Chronic diseases

Definition: chronic from The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide

In medicine, term used to describe a condition that is of slow onset and then runs a prolonged course, such as rheumatoid arthritis or chronic bronchitis. In contrast, an acute condition develops quickly and may be of relatively short duration.

Summary Article: Chronic Diseases from Encyclopedia of Social Problems

Chronic diseases are illnesses that characteristically have a slow, progressive onset and a long duration. Chronic diseases impact every aspect of the individual's and family’s life and usually result from repeated or prolonged exposure to an environment or substance that does not support the normal structure and functioning of the body.

Chronic diseases are those illnesses that are part of a person’s life, with little or no chance for full recovery. In acute disease, treatments focus on returning the individual to full health. With chronic disease, the medical focus is to limit the progression of the disease or to delay any secondary complication that might arise because of the disease.

The body’s normal structure and function work like a well-coordinated machine, with each part vital to the whole. The structure and function of the human body of a person with a chronic disease, on both the cellular and systemic levels, is permanently altered. It is due to this permanent, and often progressive, cellular change that the person with the chronic disease has an altered ability to function in activities of daily living. Centers for Disease Control and Prevention (CDC) statistics reveal that 1 out of 10 Americans (25 million people) have severe limitations in their daily activities because they have a chronic disease.

According to the CDC’s 2004 data on death in the United States, the current four leading causes of death are heart disease, cancer, stroke, and chronic lower respiratory disease, all chronic diseases. Of the 10 leading causes of death in the United States, only three are not due to chronic illness. More than 1.7 million American deaths, or 7 out of 10, each year are due to a chronic disease. More than 75 percent of the $1.4 trillion spent on U.S. medical care costs is to treat chronic diseases.

Although some chronic diseases transmit during gestation or at birth and others have a genetic link predisposing a person to be more likely to develop that disease, most of the existing chronic diseases are preventable or manageable through lifestyle choices and changes.

Mortality and Morbidity

Mortality refers to the rate of deaths in a given population, and morbidity is the rate of illnesses occurring. These statistics are important when evaluating chronic diseases because we are able to identify trends and shifts in norms. For example, before the discovery of antibiotics, the leading cause of death in the United States was infection, not heart disease. As the population continues to age, the causes of death will change. In the United States, the highest mortality and morbidity rates are due to chronic diseases.

Heart disease, cancer, stroke, upper respiratory disease, diabetes, Alzheimer’s disease, kidney
disease, liver disease, hypertension, and Parkinson's disease are among the top 15 causes of death. Deaths attributed to accidents, suicide, and pneumonia/influenza may also reflect the impact of chronic diseases such as epilepsy, depression, and AIDS.

According to the 2002 *Chartbook on Trends in the Health of Americans*, life expectancy for Americans increased during the past century from 51 to 79.4 years for females and from 48 to 73.9 for males. Despite this increase, however, the United States still lags behind other developed countries in life expectancy. This gap may be due, in part, to the fact that more Americans live longer with chronic diseases but not as long as healthy people.

**Contributing Factors**

Contributing factors for chronic disease are those situations, environments, or lifestyle choices that increase the likelihood of developing a chronic disease. Aging is one of the leading contributing factors; other factors are environmental exposure to toxins, secular trends, genetics, stress, diet, race, socioeconomic status, access to health care, and level of education.

This entry divides risk factors into four groups: genetic/familial, social, environmental, and behavioral. For each group, the common factors, associated disease(s), and prevention or containment methods are discussed. Some overlapping occurs between groups, as many factors related to the development of chronic diseases are codependent. Historically not considered contagious, some chronic diseases—particularly newly emerging long-term diseases—have causative agents transmitted through the mixing of body fluids or sexually, such as herpes, HIV, and hepatitis.

**Genetics and Heredity**

Aging is the process that begins at birth and continues until death. As a person ages the cells mature, reach their peak performance, and then begin to decline or degenerate. As medical science discovers more ways to prolong the healthy life of our cells, the aging process appears to slow down, hence the recently coined phrase “60 is the new 40,” allowing baby boomers (those born between 1946 and 1964) to maintain the illusion of youth as they age. The primary way in which we have extended our life expectancy is the reduction of the number of deaths related to infection and accidents and the development of medical interventions to treat chronic diseases.

Some theories propose that aging is genetically programmed into the cell. Symptoms of aging cells are wrinkles, gray hair, and even menopause, demonstrating that aging can be considered a degenerative chronic disease. The process of aging incorporates the issue of prolonged exposure to toxic elements in the environment, increases the risk of organic failure, and raises the likelihood of degenerative diseases such as Alzheimer's.

As a normal part of the aging process, a person becomes more susceptible to illness, is at increased risk of coronary disease and stroke, and has a depletion in bone mass. The aging cell is more vulnerable to opening the door to other acute and chronic diseases, which in turn can accelerate the aging process. In reviewing chronic diseases, it is important to keep in mind that, as our population lives longer (by 2030 one in five Americans will be over age 65), the prevalence of chronic diseases will grow.

**Hereditary, Congenital Diseases, and Intrauterine Injury**

Birth defects and intrauterine injury may produce chronic diseases such as hemophilia, muscular dystrophy, sickle-cell anemia, congenital heart disease, Tay-Sachs disease, cerebral palsy, and Down

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syndrome, to name a few. Chromosomal abnormalities genetically determine some diseases and can be tested for during pregnancy. A congenital disease is one that is present at birth but is not necessarily caused by a chromosomal abnormality. Environmental factors during pregnancy can result in birth defects and subsequent chronic diseases, as in fetal alcohol syndrome (FAS), where the child’s exposure to the mother’s alcoholic intake alters the normal cellular growth and development of the fetus. FAS often results in lifelong, chronic ailments. Any toxic environment or harmful drug or chemical taken by a pregnant woman can result in fetal injury. The best-known case of this was the 1960s use of the drug thalidomide (a tranquilizer), which resulted in very serious congenital malformations.

**Essential Hypertension, Stroke, and Coronary Disease**

Research revealed an inherited trait predisposing a person to building up fats in major arteries, thus increasing the individual’s susceptibility toward stroke and heart disease. Families with a history of cardiac or vessel disease may be more likely to develop heart and vessel disease with aging. Race is also linked to heart disease, with statistics indicating that African Americans are at higher risk for developing heart disease and stroke than people of other races.

**Social Factors**

Secular trends, or behaviors shared by a group of people over a specific period, demonstrate the ability to change disease patterns over time. Secular trends can increase or decrease the risk of developing or exacerbating a chronic disease. Often, positive secular trends will follow a change in policy or legislation, such as the smoke-free workplace laws, which encourage a decrease in the amount of smoking by employees.

A secular trend increasing the likelihood of developing chronic diseases is Americans’ choice of eating at fast food restaurants. As more women enter the workforce, more families eat fast foods. One out of every four Americans reports eating fast food once a day. Research indicates that lower income and lower education levels correlate to higher intake of fast foods. The consumption of deep-fried, high-calorie meals over time increases an individual’s likelihood of obesity, diabetes, and cardiovascular disease.

**Income and Education**

As mentioned earlier, income and education often dictate behavioral choices, as well as environmental hazards. Individuals of a lower income and lower educational level do not have the same choices in access, ability to pay, choice of safe shelter, and understanding of health hazards. According to the National Bureau of Economic Research, poorer, less-educated Americans have shorter life spans than their rich, well-educated counterparts. Income and education, although listed as a social factor, also impacts behavior, genetic/familial, and environmental factors.

**Stress**

The body adapts to stress, and that adaptation corrupts multiple normal body functions. The brain, sensing stress, releases hormones to deal with the event and then allows for a recovery period. If stress is a chronic condition, however, the absence of recovery means the body’s major organs continue to react as if in jeopardy. This heightened level of readiness can ultimately result in high blood pressure, heart disease, diabetes, obesity, and even cancer.

**Environmental Factors**

The environment is a leading risk factor for developing chronic inflammatory disease. Environmental risk
factors include any exposure that presents a danger to health, such as airborne toxins, toxins in foods and paint, radio towers and other electromagnetic energy sources, exposure to sun and other weather-related situations, and access/availability to harmful and beneficial health aids. Prolonged exposure to environmental pollutants increases the likelihood for specific cancers.

**Airborne Toxins**

Particles in the air that can cause chronic diseases can be a result of ongoing large-scale pollution, like car and factory emissions, can arise from an acute event like the demolition of a building, or may be due to exposure to secondhand smoke. The inhalation of toxins released into the air causes the lung tissues to change, resulting in upper respiratory compromise. Diseases commonly associated with air pollution are lung cancer, asthma, allergies, emphysema, sarcoidosis, and other breathing disorders. Multiple sclerosis has been linked to exposure to heavy metals, which are also found in car exhaust.

**Disaster-Related Pollutants**

The long-term effects of natural and non-natural disasters that release pollutants into environments can include increased prevalence of chronic diseases. Exposure to gases and other nuclear and non-nuclear toxins during wartime resulted in lifelong medical support to treat both emotional and physical ailments in veterans and affected populations. The stress of experiencing a natural disaster (like a tsunami or Hurricane Katrina) increases the likelihood of developing stress-related diseases or chronic diseases occurring as the result of an acute infection.

**Access to Medical Care**

The slow onset and long duration of chronic diseases make crucial the access to health promotion education and medical management. Some diseases, like rheumatic heart disease, can result from poor medical treatment of a primary throat infection. Access to medical care, preventive health education, and ongoing monitoring and treatment of chronic disease are the primary methods of handling chronic diseases.

**Exposure to UVA and UVB**

The reduction in the ozone layer has resulted in an increased exposure to the sun's ultraviolet rays, leading to increased skin cancer rates. The secular trend of using tanning beds further increases a person's susceptibility to developing melanomas and other types of skin cancer. Although some risks for skin cancer link to familial traits (including skin color and family history of skin cancer), the CDC states that skin cancer is the most preventable cancer. Methods to prevent skin cancer are reduction in exposure to UVA and UVB rays and use of sunscreen.

**Behavioral Factors**

Chronic diseases often relate to our behaviors and personal life choices, which in turn are often influenced by environment, social issues, genetics, and family. However, the ultimate responsibility for what to put into the body rests with the individual.

**Alcohol, Tobacco, and Other Drugs**

Long-term use of alcohol, tobacco, and other drugs increases the likelihood of developing cirrhosis of the liver and associated liver diseases like hepatitis, as well as specific types of pneumonias and brain deterioration. Tobacco is the leading causative agent for lung cancer, emphysema, and asthma, and secondhand smoke is itself a carcinogen (i.e., cancer-producing agent). Prolonged use of drugs, illegal
and recreational, increases the risk for brain degeneration, hepatitis, and mental illness. Infection with HIV, transmitted through the use of infected needles or unsafe sex, can result in multiple chronic diseases.

**Food and Exercise**

Data from the 1999–2000 National Health and Nutrition Examination Survey and the 2005 CDC reports reveal that almost two thirds of U.S. adults are overweight, and 30.5 percent, more than 60 million people, are obese. Nine million children in the United States are overweight. Chronic diseases related to increased weight and decreased physical exercise are hypertension, high cholesterol, diabetes, heart disease, stroke, gallbladder disease, osteoarthritis, respiratory problems, and some cancers (endometrial, breast, and colon). In fact, experts attribute most chronic diseases today to physical inactivity and improper diet.

**Sexually Transmitted Diseases**

HIV and herpes are two incurable sexually transmitted diseases that can be precursors to other chronic diseases, such as cancer and specific types of pneumonia. Although HIV and herpes are not chronic diseases, their chronic, ongoing nature and the secondary chronic diseases resulting from them make them appropriate for the list. Sexual abstinence and the use of condoms for those who engage in sexual acts can prevent the transmission of these diseases.

**The Challenge**

Chronic disease is the leading cause of death in the United States. Its treatment affects us on a national and individual level, impacting our economics, emotions, and daily life. Health care costs continue to rise, the population continues to age, and the responsibility for taking care of family members with chronic diseases falls more frequently on the nearest relative. The more risk factors a person has, the greater the likelihood will be that he or she will develop one or more chronic diseases.

Chronic diseases are the most preventable diseases, according to the CDC, as development of a chronic disease requires repeated exposure over time. Removing the toxins negatively affecting the body, replacing unhealthy behaviors with healthy ones, exercising more, and reducing or stopping the use of alcohol, tobacco, and other drugs can prevent, or at least control, some of the effects of these chronic diseases. Improving health education and increasing access to medical care and information can also reduce or eliminate some of the prevalent chronic diseases.

Many chronic diseases seen in adulthood begin in childhood. Learning proper diet, encouraging physical exercise, removing secondhand smoke and other environmental toxins, and educating youth to make wiser, healthier decisions related to their personal habits and their environment will help combat the development of chronic disease.

*See also*

Environment, Pollution; Environmental Hazards; Health Care, Access; Life Expectancy; Secondhand Smoke; Sexually Transmitted Diseases

**Further Readings**


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