

Cardiovascular Disease in Delaware

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Cardiovascular Disease is the leading cause of death in Delaware, the United States and the world. Stroke is the 5th leading cause of death in the United States and the leading cause of disability.¹ In Delaware, the 2015 cardiovascular death rate was 247.5 per 100,000 with the best state at 188.2 per 100,000 ranking Delaware the 28th state.²

Over the past 2-3 decades there has been a steady decrease in age adjusted cardiovascular mortality from 342.9 per 100,000 in 2000 to 223.9 in 2013. In 2013 for the first time more men (402,851) died from cardiovascular disease than women (398,066). This year marks the end of a 26-year decline in the rate of cardiovascular deaths. In the past year, the national cardiovascular death rate has increased from 250.8 to 251.7 deaths per 100,000. The 26 year decline has been attributed to improved care of acute coronary syndrome, myocardial infarction, congestive heart failure, and primary and secondary prevention. The growing epidemic of obesity and Diabetes Mellitus contribute to the recent increase in CVD mortality.¹ The adjusted population attributable risk factors for CVD mortality were 40.6% for hypertension, 13.7% for smoking, 13.2% for poor diet, 11.9% for insufficient physical activity and 8.8% for abnormal glucose.

In Delaware, 34.5% of the adult population has been told by a medical professional that they have hypertension.³ Behavioral risk factors include poor diet, high salt intake, physical inactivity, obesity, excessive alcohol consumption and tobacco use. Other risk factors are age, race/ethnicity, family history of hypertension and genetic factors, lower education, socioeconomic status, psychosocial stressors and sleep apnea. Of those Delaware adults who know they are hypertensive, almost 79% are currently taking medicine. According to data from NHANES 2003 to 2004 compared to 2011 to 2012 hypertension control rates improved from 39.45 to 51.8%. Awareness increased from 75.2% to 82.1% and treatment improved from 65% to 70.4%.⁴

Obesity (BMI>30) is of pandemic proportions and has contributed to the most recent increase in age adjust mortality in the United States.¹ Obesity among Delaware adults has more than doubled from 13% in 1992 to 29.7% in 2015. The prevalence of obesity in New Castle County is 28%, Kent County 31.3% and Sussex County is 32.3%. Obesity is generally caused by regular consumption of more calories than the body is able to burn. Over the past decades the average number of calories has increased, the percentage from fats has decreased and the percentage from carbohydrates has increased. Additional contributing factors include genetics, prenatal and early life influences, unhealthy diets, insufficient sleep, and the social and physical environment. The percentage of adults who eat an ideal diet has increased from 0.7% to 1.5% and in children from 0.2% to 0.6%. There is a huge opportunity to educate the public on the principles of nutrition and examine the barriers of achieving an ideal diet. Less than 21% of US adults and 29.4% of Delaware adults met the US Department of Health and Human Services physical activities recommendations (minimum 150 minutes weekly).

The growing number of obese individuals contribute to the increase incidence of Diabetes Mellitus.² There are 9.9% diabetics in the United States and 11.5% in Delaware placing us 39th

in the United States. The prevalence of diabetes in New Castle County is 28%, Kent County 31.3% and Sussex County is 32.3%.⁵ The 2015 Delaware Behavioral Risk Factor Surveillance System provides information about compliance with recommendations of care for people with diabetes; 51% say they have taken a course in how to manage diabetes, 63.2% say they check their blood sugars daily, 72% see their healthcare providers at least twice a year, 71.3% had an eye exam at which time their pupils were dilated, 81% said they had their feet checked at least once in the past year, and 94.45 had their HgbA1c checked at least once in the past year.⁴

Tobacco is the leading cause of preventable and premature death, killing an estimated 443,000 Americans and 1,400 Delawareans each year.⁶ Cigarette smoking costs the nation \$96 billion and Delaware \$532 million in direct medical costs \$95.6 million is paid by Delaware Medicaid. Nationally there is \$97 billion and in Delaware \$391.2 million in lost productivity annually. In Delaware 17.4% of the population report that they are current smokers. Those groups which have higher rates of smoking include males 20.9%; age group 25-34 22.2%; age group 45-54 21.7%; age group 55-65 21.7%; less than a high school diploma 27.8%, high school diploma 22.2%. The rate of smoking also varies with income: less than \$15,000 32%; \$15,000-\$24,999 18.7%; \$25,000-\$34,999 26.9%; \$35,000-\$49,999 18.6%; \$50,000-\$74,999 17.5%; greater than \$75,000 9.9%.

In addition to the billions in medical costs and lost productivity, tobacco is exacting a heavy toll on young people. 2015 is the most recent Delaware Youth Risk Behavior Survey.⁷ The prevalence of current cigarette smoking among Delaware high school students dropped from 32.2% in 1999 to 9.9% in 2015. There are new products and trends in tobacco use. They are marketed heavily without restrictions, untaxed or have minimal taxes and are dangerous and addicting. Total tobacco use among Delaware high school students (cigarettes, cigars, little cigars and smokeless tobacco) declined from 26.6% in 2003 to 20.3% in 2013. However, from 2013 to 2015 the use of “Vape” e-cigarettes have increased 44% from 7.1% to 23.5%. In 2015, 29.8% of all high school students and 36.5% of high school seniors used any form of tobacco.

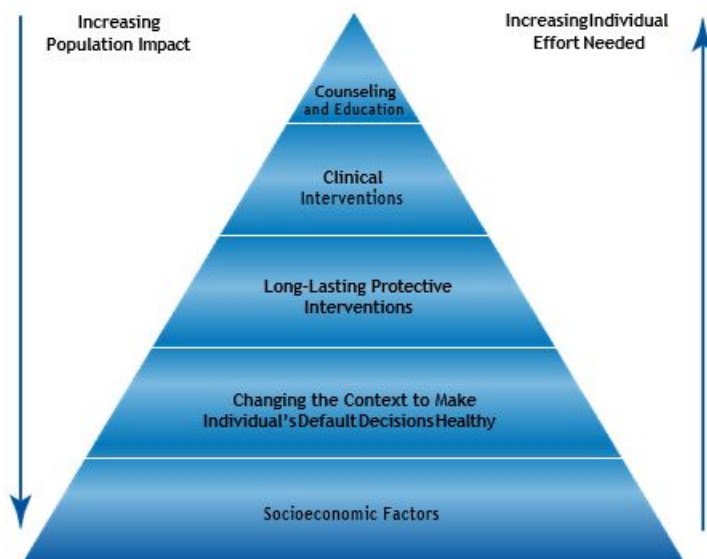
In Delaware in 2015 the tobacco industry spent \$44.8 million dollars on tobacco advertising and \$9.5 billion nationally. This does not include the smokeless tobacco companies who do not need to report their advertising budget. Each day in the United States, over 3,800 young people and 400 Delaware children under 18 years of age smoke their first cigarette. The vast majority of Americans who begin daily smoking during adolescence are addicted to nicotine by young adulthood. If current rates persist, more than 5.6 million children alive today and 17,000 Delaware children will die prematurely of tobacco-caused diseases.

Each year, the American Lung Association evaluates each state’s efforts in smoking prevention.⁸ As a state, Delaware has a lot of opportunity to improve. Our tobacco prevention and cessation funding was graded a D. The state tobacco related revenue was \$136,800,000. The total funding for state tobacco control was \$7,065,443. Of that \$7,065,443, \$6,357,600 was from state funds and \$707,843 from federal funding. This is only 54% of the Centers for Disease Control and Prevention (CDC) recommended level of funding for tobacco prevention. The level of our tobacco taxes was rated an F, access to cessation services was rated a C and smoke free air was rated an A. The American Lung Association in Delaware calls for the following three actions to be taken by our elected officials to reduce tobacco use. Increase the excise tax by \$1.00 per pack of cigarettes and create tax parity between the tax on cigarettes and other tobacco products. Fund tobacco prevention and cessation programs at the CDC recommended level; and increase the sales age for tobacco products to 21 years old.

In 2015, 39.1% of Delaware residents age 18 years and older reported they had been diagnosed with high cholesterol.⁹ The 2013 ACC/AHA guidelines and the 2016 update suggest high intensity statins for patients with established vascular disease or diabetics with a greater than 7.5% 10 year cardiovascular risk.¹⁰ The goal of therapy is a 50% reduction of LDL or an LDL < 70mg and a non-HDL less than 100 mg. Of those patients on high intensity statins, 31.9% had an LDL < 70mg and 68.8% an LDL < 100mg. Thirty-five percent of diabetics were not on a statin. Of those diabetics on a statin, 32.5 were on a high intensity statin, 34.2% achieved an LDL < 70mg, 73% achieved an LDL < 100mg and 27% had an LDL > 100mg. As clinicians there is room for improvement in meeting the evidence based guidelines.

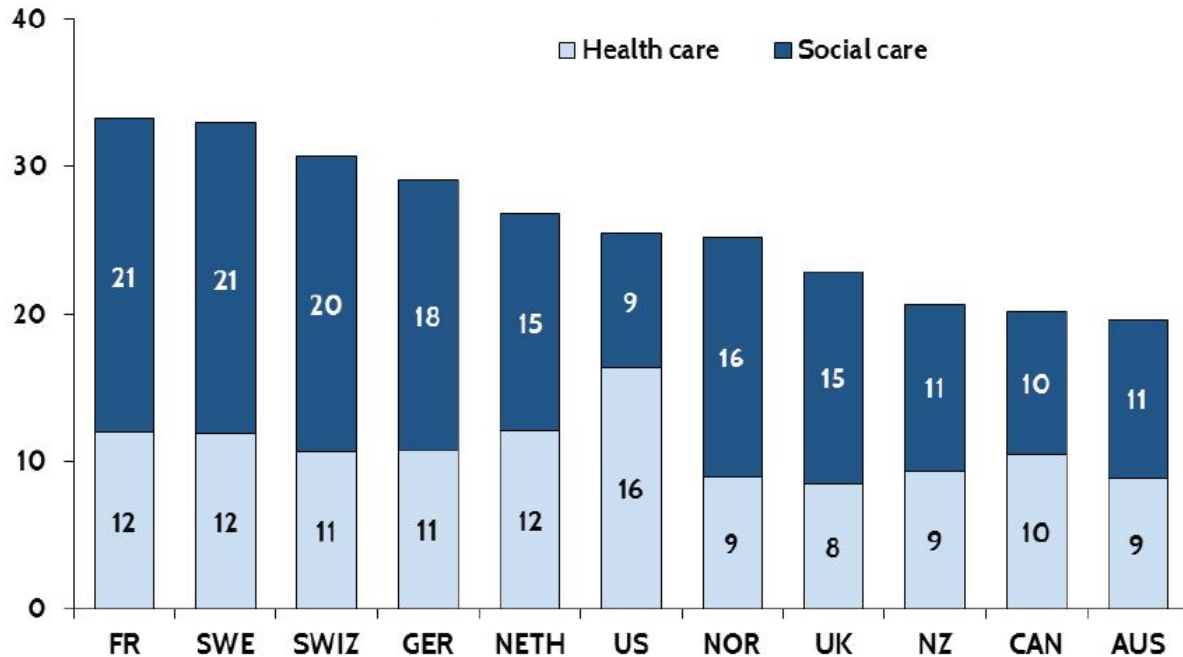
Thomas R. Frieden's (Medical Director of CDC) health pyramid (see Figure 1) best describes what we as a population need to do to improve the health of our community.¹¹

Figure 1. Health Pyramid



US Surgeon General Regina Benjamin, MD, is quoted as saying “health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” Improved health outcomes depend upon a coordinated effort (department of health, government, business, hospitals and healthcare providers) to address the health determinants of behaviors, community, environment, policy and clinical care.² Clinical care only contributes approximately 20% to health outcomes. The United States spends 16% of our GDP on healthcare, more than any other industrialized countries (see Figure 2). Although other countries spend less of their GDP on healthcare compared to the United States, they spend more of their GDP on social care. As a result, 79 years of age the life expectancy of the United States is 34th in the world, our infant mortality of 32/100,000 births is 2nd highest in the OECD, and we rank 11 out of 11 compared internationally in the quality of our healthcare.

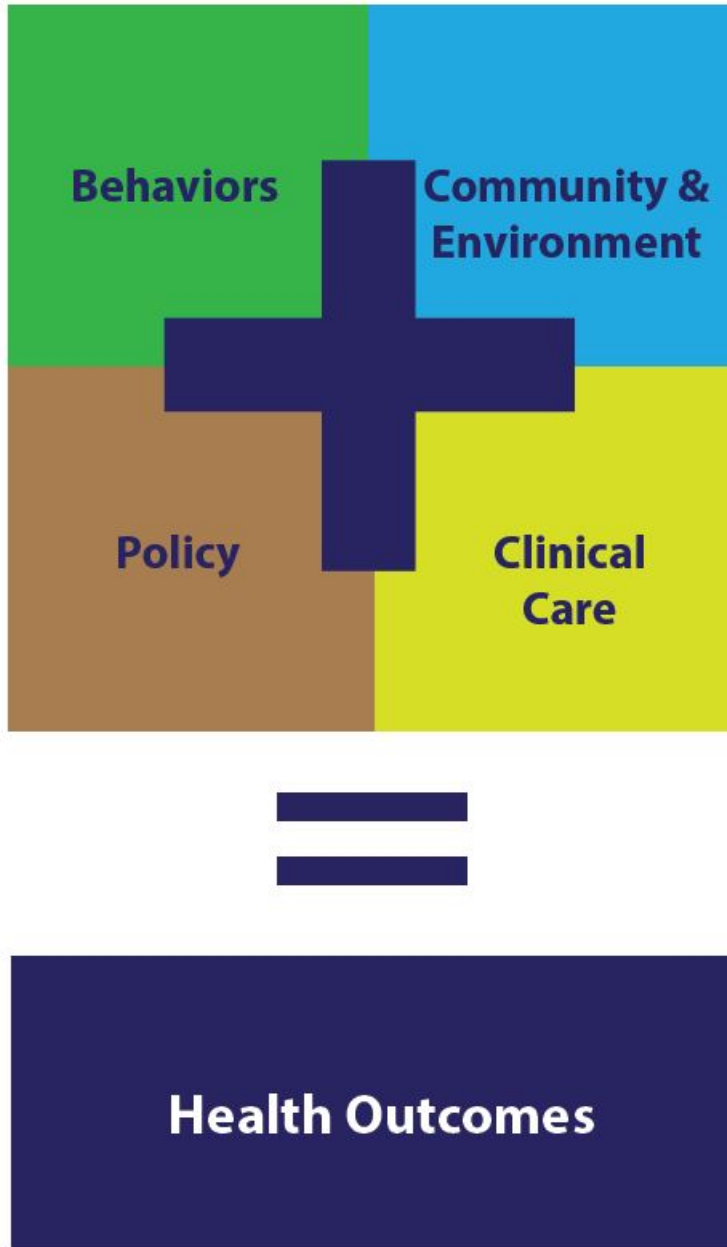
Figure 2. Percent of GDP Spent on Health Care



We need to improve our efforts in preventing disease. This will require addressing the social determinants of health, the base of the health pyramid.

Are there other opportunities to decrease the morbidity and mortality from CVD in Delaware? The medical profession needs to focus on prevention; effectively treating the risk factors of hypertension, hypercholesterolemia, obesity and tobacco addiction. However, what is most needed if we are going to decrease the prevalence of cardiovascular risk factors and engage the population in their treatment is a cooperative effort of health care systems, health care providers, State Government, and the business community addressing behaviors, community, environment and policy (See Figure 3).

Figure 3. Health Outcomes Are a Product of Behaviors, Community & Environment, Policy, and Clinical Care



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