



Chronic Disease Management and Control Branch

Heart Disease and Stroke Prevention Program

2012 Heart Failure Fact Sheet

What is Heart Failure?^{1,2,3}

Heart failure, sometimes called congestive heart failure, develops over many years and results when the heart muscle struggles to supply the required oxygen-rich blood to the rest of the body. Heart failure is most commonly caused by coronary heart disease, high blood pressure, or diabetes, all of which weaken the heart's ability to supply oxygenated blood. In fact, the prevalence of heart failure doubles for every decade of life as assaults on the cardiovascular system progressively weaken the heart.³



Heart failure can affect the right side or left side of the heart. Right heart failure is when the right side of the heart cannot pump sufficient blood to the lungs to receive oxygen. Left heart failure is when the left side of the heart cannot pump sufficient oxygen-rich blood to the rest of the body. Classic signs of heart failure are fluid congestion and reduced blood flow to the body. Mild cases of heart failure may only become apparent during physical activity. Advanced cases can make breathing difficult even during rest. While heart failure does not mean the heart stops beating, it still requires medical attention.



Risk Factors for Heart Failure^{1,3}

Any condition that damages or overworks the heart can cause heart failure. The most common causes of heart failure are coronary heart disease, high blood pressure, diabetes, valvular heart disease, and cardiomyopathy. Conditions such as family history of heart failure, age, diabetes, obesity, excessive alcohol consumption, and a high-salt diet may increase the risk of heart failure.

¹ National Heart Lung and Blood Institute. Diseases and Conditions Index. What is heart failure? <http://www.nhlbi.nih.gov/health/health-topics/topics/hf/>. Accessed January 19, 2012.

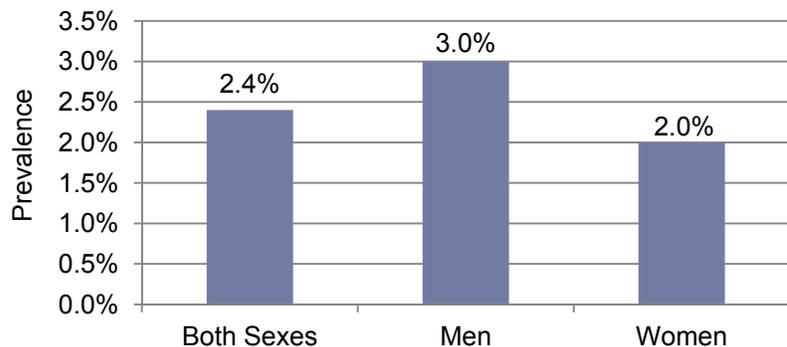
² Centers for Disease Control and Prevention. Heart Failure Fact Sheet. http://www.cdc.gov/dhdsdp/data_statistics/fact_sheets/fs_heart_failure.htm. Accessed January 19, 2012.

³ Heart Failure Online. Heart Failure. http://www.heartfailure.org/eng_site/hf.asp. Accessed January 19, 2012.

The Impact of Heart Failure

Around 5.7 million American adults (2.4%, Figure 1) have heart failure and 670,000 American adults are diagnosed with heart failure every year.⁴ In 2007, 1 in 9 U.S. death certificates (277,193 deaths) mentioned heart failure.⁴ Following diagnosis of heart failure, 20% of patients will die within one year and 50% of patients will die within 5 years.^{4,5}

Figure 1: Prevalence of Heart Failure Among American Adults ≥ 20 years, NHANES 2005-2008



Source: Roger VL, et al. Heart disease and stroke statistics 2011 update: A report from the American Heart Association. *Circulation* 2011;123:e18-e209.

The Economic Impact of Heart Failure

In 2004, heart failure was responsible for \$29 billion in inpatient hospital charges and 1.1 million hospital stays.⁴ In 2010, health care services, medications, and lost productivity resulting from heart failure cost the U.S. \$39.2 billion.⁵

Signs and Symptoms of Heart Failure⁵



- Shortness of breath during daily activities
- Having trouble breathing when lying down
- Weight gain with swelling in the legs, ankles, or lower back
- General fatigue and weakness

Heart Failure Treatment^{6,7}

Once diagnosed, heart failure can be managed with medications, lifestyle changes, and regular doctor visits. Treatments for the underlying cause of heart failure, such as coronary heart disease, will also help heart failure symptoms. More serious cases of heart failure may require medical procedures, such as angioplasty and stents, or surgery. The only cure for end stage heart failure is a heart transplant.

⁴ Roger VL, et al. Heart disease and stroke statistics 2011 update: A report from the American Heart Association. *Circulation* 2011;123:e18-e209; published online Dec 15, 2010. DOI: 10.1161/CIR.0b013e3182009701

⁵ Centers for Disease Control and Prevention. Heart Failure Fact Sheet.

http://www.cdc.gov/dhdsdp/data_statistics/fact_sheets/fs_heart_failure.htm. Accessed January 19, 2012.

⁶ National Heart, Lung, and Blood Institute. How is Heart Failure Treated? <http://www.nhlbi.nih.gov/health/health-topics/topics/hf/treatment.html>. Accessed January 19, 2012.

⁷ Heart Failure Online. Heart Failure. http://www.heartfailure.org/eng_site/hf.asp. Accessed January 19, 2012.

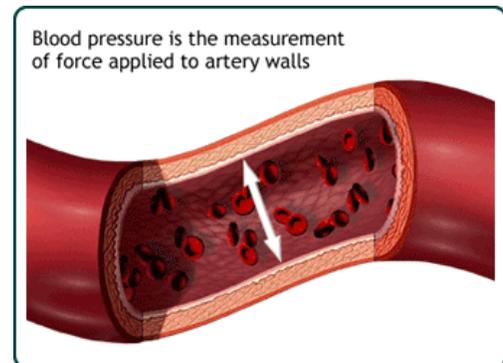
Prevalence of Preventable Risk Factors for Heart Disease and Heart Failure in Hawaii^{8,9}

Coronary heart disease is one of the primary causes of heart failure and affected 2.3% of Hawaii's adults in 2010 (Figure 3). The following risk factors are risk factors for coronary heart disease. Some of these risk factors can directly cause heart failure such as high blood pressure, diabetes, and obesity. Chronic high blood pressure and the heightened blood sugar levels characteristic of diabetes can weaken the heart muscle and obesity increases the heart's workload. Addressing these risk factors through lifestyle modification can prevent heart failure or alleviate symptoms of heart failure and increase quality of life.

High Blood Pressure:

Blood pressure is the force of blood pushing against the artery walls (Figure 2). Chronic high blood pressure can cause hardening of the artery walls which can eventually cause decreased blood flow. High blood pressure is often referred to as a "silent killer." Approximately 75% of Americans who have heart failure also have high blood pressure.¹⁰ In Hawaii, 30.2% of adults reported that they have been told by a health care professional that they have high blood pressure (Figure 3). High blood pressure is more common in people with lower educational attainment, lower household income, people older than 55 years, retirees and residents unable to work, and people of Native Hawaiian or Japanese ethnicity.

Figure 2 (Centers for Disease Control and Prevention)



High Blood Cholesterol:

Blood cholesterol is a waxy, fat-like substance that is made in the body and is present in many foods. Too much cholesterol in the blood can cause a build-up on the artery walls (called plaque) that can narrow the artery allowing less blood to pass through. In Hawaii, 38.9% of adults reported that they were told by a health care professional they had high blood cholesterol (Figure 3). The prevalence of high blood cholesterol increases with age but is common across ethnicities, counties, and people of all educational and household income categories. High blood cholesterol is particularly common in retirees and those unable to work, Japanese, and older Hawaii residents.

Diabetes:

Diabetes is a group of diseases characterized by high levels of blood glucose or blood sugar that results from improper production or use of the hormone insulin. High blood sugar can lead to hardening of the blood vessels and is also linked to increases in blood pressure. In Hawaii, 8.3% of adults reported that they have diabetes (Figure 3). However, diabetes increases with age and is present in 17.9% of adults aged 65 or more and in 18.3% of retirees and those unable to work. Native Hawaiians and those with low educational attainment or low household income tend to have a higher prevalence of diabetes. There is little difference in prevalence between genders or among counties.

⁸ National Heart, Lung, and Blood Institute. What Causes Heart Failure? <http://www.nhlbi.nih.gov/health/health-topics/topics/hf/causes.html>. Accessed January 19, 2012.

⁹ The data source for Hawaii risk factor prevalence comes from the Hawaii Behavioral Risk Factor Surveillance System

¹⁰ Roger VL, et al. Heart disease and stroke statistics 2011 update: A report from the American Heart Association. *Circulation* 2011;123:e18-e209; published online Dec 15, 2010. DOI: 10.1161/CIR.0b013e3182009701

Smoking:



Smoking speeds up the process of atherosclerosis, the process of plaque build-up and hardening of the arteries, and increases the likelihood of a blood clot by causing platelets to clump together.¹¹ In Hawaii, 14.5% of adults reported that they are current smokers (Figure 3) and 10.7% of adults say they smoke every day. Smoking is most common in the 25 to 34 year old age group, Native Hawaiians, adults with less than a high school education, those with lower household income, and in residents of Hawaii County compared to Honolulu County. Unemployed residents of Hawaii are more likely to smoke than students or homemakers and retirees (23.0% vs. 12.1% and 10.9%, respectively).

Physical Inactivity:

Not getting regular physical activity is a risk factor for high blood pressure, high cholesterol, and diabetes, all of which are the primary risk factors for CHD. In Hawaii, 19.2% of adults reported that they participated in no leisure time exercise or physical activity in the past 30 days. Some groups that tend to report lower levels of physical activity include older adults, Japanese, Filipinos, females, those with less than a high school education, those who are retired or can't work, and those with lower household incomes. There was little difference in prevalence of physical inactivity by county.



Overweight and Obesity:

Body Mass Index (BMI), a surrogate indicator of body fat, is often used as a measure of overweight and obesity. Overweight and obesity results from consuming more calories than are expended and strain the cardiovascular system by increasing the risk of high blood pressure, high blood cholesterol, and diabetes. There is some research that suggests other measures of fat distribution, such as waist circumference and waist-to-hip ratio, may be more closely associated with increased risk of poor health outcomes.¹² In Hawaii, 34.1% of adults are overweight and 23.1% are obese (Figure 3). This means 57.2% of Hawaii's adults are carrying excess weight. Overweight is more common in men compared to women. Overweight is common across age groups, household incomes, and counties. Native Hawaiians and those of lower educational attainment and household income tend to have a higher prevalence of obesity. Obesity is also high among those aged 25 to 44 years and the unemployed.

Low Fruit and Vegetable Consumption:

Diets rich in fruits, vegetables, whole grains, fat free or 1% milk, lean meats, poultry, fish, beans, eggs, and nuts and low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars are optimal for maintaining a healthy weight. Consumption of five or more servings of fruits and vegetables every day is recommended to achieve a healthy diet. Eating a poor diet is linked to

¹¹ The 2004 Surgeon General's Report. *The Health Consequences of Smoking*. Available at http://www.cdc.gov/tobacco/data_statistics/sgr/2004/pdfs/whatitmeanstoyou.pdf

¹² Lewis CE, McTigue KM, Burke LE, et al. Mortality, health outcomes, and body mass index in the overweight range. A science advisory from the American Heart Association. *Circulation*. 2009;119. <http://circ.ahajournals.org/content/119/25/3263.full.pdf+html>. Accessed January 19, 2012.

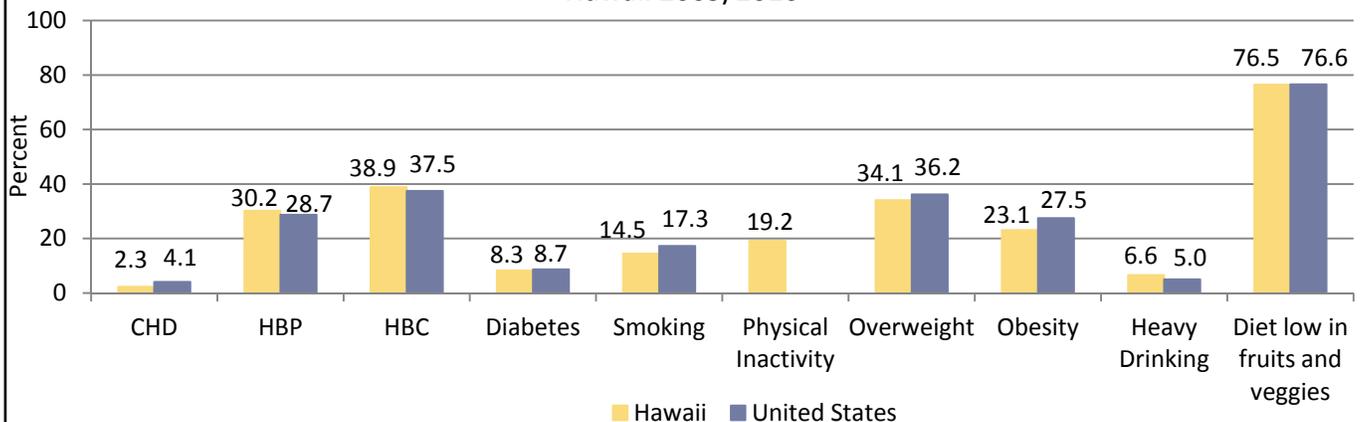
increases in blood pressure and blood cholesterol. A low-salt diet is particularly important as salt causes fluid retention which can make heart failure worse. In Hawaii, 76.5% of adults fail to eat fruits or vegetables at least five times per day (Figure 3). This is more commonly seen among males, people in the 18 to 24 year age group, and the Japanese.

Excessive Alcohol Consumption:



Heavy alcohol consumption, defined as greater than 2 drinks per day for men and greater than 1 drink per day for women, is associated with increases in alcoholism, high blood pressure, obesity, and stroke.¹³ Additionally, excessive alcohol consumption can lead to a higher caloric intake and higher triglyceride levels.¹³ In Hawaii, 6.6% of the adult population self-reported heavy drinking in 2010 (Figure 3). The prevalence of heavy drinking is higher among the younger age groups (25-34 years), men, and Native Hawaiian adults. The prevalence of heavy drinking is similar across categories of household income, employment, and county residence.

Figure 3: Adult Prevalence of Select Chronic Conditions and Risk Factors, U.S. and Hawaii 2009/2010



Source: Hawaii Behavioral Risk Factor Surveillance System, U.S. Behavioral Risk Factor Surveillance System, 2009/2010
 Note: Prevalence of diabetes does not include gestational diabetes; U.S. includes the 50 states and the District of Columbia; data on HBP (high blood pressure), HBC (high blood cholesterol), and diet low in fruits and veggies comes from 2009 BRFSS; data on CHD (coronary heart disease), diabetes, smoking, physical inactivity, overweight, obesity, and heavy drinking comes from 2010 BRFSS

Heart Failure Hospitalizations in Hawaii¹⁴

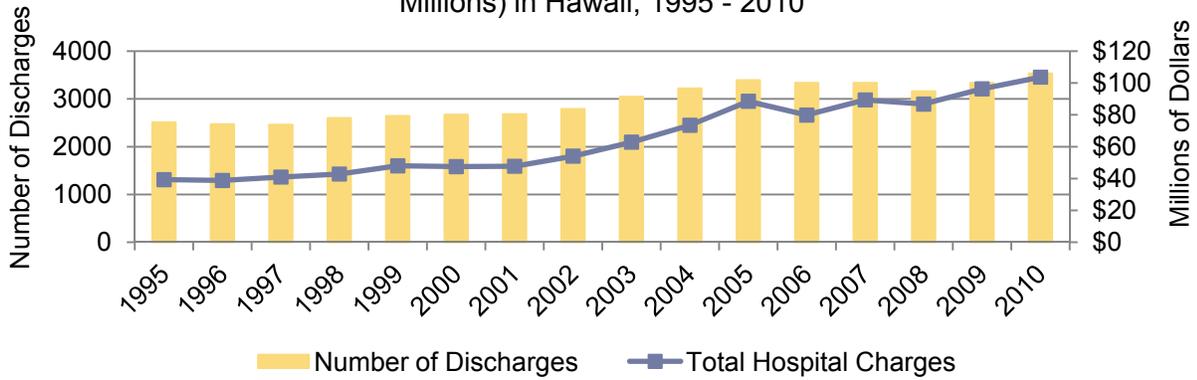
In 2010, heart failure was the primary cause of 3,535 inpatient hospital visits or 3.7% of all non-obstetric or neonatal hospitalizations in Hawaii. Patients hospitalized for heart failure spend an average of 5.4 days in the hospital. The number of hospital discharges with a primary diagnosis of heart failure has been increasing and hospital charges have continued to climb (Figure 4). In Hawaii, heart failure resulted in \$104 million in hospital charges (Figure 4) at an average of \$29,330 per hospital visit in 2010.

¹³ American Heart Association. Alcoholic Beverages and Cardiovascular Disease. http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/Alcohol-Wine-and-Cardiovascular-Disease_UCM_305864_Article.jsp. Accessed March 6, 2012.

¹⁴ Data Source: Hawaii Health Information Corporation

In Hawaii, the average charge per stroke discharge increased from \$15,648 in 1995 to \$29,330 in 2010, an increase of 87%.

Figure 4: Heart Failure Hospital Discharges and Hospital Charges (in Millions) in Hawaii, 1995 - 2010



Source: Hawaii Health Information Corporation

Stroke Hospital Costs in Hawaii¹⁵

- Every year heart failure costs \$103,682,164
 - Every day heart failure costs \$284,061
 - Every hour heart failure costs \$11,836

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¹⁵ Data Source: Hawaii Health Information Corporation