HDD)	162.0 per 10,000
Add'l	Percent of residents with current asthma who have ever taken a course on asthma self-management	10.4% (2007-2009 BRFSS ACBS)	30.0%
Add'l	Percent of school students in grades requiring a health assessment record that have an Asthma Action Plan	5.0% (2009 SBASS)	20.0%

## Key Strategies and Interventions

In collaboration with partners and in consultation with the Asthma Advisory Council, the Department will:

- Work with academic partners to implement provider education and quality improvement initiatives to improve the identification, control and long-term management of asthma.
- Work with community partners, to implement home-based interventions to identify and remove environmental triggers and provide self-management education.
- Promote the widespread use of asthma action plans (AAP) as a tool to facilitate evidence-based treatment and empower patients to take control of their disease.
- Improve asthma control among Connecticut residents through community education and outreach.
- Work with health reform leaders to explore ways to sustainably finance evidence-based community and educational interventions.

# 9 Oral Health

Oral health relates to preventing cavities, gum disease, tooth loss, and oral cancers. Oral health impacts the ability to communicate, the acuity of senses and the capacity to eat. Most oral diseases are preventable with simple interventions such as regular brushing and flossing, consumption of fluoridated water and regular dental care.

Chronic, progressive bacterial infections result in cavities or tooth decay. Tooth decay, the most common chronic childhood disease, is five times more common than asthma and seven times more common than hay fever.<sup>75</sup> A 2011 survey of Connecticut preschool, kindergarten, and third graders found that 1 in 3 children had experienced dental decay.<sup>76</sup> One-third of older adults have tooth decay. Gum or periodontal disease results from a chronic bacterial infection within the gum tissue and can destroy both gums and bone. Forty-seven percent (47%) of adults in the United States experience some form of periodontal disease.<sup>77</sup> Risk factors for gum disease include tobacco use, diabetes and poor oral hygiene.<sup>78</sup> Oral cancers affect the mouth and throat. The five year survival rate for these cancers hovers around 50%. In addition, research now shows connections between poor oral health and diabetes, heart disease, and adverse pregnancy outcomes.

## Health Disparities

National data indicate that 80% of tooth decay in children is concentrated in 25% of the child population, especially among low-income children and racial / ethnic minority groups. Oral disease impacts Connecticut residents differently depending on their age, race, and income. Black and Hispanic Connecticut kindergartners and third graders surveyed in 2011 had higher rates of untreated tooth decay than white students (26.9%=Hispanic; 25%= black; 13%=white).<sup>79</sup> Close to 30% of the state's older adults (age 65+) with incomes below \$25,000 have had all of their natural teeth removed, compared to 9% of those with incomes over \$50,000.<sup>80</sup> Hispanics and blacks were less likely to have visited a dentist or dental clinic in the previous year than whites (Hispanic=69.1%; black=70.6%; white=82.7%).<sup>81</sup>

## Economic Impact

In 2010, an estimated \$108 billion was spent on dental services in the United States.<sup>82</sup> Employed adults lose more than 164 million hours of work each year due to oral health

Oral Health Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+y) who have visited a dentist or dental clinic in the last year	80.6% (2010 BRFSS)	84.0%
Health Equity	Percent of adults (18+y) with a household income <\$25,000 who have visited a dentist or dental clinic in the last year	62.1% (2010 BRFSS)	65.0%
Health Equity	Percent of adults (65+y) with a household income of <\$25,000 who have had all their natural teeth extracted	17.7% (2010 BRFSS)	15.0%
Add'l	Percent of children (7-9y) with at least 1 dental sealant	43.0% (2011 Oral Health Survey)	49.0%
Add'l	Percent of adults (65+y) who have had all their natural teeth extracted	9.2% (2010 BRFSS)	7.0%

problems or dental visits. Customer service industry employees lose 2 to 4 times more work hours than executives or professional workers due to oral health problems.<sup>83</sup> Research studies document that children with poor dental health were nearly three times more likely than their healthy peers to miss school and that children with tooth pain were four times more likely to have a lower grade point average.<sup>84</sup>

## Key Strategies and Interventions

In collaboration with the Connecticut Coalition for Oral Health, The Department will:

- Increase oral health literacy and promote the value of good oral health for all Connecticut residents.
- Support policies and programs that ensure the oral health needs of Connecticut residents are met by a competent workforce, including dental and non-dental providers.
- Identify and support policies to ensure a strong and sustainable oral health workforce to anticipate and meet the oral health needs of Connecticut residents.
- Raise awareness and educate the public and decision makers regarding the science and efficacy of policies to improve the oral health of Connecticut residents and implement or enforce existing policies.

# 10 Genomics and Health

Genomics, defined as the study of genes and their function, plays a role in nine of the 10 leading causes of death in the U.S., most notably heart disease and cancer. These diseases result from how genes interact with environmental and behavioral risk factors, such as tobacco use, poor diet and nutrition, and physical inactivity.<sup>85</sup>

Families share common factors such as genetics, environment and lifestyle. A family’s health history can identify people with a higher-than-usual chance of developing common chronic diseases, such as heart disease, stroke, certain cancers, and diabetes, thus allowing them to take steps to reduce their risk. A family medical history can provide information about the risk of rare chronic diseases, such as cystic fibrosis and sickle cell anemia, caused by changes (or mutations) in a single gene.

Genetic testing can identify genetic mutations associated with specific chronic diseases. Such testing should be undertaken with great care and should involve genetic counseling. Genetic counselors explain risk assessment, the implications of genetic testing, an interpretation of test results, and treatment options. Testing results typically have implications for other family members as well.<sup>86</sup>

### Health Disparities

An increasing amount of genetics research is focused on chronic diseases. Disparities in access to new genomic advances could further widen health inequities unless these developments are made available to all who could benefit.

The percentage of adults in Connecticut who have collected family health history information from their relatives varies significantly by gender and across income levels. Males are significantly less likely to have collected their family health history than females (45% vs. 62%) and adults whose household incomes are less than \$25,000 are significantly less likely to have collected their family health history than those with incomes above \$75,000 (49% vs. 59%).

### Economic Impact

The advantages of family history over other genomic tools include a lower cost, greater acceptability, and a reflection of shared genetic and environmental factors.<sup>87</sup> Family history can be used as a cost-effective method to identify and intervene with high-risk populations.<sup>88</sup>

Genomics & Health Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults who collected health information from their relatives to develop their family health history	54.0% (2011 BRFSS)	60.0%
Health Equity	Percent of adults with a household income of less than \$25,000 who have collected health information from their relatives to develop their family health history	48.5% (2011 BRFSS)	55.0%

### Key Strategies and Interventions

The Connecticut DPH Genomics Office (DPH-GO) serves as a clearinghouse for genomics efforts within the Department, the Department will:

- Promote awareness and use of family health history as a factor for identifying those at greater than average risk for chronic disease.
- Work with the Department’s Breast and Cervical and Colorectal Cancer Programs and the CT Tumor Registry to promote evidence-based recommendations for genomic and family health history applications for risk assessment and genetic testing for hereditary cancers.
- Work with the Department’s chronic disease programs to develop and/or disseminate Genomics & Health Updates.
- Educate the public of the need for proper counseling prior to undertaking genetic testing.
- Conduct surveillance activities related to genomic tests, family history, and other genomic interventions.
- Expand partnerships to develop and share culturally appropriate information that is translated into many languages.

# 11 Health Care Quality



Quality health care means patients receive safe, timely, patient-centered, appropriate, efficient, and equitable services. According to the 2011 National Healthcare Quality Report from the Agency for Healthcare Research and Quality, healthcare quality on a national level is suboptimal, especially for minority and low-income groups.

The Agency for Healthcare Research and Quality identifies benchmarks for 152 quality measures and offers online access on each state’s progress toward achieving these measures. The most recent report shows that Connecticut ranked 12<sup>th</sup> in performance measures across all states. Connecticut achieved or exceeded the benchmark on 48 measures and was close to achieving the benchmark (or accomplishing 50% to 90%) on 76 measures.<sup>89</sup>

Connecticut’s dashboard of quality measures shows that Connecticut has achieved nearly all quality measures in the area of chronic kidney disease and substance abuse and performs strongly on quality measures in the areas of cancer and diabetes. Cardiovascular disease receives a rating of average.<sup>90</sup> The dashboard shows Connecticut performing strongly on measures related to the priority population of women and older adults. In terms of the type of care, Connecticut performs about average for acute care, chronic care, and prevention.

## Health Disparities

On the quality measures contained in the National Healthcare Quality Report, there were significant differences based on age, race/ethnicity, and income level.

Adults over 65 received worse care than 18-44 year olds on 39% of the quality measures.<sup>91</sup> Blacks received worse care than whites on 41% of the quality measures. Hispanics received worse care than non-Hispanic whites on 39% of the quality measures. Individuals at the poverty level or below received worse care than high income individuals on 47% of the quality measures.

Health Care Quality Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Rate of preventable hospitalizations among all Connecticut residents	1,526.0 per 100,000 (2008 HDD)	1,450.0 per 100,000
Health Equity	Rate of preventable hospitalizations among all black Connecticut residents	2,171.0 per 100,000 (2008 HDD)	2,062.0 per 100,000

## Economic Impact

A report by the Institute of Medicine estimates that the health care system wastes or misuses about \$750 billion annually, due to failure to comply with evidence-based guidance, lack of timely information, inadequate incentives, and administrative oversight.<sup>92</sup>

## Key Strategies and Interventions

Connecticut has embraced health reform and multiple initiatives are underway to improve health care quality at the state, regional and provider-level. State-level initiatives include the State Innovation Model and Medicaid Person-Centered Medical Home initiative. Department will continue to serve in a partnership role alongside leaders of health reform efforts by:

- Continuing to seek out opportunities for enhanced coordination with health care systems by communicating the value of public health approaches to improve individual and community outcomes.
- Continuing to collaborate and engage with state agencies to further incorporate public health and health equity approaches into health reform efforts.
- Promoting reporting of standardized clinical quality measures with particular relevance for population outcomes, for example quality measures related to high blood pressure and diabetes.

# 12 Health Care Access



Access relates to the ability, right or opportunity to experience or make use of something. Several factors influence measures of health care access: 1) the supply of health care services; 2) cost or affordability; 3) physical accessibility including location and hours of operation; and 4) acceptability of services including cultural and linguistic considerations.

In the United States, access to health care depends heavily on access to health insurance, either through private providers or Medicare/Medicaid. Nationally, about 25% of adults ages 18 to 64 years old had gaps in their health insurance during the past 12 months, and 31% delayed or skipped medical care because of cost.<sup>93</sup> Barriers to health care access can include literacy or language barriers, cultural issues, lack of medical providers in a given area, immigration status, and geography. Young adults in the United States aged 20-29 lack health insurance at nearly twice the rate of adults ages 30 to 64 years (31% v. 17%). Gaps in coverage result as youth age out of public and private insurance coverage or earn insufficient incomes to afford health insurance.<sup>94</sup>

## Health Disparities

The National Healthcare Quality Report found significant differences across age, race, and income level. Blacks had less access to care than whites on 32% of the measures. Hispanics had less access to care than non-Hispanic whites on 63% of the measures. Individuals at the poverty level or below had less access to care than high income individuals on 89% of the measures.

## Economic Impact

Uncompensated care is a term used to identify losses that result when patients cannot pay for their health care. From Fiscal Year (FY) 2006 to FY 2008 uncompensated care costs in Connecticut's hospitals increased from \$191 to \$257 million dollars, a 34% increase. The majority (84%) of uncompensated care costs were associated with uninsured patients. Patients who establish a connection with a "medical home" tend to experience better health outcomes and reduce health care costs by preventing the onset of avoidable conditions.

A recent *CDC Health Disparities and Inequalities Report* concluded that, if non-Hispanic blacks had experienced the same adjusted rate of preventable

Health Care Access Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+y) who have a regular source of care	83.9% (2011 BRFSS)	93.0%
Health Equity	Percent of adults (18+y) with a household income <\$25,000 who have a regular source of care	71.3% (2011 BRFSS)	83.0%
Add'l	Percent of adults (18-64y) who have health care coverage	84.7% (2011 BRFSS)	95.0%
Health Equity	Percent of adults (18-64y) with a household income <\$25,000 who have health care coverage	64.1% (2011 BRFSS)	80.0%

hospitalizations as non-Hispanic whites from 2004 to 2007, 430,000 fewer hospitalizations for non-Hispanic blacks would have saved \$3.4 billion.<sup>95</sup>

## Key Strategies and Interventions

Connecticut has been a recognized leader in expanding insurance coverage through the Affordable Care Act. However, healthcare access goes beyond insurance coverage. Individuals need a usual source of care to secure the health benefits of insurance coverage. Many individuals require further assistance to access needed care in complex healthcare systems and a significant number of the population will remain uninsured. The Department will:

- Support adoption of the National Standards for Culturally Linguistically Appropriate Services in Health and Health Care as part of the strategy to eliminate health inequalities and to increase access.
- Support initiatives that improve access to care and also impact population health.
- Fund programs that provide no-cost services for select evidence-based interventions for individuals unable to access the services through other means.
- Promote the importance of having a primary care provider.
- Support Connecticut's efforts to build upon early successes in expanding access to health insurance through the Affordable Care Act.

# Looking Forward

## Leadership

Commissioner Mullen identifies chronic disease prevention as a strategic priority for the Connecticut Department of Public Health, and has committed the Department to revitalizing its strategies, particularly in the context of achieving health equity for all Connecticut residents. The Coordinated Chronic Disease Prevention Plan represents a cornerstone initiative for the Department to achieve its strategic vision and mission.

The Department established a new position of Chronic Disease Director to increase synergy across the department's categorical disease efforts, to strengthen external partnerships as well as clinical and community linkages, and to reinforce the department's policy response during a period in which the health care landscape will undergo rapid, significant changes.

An Executive Committee comprised of external experts and leaders in chronic disease prevention and health promotion guided the development of the Coordinated Chronic Disease Prevention Plan. These leaders hold the vision and commitment to elevate existing deep and diverse networks into a more coordinated effort to produce a larger collective impact for Connecticut's residents. In the upcoming year, the Executive Committee will develop a viable, long-term governance mechanism that will provide organizational stability and leadership continuity to support the implementation of Connecticut's Coordinated Chronic Disease Prevention Plan, and maximize integration with other existing categorical disease planning and implementation processes.

## Implementation

A diverse and talented Department program staff provides operational and implementation support to the Executive Committee. The Department staff members provide expertise about specific disease conditions, the status of clinical-community linkages, evidence-based models associated with environmental approaches and health system interventions; the impact of policy change initiatives and epidemiological findings, among other topics.

The Department's staff members coordinate strategic communications efforts associated with chronic disease prevention and health promotion as well. The Department's commitment to developing a strategic communications strategy will extend the Plan's reach and consistency of core messages into communities and homes throughout Connecticut.

Recent federal initiatives require state departments of public health to provide a higher level of support to local coalition-based initiatives targeting modifiable risk factors such as tobacco use, alcohol consumption, healthy eating, and physical activity.

Department capacity building efforts support the accreditation process and parlay the goodwill and momentum generated by the successes of the State's categorical disease planning and implementation processes. Other efforts by the Department to strengthen the statewide public health infrastructure such as the State Health Assessment and State Health Improvement Plan create a powerful implementation platform that can reach across Connecticut. Visits [www.ct.gov/dph](http://www.ct.gov/dph) for information and reports related to the State Health Improvement Plan process.

## Assessing Progress

The Department will review progress on plan implementation annually by assessing and comparing the actual v. the goals across the specific, measurable, achievable, realistic, and time-based (SMART) objectives. Department will issue Coordinated Chronic Disease Prevention Plan updates across indicators and sub-indicators. The Department will comply with all federal evaluation and reporting requirements.

# Complete Indicator Tables

1. Health Equity Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of DPH databases that meet data collection policy standards	5.4% (2012 Data Quality Improvement Project)	54.0%
Health Equity	The number of state policies that mandate standardized collection of sociodemographic information (race and ethnicity and other as appropriate) in state databases	0 (2012 Data Quality Improvement Project)	1
Add'l	The number of staff training modules on DPH Data collection standards	0 (2012 Data Quality Improvement Project)	1
Health Equity	The percent of chronic disease publications that state relevant health equity definitional issues	0% (2012 Data Quality Improvement Project)	100%
2. Nutrition & Physical Activity Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+years of age) who meet the recommended 150 minutes or more of aerobic physical activity per week	52.6% (2011 BRFSS)	55.2%
Health Equity	Percent of adults (18+years of age) with a household income of <\$25,000 who meet the recommended 150 minutes or more of aerobic physical activity per week	40.7% (2011 BRFSS)	42.7%
Add'l	Percent of adults (18+y) who consume fruits and vegetable five or more times per day	20.5% (2011 BRFSS)	21.5%
Add'l	Percent of children (5-12 years old) who drink one or more 12-ounce soda or sugar sweetened beverage on an average day	29.1% (2008-2010 BRFSS)	27.6%
Add'l	Percent of youth (high school) who were physically active for a total of at least 60 minutes per day on five or more of the past seven days	49.5% (2011 CSHS YBC)	52.0%
3. Obesity Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of Children (5-12 years of age) who are obese	18.8% (2008-10 BRFSS)	17.9%
Health Equity	Percent of children (5-12 years of age) with a household income of <\$25,000 who are obese	38.0% (2008-10 BRFSS)	36.1%
Add'l	Percent of youth (high school) who are obese	12.5% (2011 CSHS YBC)	11.9%
Add'l	Percent of adults (18+ years of age) who are obese	24.5% (2011 BRFSS)	23.3%

# Complete Indicator Tables

4. Tobacco Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+ years of age) who currently smoke cigarettes	17.1% (2011 BRFSS)	15.0%
Health equity	Percent of adults (18+ years of age) with a household income of <\$25,000 who currently smoke cigarettes	25.0% (2011 BRFSS)	23.0%
Add'l	Percent of youth (high school) who currently smoke cigarettes	14.0% (2011 CSHS YTC)	13.0%
Add'l	Percent of youth (high school) who were exposed to secondhand smoke in a public place	47.1% (2011 CSHS YTC)	40.0%
5. Heart Health Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Rate of premature deaths (<75 years of age) from cardiovascular disease	889.0 per 100,000 (2007-2009 Death Registry)	540.0 per 100,000
Health Equity	Rate of premature deaths (<75 years of age) from cardiovascular disease in black adults	1,737.6 per 100,000 (2007-2009 Death Registry)	860.0 per 100,000
Add'l	Percent of adults (18+y) with diagnosed hypertension who are taking medication to control hypertension	60.1% (2011 BRFSS)	65.0%
Add'l	Percent of adults (18+y) who have had their blood cholesterol checked within the last five years	78.9 % (2011 BRFSS)	87.0%
6. Cancer Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (50+ years of age) who have ever had a sigmoidoscopy / colonoscopy	75.7% (2010 BRFSS)	79.5%
Health Equity	Percent of adults (50+ years of age) with a household income of <\$25,000 who have ever had sigmoidoscopy / colonoscopy	64.9% (2010 BRFSS)	68.2%
Health Equity	Percent of women (18+y) with a household income of <\$25,000 who have had pap-test within the past three years	70.7% (2010 BRFSS)	74.2%
Health Equity	Percent of women (50+y) with a household income of <\$25,000 who had a mammogram within the past two years	74.0% (2010 BRFSS)	77.7%
7. Diabetes Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+y) with diagnosed diabetes	8.5% (2011 BRFSS)	8.0%
Health Equity	Percent of adults (18+y) with a household income of <\$25,000 who have diagnosed diabetes	14.3% (2011 BRFSS)	12.0%
Add'l	Percent of adults (18+y) with diagnosed diabetes who received self-management education	41.6% (2011 BRFSS)	55.0%

# Complete Indicator Tables

8. Asthma Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Rate of ED visits among all CT residents for which asthma was the primary diagnosis	73.0 per 10,000 (2009 HDD)	69.4 per 10,000
Health Equity	Rate of ED visits among all Hispanic CT residents for which asthma was the primary diagnosis	170.5 per 10,000 (2009 HDD)	162.0 per 10,000
Add'l	Percent of residents with current asthma who have ever taken a course on asthma self-management	10.4% (2007-2009 BRFSS ACBS)	30.0%
Add'l	Percent of school students in grades requiring a health assessment record that have an Asthma Action Plan	5.0% (2009 SBASS)	20.0%
9. Oral Health Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+y) who have visited a dentist or dental clinic in the last year	80.6% (2010 BRFSS)	84.0%
Health Equity	Percent of adults (18+y) with a household income <\$25,000 who have visited a dentist or dental clinic in the last year	62.1% (2010 BRFSS)	65.0%
Health Equity	Percent of adults (65+y) with a household income of <\$25,000 who have had all their natural teeth extracted	17.7% (2010 BRFSS)	15.0%
Add'l	Percent of children (7-9y) with at least 1 dental sealant	43.0% (2011 Oral Health Survey)	49.0%
Add'l	Percent of adults (65+y) who have had all their natural teeth extracted	9.2% (2010 BRFSS)	7.0%
10. Genomics & Health Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults who have collected health information from their relatives for the purpose of developing their family health history	54.0% (2011 BRFSS)	60.0%
Health Equity	Percent of adults with a household income of less than \$25,000 who have collected health information from their relatives to develop their family health history	48.5% (2011 BRFSS)	55.0%
11. Health Care Quality Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Rate of preventable hospitalizations among all Connecticut residents	1,526.0 per 100,000 (2008 HDD)	1,450.0 per 100,000
Health Equity	Rate of preventable hospitalizations among all black Connecticut residents	2,171.0 per 100,000 (2008 HDD)	2,062.0 per 100,000

# Complete Indicator Tables

12. Health Care Access Indicators			
Type	Indicators	Baseline (data source)	5-year Target
Core	Percent of adults (18+y) who have a regular source of care	<b>83.9%</b> (2011 BRFSS)	<b>93.0%</b>
Health Equity	Percent of adults (18+y) with a household income <\$25,000 who have a regular source of care	<b>71.3%</b> (2011 BRFSS)	<b>83.0%</b>
Add'l	Percent of adults (18-64y) who have health care coverage	<b>84.7%</b> (2011 BRFSS)	<b>95.0%</b>
Health Equity	Percent of adults (18-64y) with a household income <\$25,000 who have health care coverage	<b>64.1%</b> (2011 BRFSS)	<b>80.0%</b>

# Glossary of Selected Terms

**Adults:** Persons 18 years of age and older.

**Age-adjustment (direct method):** The application of observed age-specific rates to a standard age distribution, in order to eliminate differences in crude rates in populations of interest that result from differences in the populations' age distributions. This adjustment is usually done when comparing two or more populations at one point in time, or one population at two or more points in time. Age adjustment is particularly relevant when populations being compared have different age structures.

**Body Mass Index (BMI):** A number calculated from a person's weight and height. BMI provides a reliable indicator of body fat for most people, and is used to screen for weight categories that may lead to health problems. The BMI formula is:  $\text{weight (kg)/[height (m)]}^2$ .

**Health Disparities:** The differences in disease risk, incidence, prevalence, morbidity, and mortality and other adverse conditions, such as unequal access to quality health care, that exist among specific population groups in Connecticut. Population groups may be based on race, ethnicity, age, gender, socioeconomic position, immigrant status, sexual minority status, language, disability, homelessness, mental illness, and geographical area of residence. Specifically, health disparities refer to those avoidable differences in health that result from cumulative social disadvantage.<sup>96</sup>

**Health Equity:** Equity in health refers to how uniformly services, opportunities and access are distributed across groups and places, according to the population group. Equity in health implies that ideally everyone could attain their full health potential and that no one should be disadvantaged from achieving this potential because of their social position or other socially determined circumstance. Efforts to promote social equity in health are therefore aimed at creating opportunities and removing barriers to achieving the health potential of all people. It involves the fair distribution of resources needed for health, fair access to the opportunities available, and fairness in the support offered to people when ill. Adapted from the World Health Organization Concept Paper.

**Incidence:** refers to the number of new cases of a disease that occur during a specified period of time, within a specific population at risk for developing that disease.

$$\text{Incidence per 1,000} = \frac{\text{Number of new cases of disease occurring in the population during specified time period}}{\text{Number of persons at risk of developing the disease during that time period}} \times 1,000$$

**International Classification of Diseases (ICD):** the World Health Organization's internationally accepted coding system for determining cause of death since the early 1900s. It is periodically revised. The *Ninth Revision* (ICD-9) was in use from 1975 through 1998. Beginning with 1999 deaths, the *Tenth Revision* (ICD-10) has been used. The *Ninth Revision, Clinical Modification* (ICD-9-CM) provides procedure codes for morbidity data. The procedures are classified as diagnostic and other non-surgical procedures or as surgical operation.

**Mid-year resident population:** the official Connecticut state, county and town populations, estimated at the calendar year midpoint (July 1) of each year. These July 1 estimates typically constitute the basis for determining birth, death and other population-based rates. Since the 2000 US Census Bureau's Decennial Census is based on April 1 data, while its annual estimates are based on July 1 data, the Decennial Census is not an accurate substitute for town-level annual estimates. To address this discrepancy, DPH created July 1, 2000 *State Population Estimates by Age, Sex, Race & Hispanic Ethnicity* (ASRH), which should be used in place of the decennial census counts for year-to-year comparisons.

**Prevention Quality Indicators (PQIs):** Agency for Healthcare Research and Quality's indicators related to preventive care include five pediatric area level quality indicators and 14 adult prevention quality indicators. Hospitalizations for these conditions have been shown to significantly decrease with access to high quality primary care and disease management. Pediatric Quality Indicators include gastroenteritis admission, perforated appendix admission, urinary tract infection admission, asthma admission, and diabetes short-term complication. Adult Quality Indicators include bacterial pneumonia, dehydration, low birth weight newborns, perforated appendix, urinary tract infection, asthma, angina without an in-hospital therapeutic procedure, congestive heart failure, chronic obstructive pulmonary disease, diabetes long-term complications, diabetes short-term complications, diabetes-related lower extremity amputation, uncontrolled diabetes, and hypertension.

**Social Determinants of Health:** The social determinants of health are the conditions in which people are born, grow, live, work, age and die, including the health system. These circumstances are shaped by the distribution of money, power, and other resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities – the unfair and avoidable differences in health status seen within and between communities." Adapted from the WHO Commission on Social Determinants of Health.

# Technical Notes

**Behavioral Risk Factor Surveillance System (BRFSS)**: a state-based system of health surveys that generate information about health risk behaviors, clinical preventive practices, and health care access and utilization. The BRFSS, sponsored by the Centers for Disease Control & Prevention (CDC), is the world's largest telephone survey, and is conducted in all 50 states. Respondents are randomly selected adults (aged 18 or older) within randomly selected households with landline telephones, or with cellular telephones owned by adults with no landline or who use their cellular telephones for at least 90% of their calls. Data are collected on an ongoing basis and are usually available six (6) months after data collection for the year is complete. Electronic data sets for individual years from 1990 to the present are available. <http://www.cdc.gov/brfss/>

- a. The *Asthma Call-Back Survey (ACBS)*: a follow-up survey for respondents determined to ever have asthma based on responses to the BRFSS questionnaire. The follow-up survey is administered to both adults and children who ever had asthma. The ACBS for adults collects data on: asthma history; healthcare utilization; knowledge of asthma management plan; household and living environment; medications; cost of asthma-related medical care; work-related asthma; comorbid conditions; and complementary and alternative therapies. The child ACBS is similar to the adult version. It gathers data on school-related asthma instead of work-related asthma, and inquires about child body mass index and birth weight. The child ACBS does not collect information on comorbid conditions.

**Connecticut Every Smile Counts Oral Health Survey (Oral Health Survey)**: an open-mouth survey conducted by Connecticut Department of Public Health (DPH), Office of Oral Health (OOH) in collaboration with Connecticut State Department of Education (SDE) to describe the oral health status, and determine the oral health needs of Connecticut's children. The survey was conducted during the 2010-2011 school year, and two groups were screened: (1) kindergarten and third grade children enrolled in public elementary schools, and (2) low-income preschool children enrolled in Head Start. More than 750 children in Head Start and 8,300 children in kindergarten and third grade were screened. The survey methods were developed to collect statewide estimates. For Head Start, the sampling frame consisted of all Head Start centers in Connecticut with three or more children in the 3-5 year old age range (88 centers). Using implicit stratification by county, twenty centers were randomly selected of which nineteen agreed to participate. For the elementary school survey, all public elementary schools with at least 25 children in kindergarten and/or third grade were included in the sampling frame (634 schools with 39,844 kindergarten and 41,848 third grade students). The sampling frame was ordered by region then by percent of children that participate in the free/reduced school lunch (FRL) program. A systematic sampling scheme was used to select 79 schools. Dental hygienists completed the screenings using gloves, penlights, and disposable mouth mirrors. The diagnostic criteria outlined in the Association of State and Territorial Dental Director's publication *Basic Screening Surveys: An Approach to Monitoring Community Oral Health* were used. [www.ct.gov/dph/oralhealth](http://www.ct.gov/dph/oralhealth)

**Connecticut School Health Survey (CSHS)**: a comprehensive survey conducted by the Connecticut Department of Public Health (DPH) in cooperation with the Centers for Disease Control & Prevention (CDC), the Connecticut State Department of Education (SDE), and partners from local school districts and health departments. The CSHS consists of the following two components ([www.ct.gov/dph/CSHS](http://www.ct.gov/dph/CSHS)):

- a. The *Youth Behavior Component (YBC)*, also known nationally as the Youth Risk Behavior Survey (YRBS), collects data used to monitor priority health risk behaviors, and the prevalence of obesity and asthma among high school students, grades 9 – 12, in Connecticut. The YBC is administered to a representative sample of all regular public high school students in Connecticut. Electronic data sets are available for the years 1997, 2005, 2007, 2009 and 2011.
- b. The *Youth Tobacco Component (YTC)*, also known nationally as the Youth Tobacco Survey (YTS), is part of the CDC's survey of middle- and high-school students' (grades 6 – 12) tobacco use, secondhand smoke exposure, and tobacco-related risk factors and health behaviors; YTC data have been collected as part of the CSHS since 2005. Electronic data sets are available for the years 2002, 2005, 2007, 2009 and 2011.

CSHS data are collected in odd-numbered years from students using a written questionnaire during class time. Results are presented at the state level due to small sample size and sampling design. New data are usually available six (6) months after data collection for the year is complete; geocoded data are not currently available.

**Connecticut Vital Records Death Registry (Death Registry)**: contains records pertaining to deaths that occur within the state as well as deaths of Connecticut residents occurring in other states, or in Canada. Mortality statistics are compiled in accordance with World Health Organization (WHO) regulations, which specify that deaths be classified by the current version of the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*. Deaths from 1999 to the present are classified by the *Tenth Revision of the*



# Technical Notes

*International Classification of Diseases (ICD-10)*. The electronic database contains data from 1949 to the present.

[www.ct.gov/dph/Mortality](http://www.ct.gov/dph/Mortality)

Data Quality Improvement Project Final Report (Data Quality Improvement Project): This project was funded by the National Network of Public Health Institutes. The project period was 3/1/2012 – 11/30/2012. A subset of DPH databases that were not currently in compliance with the agency's data collection policy underwent a technical assessment. Technical fixes needed to bring these databases into compliance were identified and applied. A long-term plan to achieve compliance across all DPH databases was established and includes a continuous quality improvement process to monitor data quality issues. The project's final report is used as the data source for this document's purposes.

Hospital Discharge Data (HDD): The Hospital Discharge Data incorporates provider information and patient-level demographic, clinical and billing data, submitted voluntarily by all non-federal, acute-care hospitals in the state. It is also known as the Acute Care Hospital Inpatient Discharge Database (HIDD) or Connecticut Hospital Information Management Exchange Data (ChimeData). The Connecticut Hospital Association's (CHA) Data Services offers this data collection and reporting service through its ChimeData program, which collects and edits administrative discharge (UB-04 claims-based) data from inpatient admissions, hospital-based outpatient surgery, and emergency department non-admissions. ChimeData's database is the most comprehensive hospital database in the state, recording over 31 million patient encounters dating back to 1980; the electronic database contains data from 1991 to the present. Geocoded data are not available; however, patient zip code, town and county of residence are collected. It should be noted that hospitalizations refer to any discharge from a non-federal, short-stay, acute-care, general hospital in Connecticut, and are expressed as numbers of discharges, not as unduplicated patients. Thus, a single patient with multiple hospitalizations may be counted more than once. For more information on hospital discharge data visit: [www.ct.gov/ohca](http://www.ct.gov/ohca) or [www.ct.gov/dph/HospitalDischargeData](http://www.ct.gov/dph/HospitalDischargeData).

School-Based Asthma Surveillance System (SBASS): In accordance with Connecticut General Statutes Section 19a-62a(b), since 2003 the Connecticut Department of Public Health (DPH) Asthma Program has conducted school-based asthma surveillance using data from the Health Assessment Record (HAR). The HAR is distributed to school health care providers by the Connecticut State Department of Education (SDE). Pursuant to CGS §10-206, the HAR records physical exam findings, screenings, immunizations, and chronic diseases (asthma, anaphylaxis, allergies, diabetes, seizures, and other). Information on medications that need to be taken in school, insurance status, asthma severity, diagnostic source, and school location are also recorded on the HAR. Demographic information captured on the HAR includes: age, gender, race, and ethnicity. Based on the options provided by the legislation, school districts choose the grades for which health assessments will be conducted. The districts may choose to require a HAR for each student in grades pre-kindergarten (PK) or kindergarten (K), 6 or 7, and 9 or 10. The School-Based Asthma Surveillance System (SBASS) entails school districts submitting HAR data on students with asthma to the DPH Asthma Program annually. A student is considered to have asthma if s/he meets any of the following conditions: 1) diagnosis of asthma indicated on the HAR; 2) an order for asthma medication by a health care provider is on file in the school health record; 3) an Asthma Action Plan (AAP) is on file; 4) the child exhibits asthma symptoms at the time of the examination; or 5) a parental note is on file that indicates that the child has asthma. Abstraction of specific demographic and asthma symptom data from the HARs into a designated reporting form is done by public school nurses. The completed reports from each school are sent to the DPH by school district nurse supervisors. Asthma Program staff review the forms for completeness and enter them into a database.

## 1. Health Equity

### DPH Data Collection Policy, internal implementation

<i>Indicator</i>	Percent of DPH databases that meet data collection policy standards
<i>Data Source</i>	Data Quality Improvement Project, 2012

### DPH Data Collection Policy, external implementation

<i>Indicator</i>	The number of state policies that mandate standardized collection of sociodemographic information (race and ethnicity and other as appropriate) in state databases
<i>Data Source</i>	Data Quality Improvement Project, 2012

### DPH Data Collection Policy, staff training

<i>Indicator</i>	The number of staff training modules on DPH Data collection standards
<i>Data Source</i>	Data Quality Improvement Project, 2012

### DPH Data Collection Policy, definitional issues

<i>Indicator</i>	The number of chronic disease publications that state relevant health equity definitional issues
<i>Data Source</i>	Data Quality Improvement Project, 2012

## 2. Nutrition & Physical Activity

### Physical activity, adults

<i>Indicator</i>	Percent of adults (18+y) who meet the recommended 150 minutes or more of aerobic physical activity per week
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	During the past month, other than your regular job, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening, or walking for exercise? What type of physical activity or exercise did you spend the most time doing during the past month? How many times per week or per month did you take part in this activity during the past month? And when you took part in this activity, for how many minutes or hours did you usually keep at it? Include questions on the next most exercise activity. Physical activity calculated based on responses to activity type and frequency questions.

### Physical activity, adults, low-income

<i>Indicator</i>	Percent of adults (18+y) with a household income of <\$25,000 who meet the recommended 150 minutes or more of aerobic physical activity per week
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	In addition to questions listed for physical activity, adults; a question asking respondent to select an income level for respondent's annual household income from all sources

### Fruit & vegetable consumption, adults

<i>Indicator</i>	Percent of adults (18+y) who consume fruits and vegetable five or more times per day
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	During the past month, how many times per day, week or month did you drink 100% PURE fruit juices? Do not include fruit-flavored drinks with added sugar or fruit juice you made at home and added sugar to. Only include 100% juice. During the past month, not counting juice, how many times per day, week, or month did you eat fruit? Count fresh, frozen, or canned fruit. During the past month, how many times per day, week, or month did you eat cooked or canned beans, such as refried, baked, black, and garbanzo beans, beans in soup, soybeans, edamame, tofu or lentils. Do NOT include long green beans. During the past month, how many times per day, week, or month did you eat dark green vegetables for example broccoli or dark leafy greens including romaine, chard, collard greens or spinach? During the past month, how many times per day, week, or month did you eat orange-colored vegetables such as sweet potatoes, pumpkin, winter squash, or carrots? Not counting what you just told me about, during the past month, about how many times per day, week, or month did you eat OTHER vegetables? Examples of other vegetables include tomatoes, tomato juice or V-8 juice, corn, eggplant, peas, lettuce, cabbage, and white potatoes that are not fried such as baked or mashed potatoes. Fruit and vegetable consumption calculated based on responses to food type and frequency of consumption questions.

# Data Sources

## Sugar-sweetened beverages, children

<i>Indicator</i>	Percent of children (5-12y) who drink at least one 12-ounce soda or sugar sweetened beverage on an average day
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2008-2010
<i>Survey question</i>	On an average day, how many glasses, bottles or cans of soda, such as Coke or Sprite, or other sweetened drinks, such as fruit punch or Sunny Delight, did this child drink. Do not include diet or sugar free drinks

## Physical activity, youth

<i>Indicator</i>	Percent of youth (high school) who were physically active for a total of at least 60 minutes per day on five or more of the past seven days
<i>Data Source</i>	Connecticut School Health Survey, Youth Behavior Component, 2011
<i>Survey question</i>	During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?

## 3. Obesity

### Prevalence of obesity, children

<i>Indicator</i>	Percent of children (5-12y) who were obese; having a body mass index (BMI) at or above the 95th percentile for children of the same age and sex [biologically implausible values were removed from analysis]
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2008-2010
<i>Survey questions</i>	About how much does this child weigh without shoes? About how tall is this child without shoes? BMI calculated based on responses to height and weight questions. Age- and sex-specific percentiles were plotted using the CDC growth charts for children 2 years and older in the U.S.

### Prevalence of obesity, children, low-income

<i>Indicator</i>	Percent of children (5-12y) with a household income of <\$25,000 who were obese; having a body mass index (BMI) at or above the 95th percentile for children of the same age and sex [biologically implausible values were removed from analysis]
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2008-2010
<i>Survey questions</i>	In addition to questions listed for prevalence of obesity, children; a question asking respondent to select an income level for respondent's annual household income from all sources

### Prevalence of obesity, youth

<i>Indicator</i>	Percent of youth (high school) who were obese; having a body mass index (BMI) at or above the 95th percentile for children of the same age and sex
<i>Data Source</i>	Connecticut School Health Survey, Youth Behavior Component, 2011
<i>Survey questions</i>	How tall are you without your shoes on? How much do you weigh without your shoes on? BMI calculated based on responses to height and weight questions. Age- and sex-specific percentiles were plotted using the CDC growth charts for children 2 years and older in the U.S.

### Prevalence of obesity, adults

<i>Indicator</i>	Percent of adults (18+y) who were obese; having a body mass index (BMI) $\geq 30$ kg/m <sup>2</sup>
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	About how much do you weigh without shoes? About how tall are you without shoes? BMI calculated based on responses to height and weight questions.

## 4. Tobacco Use

### Current cigarette smoking, adults

<i>Indicator</i>	Percent of adults (18+y) who currently smoke cigarettes
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	Have you smoked at least 100 cigarettes in your entire life? Do you now smoke cigarettes every day, some days, or not at all?

# Data Sources

## Current cigarette smoking, adults, low-income

<i>Indicator</i>	Percent of adults (18+y) with a household income of <\$25,000 who currently smoke cigarettes
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	In addition to questions listed for current cigarette smoking, adults; a question asking respondent to select an income level for respondent's annual household income from all sources

## Current cigarette smoking, youth

<i>Indicator</i>	Percent of youth (high school) who currently smoke cigarettes
<i>Data Source</i>	Connecticut School Health Survey, Youth Tobacco Component, 2011
<i>Survey question</i>	During the past 30 days, on how many days did you smoke cigarettes?

## Exposure to secondhand smoke, youth

<i>Indicator</i>	Percent of youth (high school) who were exposed to secondhand smoke in a public place on one or more of the past seven days
<i>Data Source</i>	Connecticut School Health Survey, Youth Tobacco Component, 2011
<i>Survey question</i>	During the past 7 days, on how many days did you breathe the smoke from someone who was smoking a tobacco product in an indoor or outdoor public place?

## 5. Heart Health

### Premature mortality, cardiovascular disease (CVD)

<i>Indicator</i>	Rate of premature deaths (<75 years of age) from cardiovascular disease
<i>Definition</i>	Age-adjusted premature death rate (per 100,000) among persons aged < 75 years, from cardiovascular disease. [Sum of age-specific years of potential life lost (YPLL), over all age groups up to 75 years of age, due to deaths with ICD-10 codes 100-178 as an underlying cause of death during a calendar year.]
<i>Data Source</i>	Connecticut Vital Records Death Registry, 2007-2009; Mid-year resident population data

### Premature mortality, cardiovascular disease (CVD), blacks

<i>Indicator</i>	Rate of premature deaths (<75 years of age) from cardiovascular disease in black non-Hispanic residents
<i>Definition</i>	Age-adjusted premature death rate (per 100,000) among black non-Hispanic residents aged < 75 years, from cardiovascular disease. [Sum of age-specific years of potential life lost (YPLL), over all age groups up to 75 years of age, due to deaths with ICD-10 codes 100-178 as an underlying cause of death during a calendar year.]
<i>Data Source</i>	Connecticut Vital Records Death Registry, 2007-2009; Mid-year resident population data

### Hypertension medication, adults

<i>Indicator</i>	Age-adjusted percent of adults (18+y) with high blood pressure who are currently taking medicine for high blood pressure
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	Have you EVER been told by a doctor, nurse, or other health professional that you have high blood pressure? Are you currently taking medicine for your high blood pressure?

### Cholesterol screening, adults

<i>Indicator</i>	Age-adjusted percent of adults (18+y) who have had their blood cholesterol checked in the last 5 years
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	Blood cholesterol is a fatty substance found in the blood. Have you EVER had your blood cholesterol checked? About how long has it been since you last had your blood cholesterol checked?

## 6. Cancer

### Colorectal cancer screening (sigmoidoscopy or colonoscopy)

<i>Indicator</i>	Percent of adults (50+y) who have ever had a sigmoidoscopy/colonoscopy
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2010
<i>Survey question</i>	Sigmoidoscopy and colonoscopy are exams in which a tube is inserted in the rectum to view the colon for signs of cancer or other health problems. Have you ever had either of these exams?

# Data Sources

## Colorectal cancer screening (sigmoidoscopy or colonoscopy), low-income

<i>Indicator</i>	Percent of adults (50+ years) with a household income of <\$25,000 who have ever had sigmoidoscopy / colonoscopy
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2010
<i>Survey questions</i>	In addition to question listed for colorectal cancer screening; a question asking respondent to select an income level for respondent's annual household income from all sources

## Cervical cancer screening (Papanicolaou smear)

<i>Indicator</i>	Percent of women (18+y) with a household income of <\$25,000 who have had pap-test within the past three years
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2010
<i>Survey questions</i>	A Pap test is a test for cancer of the cervix. Have you ever had a Pap test? How long has it been since you had your last Pap test? In addition, a question asking respondent to select an income level for respondent's annual household income from all sources

## Breast cancer screening (mammogram)

<i>Indicator</i>	Percent of women (50+y) with a household income of <\$25,000 who have had a mammogram within the past two years
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2010
<i>Survey questions</i>	A mammogram is an x-ray of each breast to look for breast cancer. Have you ever had a mammogram? How long has it been since you had your last mammogram? In addition, a question asking respondent to select an income level for respondent's annual household income from all sources

## 7. Diabetes

### Diabetes prevalence, adults

<i>Indicator</i>	Age-adjusted percent of adults (18+y) with diagnosed diabetes, other than gestational diabetes
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	Has a doctor, nurse or other health professional EVER told you that you have diabetes? If "Yes" and respondent is female: Was this only when you were pregnant?

### Diabetes prevalence, adults, low-income

<i>Indicator</i>	Age-adjusted percent of adults (18+y) with a household income of <\$25,000 who have diagnosed diabetes, other than gestational diabetes
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	In addition to questions listed for diabetes prevalence, adults; a question asking respondent to select an income level for respondent's annual household income from all sources

### Self-management education, diabetes

<i>Indicator</i>	Age-adjusted percent of adults (18+y) with diagnosed diabetes, excluding gestational diabetes, who taken a course or class on how to self-manage diabetes
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey question</i>	Have you ever taken a course or class in how to manage your diabetes yourself?

## 8. Asthma

### Emergency department (ED) visits, asthma

<i>Indicator</i>	Age-adjusted rate of ED visits (per 10,000) among all CT residents for which asthma was the primary diagnosis [ICD-9-CM Code 493]
<i>Data Source</i>	Hospital Discharge Data, 2009; Mid-year resident population data

### Emergency department (ED) visits, asthma, Hispanic

<i>Indicator</i>	Age-adjusted rate of ED visits (per 10,000) among all Hispanic CT residents for which asthma was the primary diagnosis [ICD-9-CM Code 493]
<i>Data Source</i>	Hospital Discharge Data, 2009; Mid-year resident population data

# Data Sources

## Self-management education, asthma

<i>Indicator</i>	Percent of residents with current asthma who have ever taken a course on asthma self-management
<i>Data Source</i>	Behavioral Risk Factor Surveillance System Asthma Call-Back Survey, 2007-2009
<i>Survey question</i>	Have you ever taken a course or class on how to manage your asthma?

## Asthma Action Plan, youth

<i>Indicator</i>	Percent of school students in grades requiring a health assessment record that have an Asthma Action Plan
<i>Data Source</i>	School-Based Asthma Surveillance System, 2009

## 9. Oral Health

### Annual dental visits, adults

<i>Indicator</i>	Percent of adults (18+y) who have visited a dentist or dental clinic in the last year
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2010
<i>Survey question</i>	How long has it been since you last visited a dentist or a dental clinic for any reason? Include visits to dental specialists, such as orthodontists

### Annual dental visits, adults, low-income

<i>Indicator</i>	Percent of adults (18+y) with a household income <\$25,000 who have visited a dentist or dental clinic in the last year
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2010
<i>Survey questions</i>	In addition to question listed for annual dental visits, adults; a question asking respondent to select an income level for respondent's annual household income from all sources

### Dental sealants, children

<i>Indicator</i>	Percent of children (7-9y) with at least 1 dental sealant
<i>Data Source</i>	CT Every Smile Counts Oral Health Survey, 2011
<i>Survey question</i>	Based on oral health screenings completed by dental hygienists

### All teeth extracted, older-adults

<i>Indicator</i>	Percent of adults (65+y) who have had all their natural teeth extracted
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2010
<i>Survey questions</i>	How many of your permanent teeth have been removed because of tooth decay or gum disease? Include teeth lost to infection, but do not include teeth lost for other reasons, such as injury or orthodontics

### All teeth extracted, older-adults, low-income

<i>Indicator</i>	Percent of adults (65+y) with a household income of <\$25,000 who have had all their natural teeth extracted
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2010
<i>Survey questions</i>	In addition to question listed for teeth extracted, older-adults; a question asking respondent to select an income level for respondent's annual household income from all sources

## 10. Genomics and Health

### Family Health History All

<i>Indicator</i>	Percent of adults (18+y) who have collected health information from their relatives for the purpose of developing their family health history
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	Have you ever collected health information from your relatives for the purpose of developing your family health history? [Options: Yes, No, Don't Know/Not Sure, Refused]

# Data Sources

## Family Health History Low Income

<i>Indicator</i>	Percent of adults (18+y) with a household income of less than \$25,000 who have collected health information from their relatives for the purpose of developing their family health history
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	Have you ever collected health information from your relatives for the purpose of developing your family health history? [Options: Yes, No, Don't Know/Not Sure, Refused]

## 11. Health Care Quality

### Preventable hospitalizations

<i>Indicator</i>	Rate of preventable hospitalizations (per 100,000) among all CT residents
<i>Definition</i>	Risk-adjusted by age and gender rate; based on prevention quality indicators, instances of inpatient hospital care for acute or chronic illnesses typically treated or managed in the outpatient setting
<i>Data Source</i>	Hospital Discharge Data, 2008; Mid-year resident population data

### Preventable hospitalizations, blacks

<i>Indicator</i>	Rate of preventable hospitalizations (per 100,000) among all black CT residents
<i>Definition</i>	Risk-adjusted by age and gender rate; based on prevention quality indicators, instances of inpatient hospital care for acute or chronic illnesses typically treated or managed in the outpatient setting
<i>Data Source</i>	Hospital Discharge Data, 2008; Mid-year resident population data

## 12. Health Care Access

### Regular source of care, adults

<i>Indicator</i>	Percent of adults (18+y) who have a regular source of care
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey question</i>	Do you have one person you think of as your personal doctor or health care provider?

### Regular source of care, adults, low-income

<i>Indicator</i>	Percent of adults (18+y) with a household income <\$25,000 who have a regular source of care
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	In addition to question listed for regular source of care, adults; a question asking respondent to select an income level for respondent's annual household income from all sources

### Health insurance coverage, adults

<i>Indicator</i>	Percent of adults (18-64y) who have health care coverage
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey question</i>	Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

### Health insurance coverage, adults, low-income

<i>Indicator</i>	Percent of adults (18-64y) with a household income <\$25,000 who have health care coverage
<i>Data Source</i>	Behavioral Risk Factor Surveillance System, 2011
<i>Survey questions</i>	In addition to question listed for health insurance coverage, adults; a question asking respondent to select an income level for respondent's annual household income from all sources

# End Notes & Acknowledgements

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