Topical Supplements

to the

2009 Iowa Chronic Disease Report

Iowa Department of Public Health

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This 2011 Topical Supplement to the 2009 Iowa Chronic Disease Report can be found on the Iowa Department of Public Health Web site at: http://www.idph.state.ia.us/apl/health_statistics.asp#statistics. Each topic-specific supplement is also posted separately on the Web page of the IDPH program providing related services.

IDPH staff authoring these supplements are: Joann Muldoon, M.S., M.A., Catherine Lillehoj, Ph.D., Suning Cao, M.S., and Terry Meek, B.S.. Additional data analysis completed by Don Shepherd, Ph.D.

Overview: The burden of chronic disease in Iowa

Chronic diseases – such as heart disease, stroke, cancer and diabetes – are among the most prevalent, costly, and preventable of all health problems. Leading a healthy lifestyle (avoiding tobacco use, being physically active and eating well) greatly reduces a person's risk for developing chronic disease. Access to high-quality and affordable prevention measures, including screening and appropriate follow-up, are essential steps in savings lives, reducing disability and lowering the cost for medical care.

Heart disease and stroke

During the past decade through better emergency care and medical management, Iowa has successfully met its goals to lower heart disease and stroke death rates: the heart disease death rate declined by 27% and stroke death rate by 35% during this time. However, heart disease remains the leading cause of death in Iowa, accounting for 25% (6,900) of all deaths in 2010. Stroke accounted for 6% (1,500) of all deaths and was the fourth leading cause of death that year. In the United States, heart disease has been the leading cause of death since 1921. Men remain at especially high risk of cardiac-related death.

Cancer

Like heart disease and stroke, cancer has been among the ten leading causes of death in the U.S. for more than 100 years. Since the 1930's, cancer has been the second leading cause of death nationwide. In 2010 in Iowa, cancer accounted for 6,300 or 23% of all deaths. Without current early detection and treatment services, the death rates from the most common forms of cancer--colorectal, lung, breast and prostate - would be much higher.

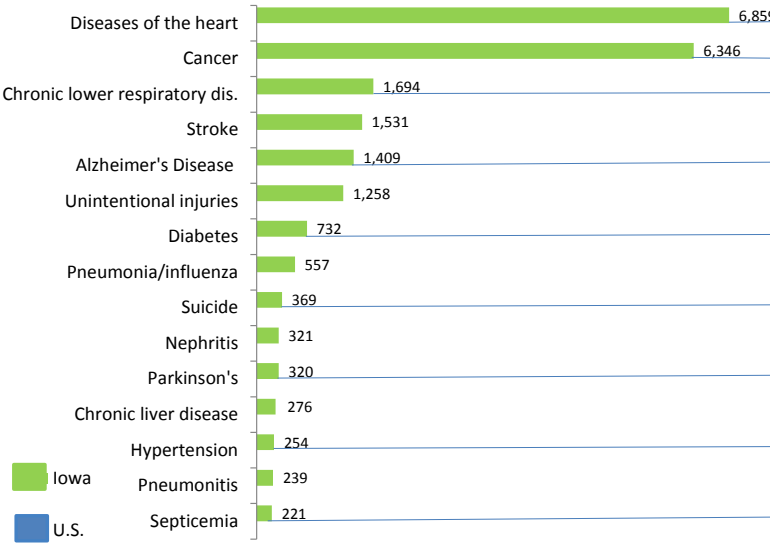
Diabetes

Adult diabetes prevalence rates have doubled in the past 10 years to 12%. Only about two-thirds of all Iowans with diabetes have been diagnosed and know they have diabetes. An estimated 42% of Iowa adults now have either diabetes-or pre-diabetes. Without additional intervention, one in three Iowa children born in 2000 will develop diabetes during her/his lifetime. Most diabetes in adults is type 2 which is linked to age and family history but also is very strongly influenced by lifestyle factors— diet, exercise, and body weight.

Arthritis

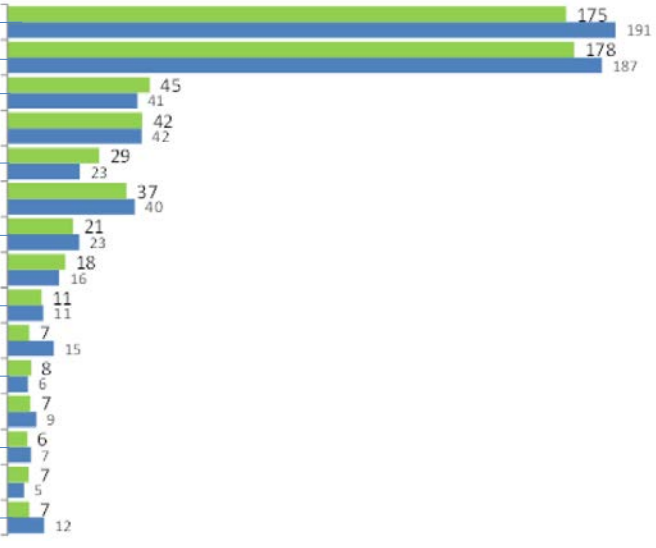
While arthritis is not a leading cause of death, it is a leading cause of disability. Nationally 22% of adults have arthritis. Of those adults, 42% are limited in daily activities because of their arthritis. Women, blacks and the obese have greater than average risk of having arthritis. Adults with arthritis who are obese are at double the risk of having osteoarthritis of the knee compared to normal weight adults with arthritis (60% vs. 30%).

Leading cause of death, Iowa



Number of deaths by cause, 2010 (Total number of deaths in Iowa in 2010: 27,682)

Leading cause of death, Iowa vs. U.S.



Age-adjusted rate of death per 100,000 (adjusted to U.S. 2000 population), 2007

Iowa risk factors and preventive services

Tobacco use

In 1966, 43% of the adult population in the US smoked cigarettes. Due to public and private intervention, as of 2010, only 16% of Iowa adults (375,000) smoke cigarettes, while 4.5% of Iowa adults use smokeless tobacco. However, tobacco use continues to be directly responsible for an estimated 16% (4,400) of all deaths each year in Iowa. Tobacco use increases one's risk of heart disease, hypertension, stroke, cancer, emphysema, pancreatic cancer and many other chronic illnesses.

Nutrition and physical activity

More than 66% of adults (1.5 million Iowans) are either overweight or obese. Overweight and obesity are the fifth leading risk factor for death. An estimated 44% of the diabetes burden, 23% of the ischemic heart disease burden, and 7% - 41% of certain cancer burdens are attributable to overweight and obesity.

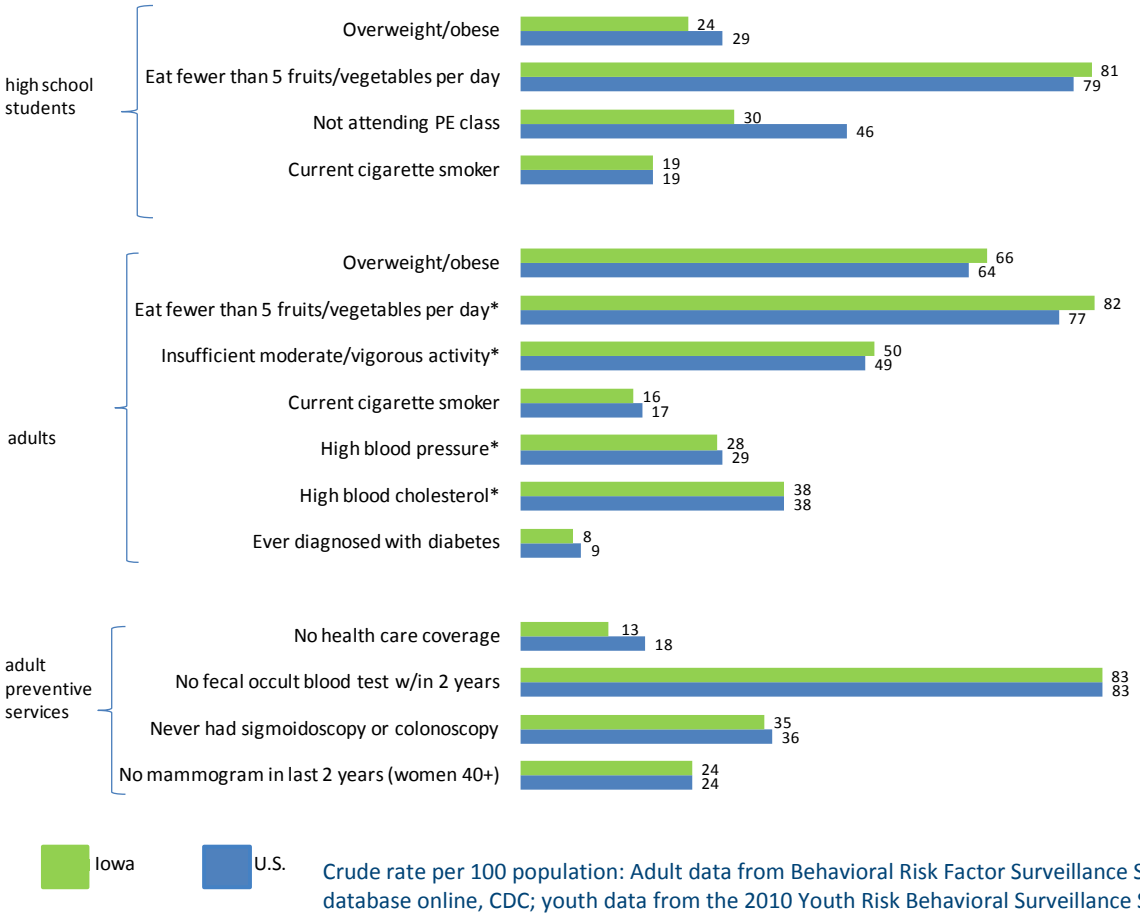
Early detection

Colorectal cancer, cervical cancer, breast cancer, prostate cancer, hypertension, and diabetes are all among the leading causes of premature death (death before age 75 years). All of these conditions are treatable and manageable when caught early. An estimated 90% of colorectal, 95% of breast and most cervical cancer is curable when treated at an early stage. Detecting early and treating elevated blood glucose, hypertension and elevated cholesterol are key to preventing heart disease, stroke, diabetes-related blindness and other chronic illnesses.

No health coverage

In 2010, 13% of Iowa adults 18-64 years of age were without any health insurance. In 2007, an estimated 9% of Iowa children were without insurance at some time during the past 12 months. The rate of being uninsured has increased with the economic recession, fewer employers offering insurance and public program cutbacks.

Preventive Services and Risk Factors, Iowa compared to the United States, 2010



Crude rate per 100 population: Adult data from Behavioral Risk Factor Surveillance System 2010 database online, CDC; youth data from the 2010 Youth Risk Behavioral Surveillance System online, CDC.
*2009 data –questions covering these topics are asked by the BRFSS only in odd years.

Iowa Department of Public Health, 2012. See **http://www.idph.state.ia.us/hpcdp/chronic_disease_prevention_management.asp** for more information.

2011

Obesity in Iowa

supplement to the

2009 Iowa Chronic Disease Report

Obesity in Iowa on the increase

What is obesity? How can it be prevented?

Iowan and the nation are in the midst of an obesity epidemic. The proportion of Iowa adults who are obese increased 29% (i.e., 22.5% to 29.1%) between 2001 and 2010.

Approximately 80,000 of 314,000 Iowa children ages 10-17 years (25.5%) are considered overweight or obese according to BMI-for-age standards.

The dramatic increase in obesity among Iowans could largely be reversed by increasing levels of physical activity and eating more healthfully. Substantial statewide and local interventions are now underway that support healthy lifestyle choices among Iowans.

In Iowa, information related to the prevalence of adult obesity is based primarily on results from the Behavioral Risk Factor Surveillance System (BRFSS). Body mass index (BMI) is a term used throughout this report to define obesity. (See BMI definition on page 7).

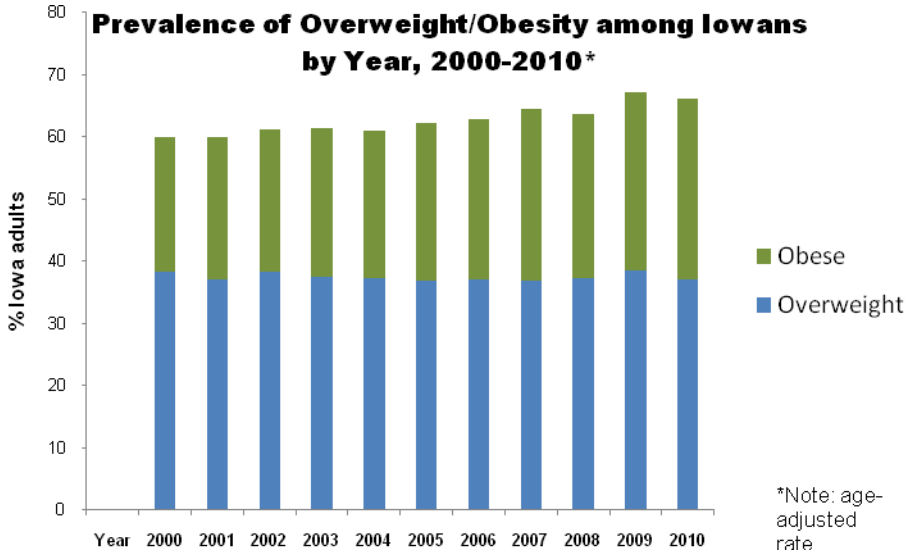
Iowa Ranking Nationally: Iowa was the 22nd most obese state in the country in 2010: 66.2% of Iowa adults were either overweight or obese while nationally, 60.8% of adults were either overweight or obese. State rates ranged from 49.8% to 67.8%. Obesity prevalence rates in Iowa have historically been somewhat higher than the national median.

What are the implications of the increase in obesity prevalence? Who in Iowa is working to prevent and control obesity? See page 6.

Quick Facts

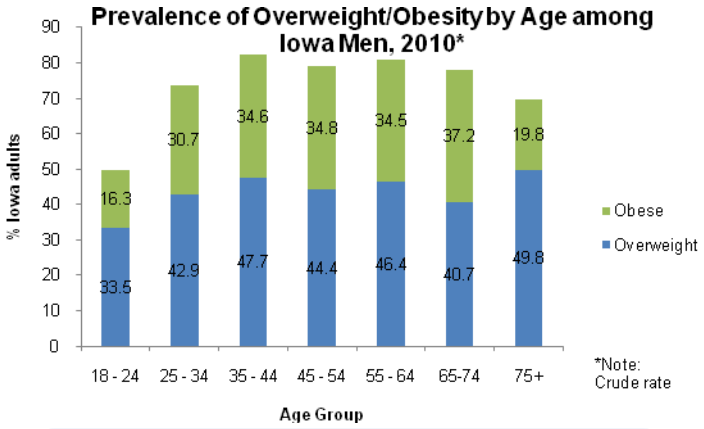
- Mirroring the nation, the prevalence rate of obesity among Iowa adults has consistently increased, from 17.5% in 1995 to 29.1% in 2010.
- 37.1% of Iowa adults are overweight (862,341) ; 29.1% are obese (676,391) (BRFSS, 2010). Nationally, self-reported obesity prevalence ranged from 21% in Colorado to 34% in Mississippi in 2010. Twelve states had a prevalence of 30% or more.
- Overweight and obesity are the fifth leading risk for deaths globally. At least 2.8 million adults die each year as a result of being overweight or obese. In addition, 44% of diabetes, 23% of ischemic heart disease, and 7% - 41% of certain cancers can be attributed to overweight and obesity (http://www.who.int/mediacentre/factsheets/fs311/en/index.html).
- The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. In recent years, there has been: an increased intake of energy-dense foods that are high in fat, salt and sugars but low in vitamins, minerals, and other micronutrients; and a decrease in physical activity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanization (http://www.cdc.gov/obesity).
- Obesity is a major risk factor for chronic diseases including:
  - cardiovascular diseases (mainly heart disease and stroke), which were the leading causes of death in 2008;
  - diabetes;
  - musculoskeletal disorders (especially osteoarthritis);
  - some cancers (endometrial, breast, and colon).
- Childhood obesity is associated with a greater likelihood of obesity, premature death, and disability in adulthood. Obese children also experience breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance, and psychological effects.

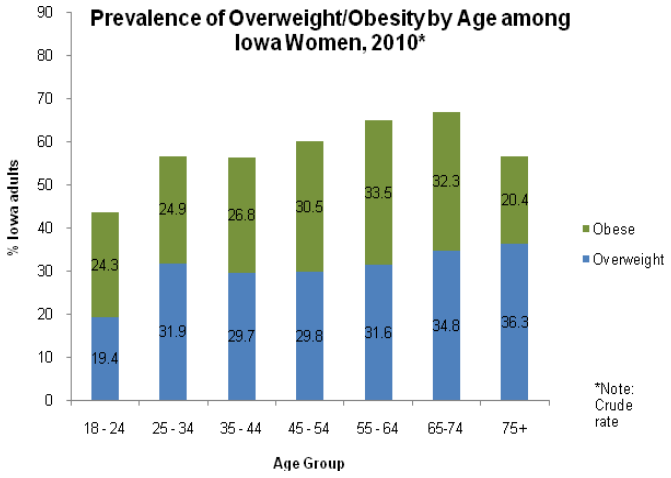
Minorities, middle-aged Iowans and men at higher risk



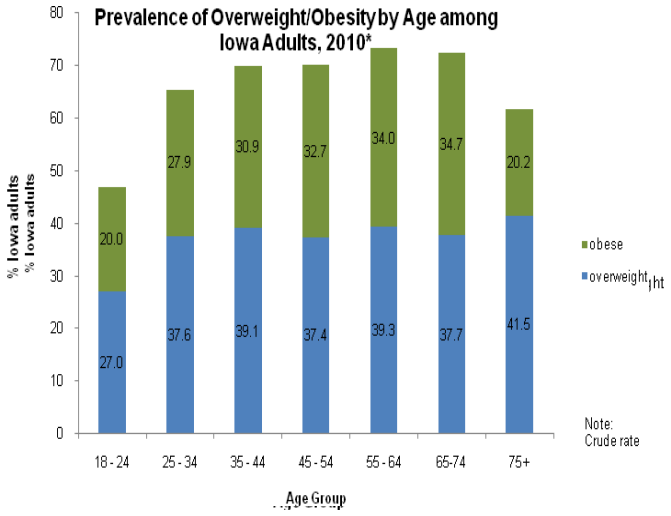
BRFSS data show that in 2010, 37.1% of Iowa adults were overweight and 29% were obese: 66.1% of adults were overweight or obese.

In 2000, 60% of Iowans were overweight or obese, reflecting a 10% increase in the past decade.





Overweight and obesity increase with age until late middle age after which a decline is seen. Obesity shows a very sharp decrease for both sexes in the 75 years and older age group. This decline is even more pronounced for men. There is a much stronger gender difference for overweight than for obesity. More men are overweight/obese than women in all age groups, and there is no decline or equalization at the oldest age group. The demographic group with the highest prevalence rate for overweight/obesity was Iowans 55 to 64 years of age (75.1%). The group with the lowest prevalence rate was Iowans 18 to 24 years of age (48.2%) (BRFSS, 2010).

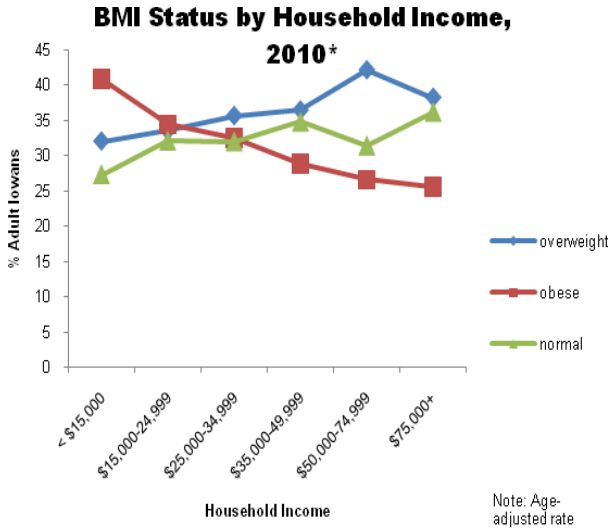


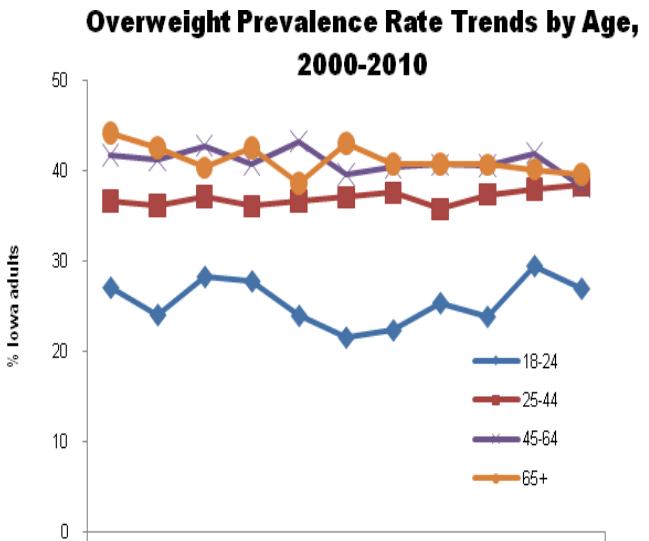
Obesity on rise for both sexes, all ages 35 and older

The obesity prevalence rate among Iowans illustrates a sharp decrease as household income increases.

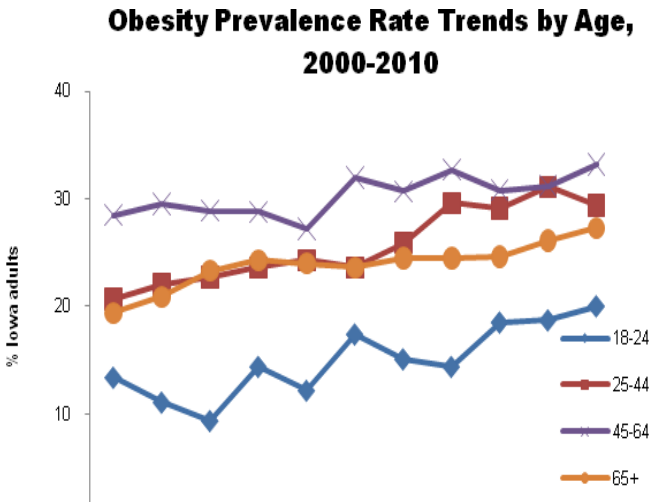
Among adults in all age groups, obesity prevalence rates increased between 2000 and 2010, while overweight status showed little change.

Young adults are consistently least likely to be overweight and obese, while adults of middle age (45-64 years) are most likely to be obese. Except for the youngest age group (18-24 years), Iowans have a similar prevalence rate of overweight. The obesity prevalence rate for Iowans age 45 to 64 years of age (33.2%) was 66% greater than Iowans 18-24 years of age (20%) in 2010.





	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
18-24	27.1	24.1	28.3	27.8	24	21.6	22.4	25.4	23.9	29.5	27
25-44	36.7	36.2	37.2	36.1	36.7	37.1	37.6	35.8	37.4	38	38.4
45-64	41.8	41.2	42.8	40.8	43.3	39.6	40.4	40.7	40.6	42	38.3
65+	44.2	42.6	40.4	42.6	38.6	43.1	40.8	40.8	40.7	40.2	39.6

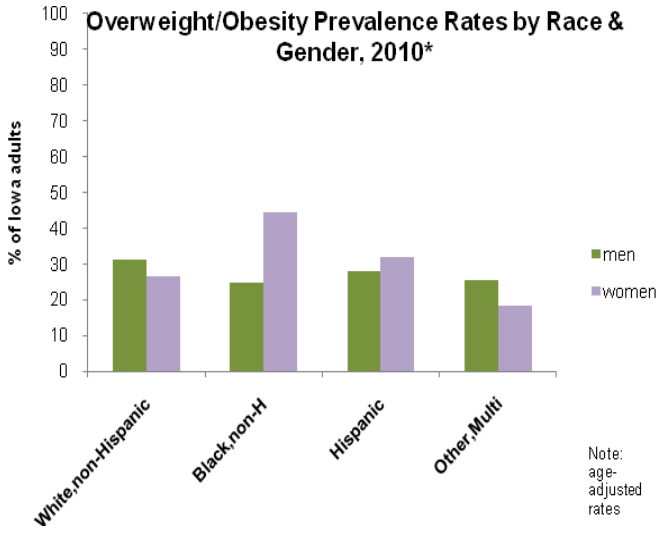


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
18-24	13.4	11.1	9.4	14.4	12.2	17.4	15.1	14.4	18.5	18.7	20
25-44	20.7	22	22.7	23.6	24.3	23.6	25.9	29.6	29.1	31.1	29.4
45-64	28.5	29.5	28.9	28.8	27.2	32	30.7	32.7	30.8	31.2	33.2
65+	19.4	20.9	23.3	24.3	24	23.6	24.5	24.5	24.6	26.1	27.3

Health Disparities: Hispanic men at high risk

Overweight/obesity prevalence rates show that both Iowa Hispanic and Black women had the highest rates among minority groups. Rates for White, non-Hispanic men were similar to the rate for Hispanic women.

Among white adults the prevalence rate for overweight/obesity among men was 31.2% and among women 26.6%.



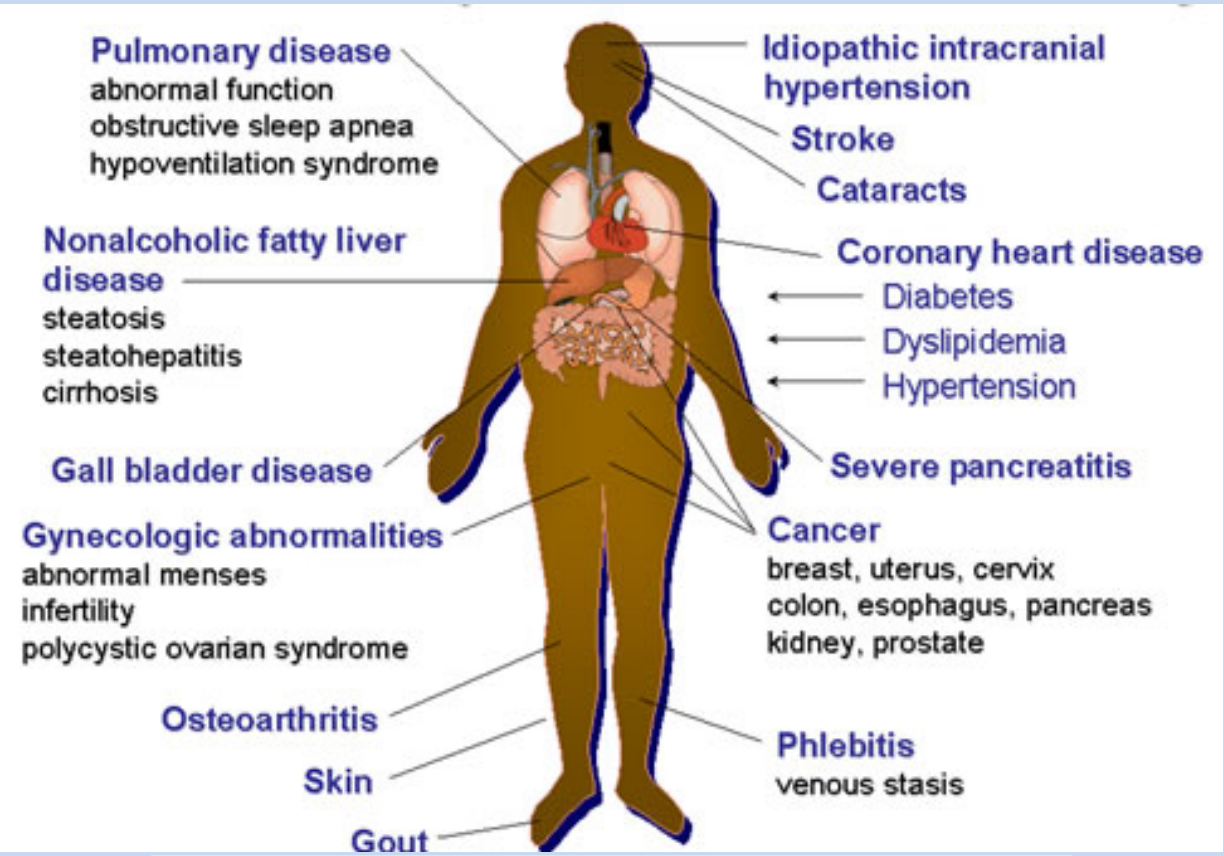
Body Mass Index of Iowa's Children

The percentage of obese/overweight children in the United States has tripled over the past two decades. This increase is concerning because obesity/overweight impacts a child's current and future health (e.g., blood pressure, cholesterol, insulin levels). Overweight children are also more likely to be obese as adults.

Across the state of Iowa, concern has risen about the problem of childhood obesity. During the spring 2010, a statewide assessment of 3rd grade children found 37% were either overweight or obese (http://www.idph.state.ia.us/iowansfitforlife/common/pdf/overweight_obesity.pdf).

Parents were asked about their child's consumption of sugar-sweetened beverages; 71% of parents who responded to the question indicated their child consumed one sugar-sweetened beverage or less daily. However, 29% of parents indicated their child drank two or more daily. 34% of 3rd graders who were overweight/obese drank two or more sugar-sweetened beverages daily.

Obesity Medical Complications



Adapted from Yale University Rudd Center for Food Policy & Obesity

Cost of Obesity

The total economic cost of overweight and obesity in the United States is $270 billion per year.

The $270 billion total cost is the result of: increased need for medical care ($127 billion); loss of worker productivity due to higher rates of death ($49 billion); loss of productivity due to disability of active workers ($43 billion); and loss of productivity due to total disability ($72 billion).

In the U.S., the estimated cost for overweight is $72 billion and of obesity is $198 billion (http://www.soa.org/files/pdf/research-2011-obesity-relation-mortality.pdf). People who were obese had medical costs that were $1,429 higher than the cost for people of normal body weight. Obesity also has been linked with reduced worker productivity and chronic absence from work.

In 2006, obese patients spent an average of $1,429 more for their medical care than did people within a normal weight range. That is a 42% higher cost for people who are obese.

Medicare, Medicaid, and private insurers increased spending due to obesity from 6.5% in 1998 to 9.1% in 2006. This includes prescription drug costs (http://www.cnn.com/2010/HEALTH/02/09/fact.check.obesity/index.html).

Making Use of this Information

Future Strategies & Recommendations for Iowa

Overweight/obesity, as well as related diseases, are largely preventable. Supportive environments and communities are fundamental in shaping choices, making the healthier choice of foods and regular physical activity the easiest choice, and preventing obesity.

At the State level:

- Iowa has set nutritional standards for school lunches, breakfasts, and snacks that are stricter than current United States Department of Agriculture (USDA) requirements. 20 states and D.C. have set such standards.
- Iowa has nutritional standards for competitive foods sold in schools on á la carte lines, in vending machines, in school stores, or through school bake sales. 28 states and D.C. have nutritional standards for competitive foods.
- Iowa has not passed requirements for body mass index (BMI) screenings of children and adolescents or legislation requiring other forms of weight-related assessments in schools. 20 states have passed such requirements for BMI screenings.
- Iowa has not passed Complete Streets legislation, which aims to ensure that all users -- pedestrians, bicyclists, motorists and transit riders of all ages and abilities -- have safe access to a community's streets. 13 states have passed Complete Streets legislation.

At the individual level:

- limit energy intake from total fats;
- increase consumption of fruit and vegetables, as well as legumes, whole grains and nuts;
- limit the intake of sugars;
- engage in regular physical activity;
- achieve energy balance and a healthy weight.

Individual responsibility can only have its full effect where people have access to a healthy lifestyle.

Links to Other Programs in Iowa Addressing Obesity and Chronic Disease Prevention

Iowans Fit for Life is a joint statewide initiative between the Iowa Department of Public Health and its partners that promotes increased opportunities for physical activity and healthy eating for Iowans of all ages. Iowans Fit for Life completed the Iowans Fit for Life State Plan and its implementation. Ultimately, Iowans Fit for Life aims to improve the health of Iowans by reducing the risks and preventing disease related to inactivity and unhealthy eating behaviors.

Iowans Fit For Life is funded through the Center for Disease Control and Prevention, Division of Nutrition, Physical Activity and Obesity (DNPAO) . This division of CDC takes a public health approach to address the role of nutrition and physical activity in improving the public's health and preventing and controlling chronic diseases. DNPAO offers a variety of resources on state level obesity data as well as information for health care professionals and the public.

National Healthy People 2020 Goals

Healthy People 2020 has 4 weight-status objectives, 18 nutrition objectives, and 15 physical activity objectives. Collectively, these objectives seek to: Promote health and reduce chronic disease risk through the consumption of healthful diets and achievement and maintenance of healthy body weights and Improve health, fitness, and quality of life through daily physical activity (http://www.healthypeople.gov/2020/default.asp).

Definitions

Overweight and Obesity: Overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height. The terms also identify ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems.

For adults, overweight and obesity ranges are determined by using weight and height to calculate the Body Mass Index (BMI). BMI is used because, for most people, it correlates with their amount of body fat.

- An adult who has a BMI between 25 and 29.9 is considered overweight.
- An adult who has a BMI of 30 or higher is considered obese.

It is important to remember that although BMI correlates with the amount of body fat, BMI does not directly measure body fat. As a result, some people, such as athletes, may have a BMI that identifies them as overweight even though they do not have excess body fat.

For children and teens, BMI ranges are defined so that they take into account normal differences in body fat between boys and girls and differences in body fat at various ages.

BMI is just one indicator of potential health risks associated with being overweight or obese. For assessing someone's likelihood of developing overweight- or obesity-related diseases, the National Heart, Lung, and Blood Institute guidelines recommend looking at other predictors including high blood pressure and physical inactivity.

References: Iowa BRFSS

The Iowa Behavioral Risk Factor Surveillance System (BRFSS), a household interview survey of adults that began to include questions covering overweight/obesity prevalence in 1988, is the primary source of data in this Iowa Chronic Disease Report supplemental update on obesity. More detailed reports on the burden of obesity in Iowa can be found at the Iowa Dept. of Public Health Web site (http://www.idph.state.ia.us/).

For more information about Iowa's obesity prevention efforts, visit www.idph.state.ia.us/iowansfitforlife/default.asp.

For more information on obesity prevalence, including an animated map, visit www.cdc.gov/obesity.

This Obesity in Iowa supplement to the 2009 Iowa Chronic Disease Report was prepared by C. Lillehoj, Ph.D., Iowa Dept. of Public Health, 2011. Contact: catherine.lillehoj@idph.iowa.gov.

2011

Tobacco Use in Iowa

supplement to the

2009 Iowa Chronic Disease Report

Tobacco use in Iowa declines

Why is tobacco use prevention and control important?

Tobacco use lays enormous health and financial cost on Iowa—costs that are avoidable. And, despite strong gains in reducing tobacco use among adults and youth, tobacco use remains the single largest cause of illness and death in Iowa and the nation.

In 1964, the first Surgeon General's report on tobacco gave light to research showing that tobacco use causes cancer, heart disease and that nicotine is one of the most addictive substances known. At that time, 43% of the adult US population smoked cigarettes. Now very successful counter-marketing, youth prevention programs, cessation services, and policies like smoke-free air laws and higher tobacco taxes have brought the cigarette use rate in Iowa down to 16% of the adult population (2010) and to 20% of high school youth (2008).

Meeting Iowa's goal to continue to reduce tobacco use will be challenging. New, less regulated tobacco/nicotine products (snus, e-cigarettes, sticks), which often are aimed at youth, are being promoted by the industry. And, quitting is hard work, as is warding off youthful peer pressure to begin using. But Iowans can quit or never begin to use with determination and support from evidence-based strong public and private sector policies and services.

Iowa Ranking Nationally:

In 2010, 16 of every 100 Iowa adults smoked cigarettes, while nationally the median rate was 17% (median= half of states had higher, half lower rates). Among the 50 states, Iowa's rate ranked 19th lowest in 2010. States' rates ranged from 9.1% to 26.8%. Adult smoking prevalence rates in Iowa have historically been about the same as or slightly below the national median.

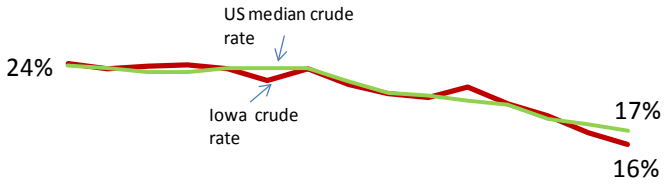
What are the implications of the decrease in tobacco use? Who in Iowa is working to prevent, manage and control tobacco use? **See pages 10 and 11.**
(See page 11 for definitions of rates and other terms.)

Quick Facts

- In 1966, the tobacco industry's unchallenged promotion of tobacco resulted in 43% of the adult population in the US smoking cigarettes. Due to public and private intervention, as of 2010, only 16% of the Iowa adult population (375,000 adults) reported smoking cigarettes, while 4.5% of Iowa adults used smokeless tobacco (MMWR 11/1/10).
- Tobacco use is directly responsible for 4,400 deaths (16% of all 27,500 deaths) and for 57,400 years of potential life lost (YPLL) each year among Iowa residents. (YPLL reflects years of life lost due to premature deaths from tobacco use and secondhand smoke exposure) (CDC, SAMMEC).
- An estimated 100,000 -150,000 Iowans live with chronic obstructive lung disease (emphysema), heart disease, stroke, lung and other cancers due directly to tobacco use or exposure to secondhand smoke. Smoking causes diseases in nearly every organ of the body (CDC, Framework for COPD; Roswell Park Ca Inst.).
- The Iowa Medicaid program spent an estimated $90 million in fiscal year 2009 to treat smoking-related illnesses. If even 10% of smokers on Medicaid quit, at least $9 million would be saved annually from the Iowa Medicaid budget. (Iowa's total Medicaid expenditures were about $3 billion in FY2009. (Kaiser, 2009) Almost 18% of the Iowa population (545,000 persons) were enrolled in Medicaid in 2011 (IA DHS, 2011).
- Each Iowa household pays $616/ year in state and federal taxes due to smoking (CTFK).
- Currently smokers pay for smoking not only with every purchase and with diminished health and increased taxes, but with lost employment—at least 5% of employers prefer to hire nonsmokers and 1% will not hire smokers—and smokers frequently face higher health, home and care insurance premiums. At least 5% of companies charge smokers higher health insurance premiums (SHRM, 2011).
- A 25 year-old pack-a-day smoker who quits and puts his/her money in a 401k account earning 7% a year, would have $400,000 at age 65. (price $5.50/pack)

Decline in adult smoking in Iowa parallels national decline

Smoking prevalence decreases among adults in Iowa and U.S.



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
BRFSS Iowa crude rate	23.6	23.1	23.4	23.5	23.2	22.1	23.2	21.7	20.8	20.4	21.4	19.8	18.8	17.2	16.1
BRFSS U.S. median crude rate	23.5	23.2	22.9	22.8	23.2	23.2	23.2	22	20.9	20.6	20.1	19.8	18.4	17.9	17.3
BRFSS Iowa adjusted rate	24.3	23.9	24.2	24.4	24.1	22.9	23.8	22.5	21.4	20.8	22	20.4	19.3	17.7	16.4
BRFSS U.S. adjusted rate	not available														
NHIS, US adjusted rate		24.6	24	23.3	23.1	22.6	22.3	21.5	20.8	20.8	20.8	19.7	20.4	20.6	19.4

Percent of adults age 18 and older who smoked cigarettes in the past 30 days (current smoking prevalence rate per 100 adults), Iowa, 1996-2010.
Sources: Iowa BRFSS, IA Dept. of Public Health; CDC National BRFSS Web site; National Health Interview Survey (NHIS) Web site, Early Release of Selected Estimates, 12/2011.

Iowa's rate of adult cigarette smoking has remained about the same as the national median rate for every year 1996 through 2010 (crude rate).

In 2010, the national median cigarette smoking prevalence rate was 17.3% while the Iowa rate was 16.1%.

(Iowa Youth Tobacco Survey data show that the high school youth cigarette smoking rate was 20% in 2008, see page 9)

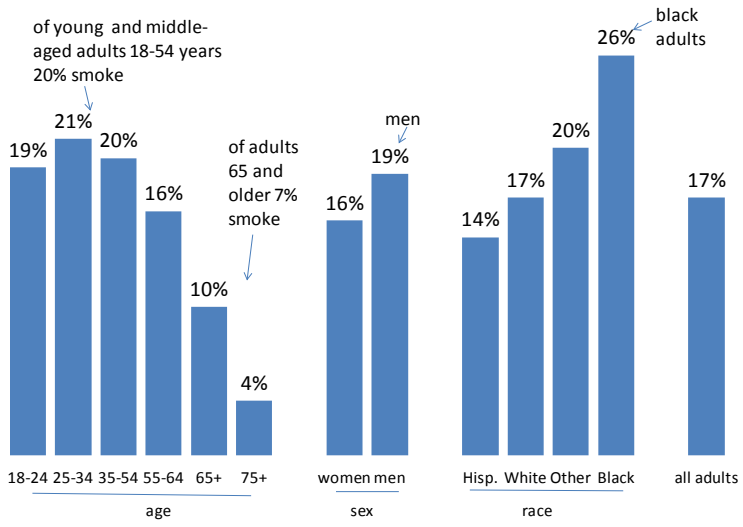
Between 1996 and 2010, the adult crude smoking prevalence rate declined 30% while the adjusted rate declined 33%.

In 2009-10, cigarette smoking was much higher among middle aged and young adults age 18-54 years of age compared to adults age 65 years and older. Only 7% of adults 65 and older smoked cigarettes while 20%. of adults 18-54 smoked. i.e., The rate for young and middle aged adults was three times that of older adults.

The rate for men (19%) was 20% greater than that for women (16%).

Smoking among blacks was the highest of all racial/ethnic groups—45% higher than that of whites and 83% higher than that of Hispanics.

Smoking prevalence, by age, race, sex, Iowa adults



Two-year average annual percent of adults age 18 and older who smoked cigarettes in the past 30 days (current smoking prevalence rate per 100 adults), by age, sex and race, Iowa, 2009-2010.
Source: Iowa BRFSS, IA Dept. of Public Health

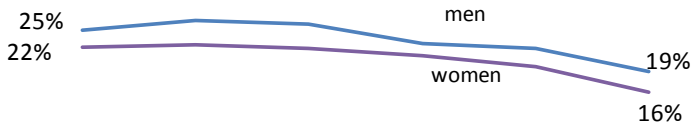
Men and young adults most likely to smoke

Since data were first available in 1994-96, cigarette smoking prevalence rates among Iowa men have exceeded those of Iowa women by several percentage points.

In 2009-10, the rate for men was 20% higher than the rate for women (18.6% vs. 15.5%, adjusted rate).

For all races and for age groups, men were more likely to smoke cigarettes than women. (See CDC BRFSS Web site)

Trends in smoking prevalence, by sex, Iowa adults



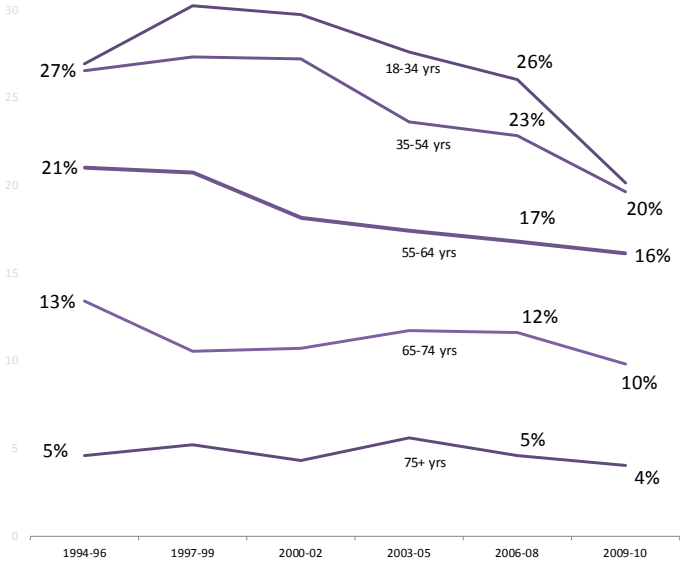
	1994-96	1997-99	2000-02	2003-05	2006-08	2009-10
crude female	20.9%	20.9%	20.5%	19.6%	18.3%	14.8%
crude male	24.4%	26.0%	25.4%	22.4%	21.8%	18.5%
adjusted female	22.0%	22.3%	21.8%	20.7%	19.2%	15.5%
adjusted male	24.5%	26.1%	25.5%	22.5%	21.9%	18.6%

Three-year average annual percent of adults age 18 and older who smoked cigarettes in the past 30 days (current smoking prevalence rate per 100 adults, 2009-10 two year average), by sex, Iowa, 1994-2010.
Source: Iowa BRFSS, IA Dept. of Public Health

Across all years from 1994-96 forward, smoking prevalence rates were much higher among young Iowa adults compared to older adults. In 2009-10, the smoking prevalence rate for Iowans age 18-34 years of age (20%) was 5 times that of Iowans age 75 and older (4%).

For every age group, smoking prevalence rates decreased between 1994-96 and 2009-10. Since the passage of the Iowa Smokefree Air Act in 2008 and tobacco taxes increases in mid-2007 and 2008, rates declined for all age groups, but have they declined the most for adults less than 34 years of age.

Trends in adult smoking prevalence by age



Three-year average annual percent of adults age 18 and older who smoked cigarettes in the past 30 days (current smoking prevalence rate per 100 adults), by age, Iowa, 1994-2010 rates. Source: Iowa BRFSS, IA Dept. Public Health

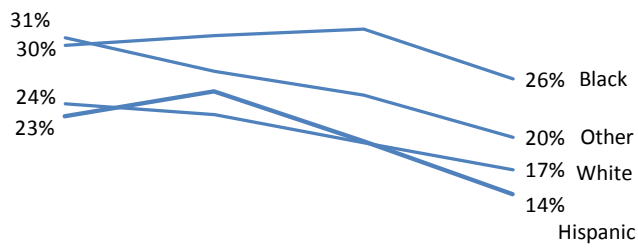
Health disparities: Black adults at highest risk

Since 2000-2004, cigarette smoking prevalence rates among black adults in Iowa have exceeded those of all other racial and ethnic groups.

Hispanics now appear to have the lowest smoking prevalence rate among adult racial/ethnic groups in Iowa.

For all racial ethnic groups, smoking prevalence rates declined substantially between 1995-99 and 2009-10. Rates declined the least for blacks (down 13%), followed by whites (down 29%) and Hispanics and other races (down 36% and 35%, respectively)(age-adjusted rates).

Trends in smoking prevalence, by race, Iowa adults



	1995-99	2000-04	2005-09	2009-10
crude rate				
black	30%	32%	33%	27%
other	33%	28%	26%	22%
Hispanic	27%	28%	20%	15%
white	23%	22%	19%	16%
adjusted rate				
black	30%	31%	32%	26%
other	31%	27%	25%	20%
Hispanic	23%	25%	20%	14%
white	24%	23%	20%	17%

Five-year average annual age-adjusted percent of adults age 18 and older who smoked cigarettes in the past 30 days (current smoking prevalence rate per 100 adults), crude and age-adjusted rates by race, Iowa, 1995-2010. (age-adjusted rates graphedin chart)
Source: Iowa BRFSS, IA Dept. of Public Health

Smoking and Pregnancy: Compared with women who do not smoke—

Women who smoke prior to pregnancy are about twice as likely to experience a delay in conception and have approximately 30% higher odds of being infertile. Women who smoke during pregnancy are about twice as likely to experience premature rupture of membranes and placental abruption, meaning spontaneous abortions are more common among women who smoke as well.

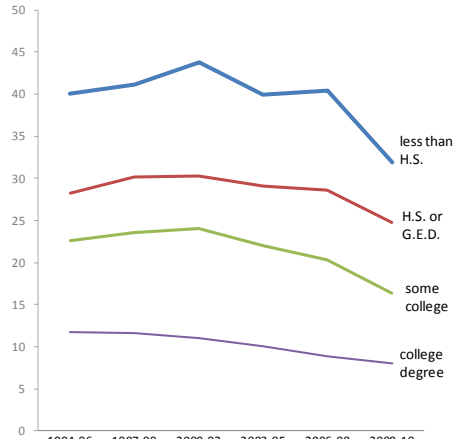
Babies born to mothers who smoke are more likely to be born with low birth weight (less than 2500 grams or 5.5 pounds), increasing their risk for illness or death and weigh an average of 200 grams less (slightly less than half a pound) than infants born to women who do not smoke.

Prevalence of smoking during pregnancy: According to 2007-09 Pregnancy Risk Assessment and Monitoring System (PRAMS) data for Iowa, 15% of Iowa women reported smoking during the last three months of pregnancy. Younger, less educated, non-Hispanic white women and American Indian women are more likely to smoke during pregnancy compared to their older, more educated, counterparts.

Source: Text taken directly from CDC's reproductive health Website: http://www.cdc.gov/reproductivehealth/tobaccousepregnancy/index.htm

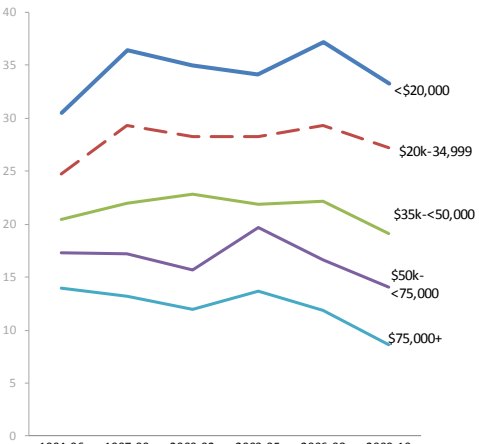
Health Disparities: Iowans of low SES at-most risk

Trends in smoking prevalence by income and education, Iowa adults



	1994-96	1997-99	2000-02	2003-05	2006-08	2009-10
less than high school	40.1	41.2	43.8	40.0	40.4	31.9
high school/G.E.D.	28.3	30.2	30.3	29.1	28.6	24.7
some college/ tech school	22.6	23.6	24.0	22.0	20.3	16.4
college degree or higher	11.7	11.6	11.0	10.0	8.8	8.0

Three-year average annual age-adjusted current cigarette smoking prevalence rate per 100 adults, by educational level, Iowa, 1994-2010 Source: Iowa BRFSS, IA Dept. of Public Health



	1994-96	1997-99	2000-02	2003-05	2006-08	2009-10
less than $20,000	30.5	36.4	35.0	34.1	37.2	33.3
$20,000 - <$35,000	24.7	29.3	28.3	28.3	29.3	27.2
$35,000 - <$50,000	20.4	22.0	22.8	21.9	22.2	19.1
$50,000 - <$75,000	17.3	17.2	15.7	19.7	16.6	14.1
$75,000+	14.0	13.2	12.0	13.7	11.9	8.6

Three-year average annual age-adjusted current cigarette smoking prevalence rate per 100 adults by income, Iowa, 1994-2010. Source: Iowa BRFS, IA Dept. Public Health.

Smoking is strongly associated not only with being young or middle aged and being black, but also with being poor and having less education (also referred to as being of low SES (socioeconomic status).

Higher smoking prevalence rates among Iowa adults of lower educational attainment and lower income is seen across all years 1994-2010.

Income-specific rates of smoking prevalence for 2009-10 show that having a household income of less than $20,000 put one at almost quadruple the risk smoking compared to someone with a household income of $75,000 or more (33.3% vs. 8.6%).

Likewise, having less than a high school education put adults at four times the risk of smoking compared to adults with a college degree or higher educational attainment (31.9% vs. 8.0%) in 2009-10.

(For additional information about Iowa adult tobacco use prevalence by income and education, see the Division of Tobacco Use Prevention and Control, IDPH Web site: http://www.idph.state.ia.us/tobacco/default.asp.)

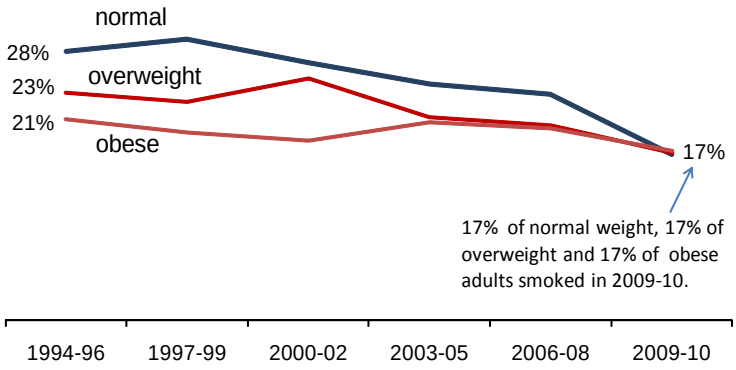
Obese, normal weight equally likely to smoke

Among adults in Iowa, the age-adjusted rate of smoking prevalence decreased for adults of all three body mass index (BMI) categories (normal weight, overweight, obese) between 1994-96 and 2009-10.

Among normal weight adults, smoking prevalence decreased 39%, among overweight adults, 26% and among obese adults smoking was down 20 % since 1994-96.

In 1994-96, both obese and overweight adults were less likely to smoke than adults of normal weight (21% of obese adults while 28% of normal weight adults smoked cigarettes). By 2009-10, adults of all three weight groups had the same smoking prevalence rate – 17%.

Trends in smoking prevalence by body mass index (body weight), Iowa adults

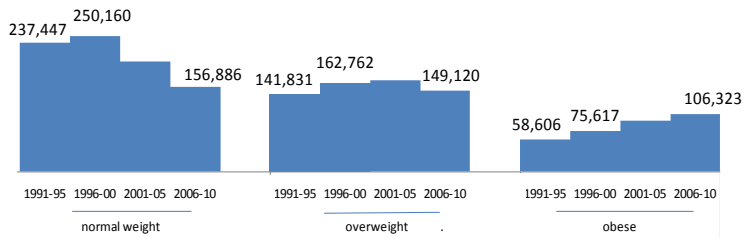


Three-year average annual age-adjusted percent of adults age 18 years and older (prevalence rate per 100 adults who currently smoke cigarettes by body weight (body mass index (BMI) status), 1994-2010

Source: Iowa BRFSS, Iowa Dept. of Public Health

The overall percentage of the Iowa adult population that is obese/overweight has grown substantially in the past 15 years. As a result, despite the *rate* of smoking having decreased among adults in each weight group(normal weight , overweight, obese), there were 81% more smokers who were obese in 2006-10 than in 1990-95 (58,606 vs. 106,323). Between these two periods, the number of smokers who were overweight increased by 5%. Reflecting a decline in the percent of the population that is of normal weight, the count of smokers of normal weight declined 34% during this time--dropping from 237,447 to 156,886.

Trends in number of current smokers by body mass index (body weight categories) Iowa adults



Five year average annual number of adult cigarette smokers by body weight (body mass index), Iowa, 1991-2010. Source: Iowa BRFSS, IA Dept. of Public Health

Dollars Spent on Promoting Tobacco, the Personal and Public Cost of Tobacco Use

Tobacco companies spend billions of dollars each year to market their products. In 2006, cigarette companies spent $12.4 billion on advertising and promotional expenses in the United States, more than double what was spent in 1997. The money cigarette companies spent on U.S. marketing in 2006 amounted to approximately $34 million per day. The five major U.S. smokeless tobacco manufacturers spent $354 million on smokeless tobacco advertising and promotion in 2006.

U.S. consumers spent an estimated $90 billion in 2006 on tobacco products. Approximately $83.6 billion was spent on cigarettes, $3.2 billion on cigars and $2.6 billion on smokeless tobacco (e.g., chewing tobacco and snuff) that year.

During 2000–2004, cigarette smoking was estimated to be responsible for $193 billion in annual health-related economic losses in the United States ($96 billion in direct medical costs and approximately $97 billion in lost productivity).

During 2000-2004 in Iowa, health-related costs of cigarette smoking were estimated to be $1 billion annually, with lost productivity costs (indirect costs) also being about $1 billion annually. (CDC SAMMEC Web site). Each Iowan household pays $630/year in state and federal taxes due to the direct health care and indirect cost of smoking. (CTFK)

The total economic costs (direct medical costs and lost productivity) associated with cigarette smoking are estimated at $10.47 per pack of cigarettes sold in the United States.

Cigarette smoking results in 5.1 million years of potential life lost in the United States annually and 57,400 years of potential life lost among Iowans.(See YPLL definition on page 12)

In early 2010, the average retail price of a pack of cigarettes in the United States was approximately $4.80 (including federal, state, and municipal excise taxes). Cigarettes are subject to both federal and state taxes. On April 1, 2009, the federal cigarette tax increased by 62 cents to $1.01 per pack. Nationwide as of July 1, 2010, the average state cigarette excise tax rate was approximately $1.44 per pack, but varied from 17 cents in Missouri to $4.35 in New York. The Iowa rate is now $1.36.

Increases in cigarette prices lead to significant reductions in cigarette smoking. A 10% increase in price has been estimated to reduce overall cigarette consumption among adolescents and young adults by about 4%. Increases in cigarette prices can lead to significant reductions in smoking prevalence by increasing cessation among smokers and reducing smoking initiation among potential young smokers.

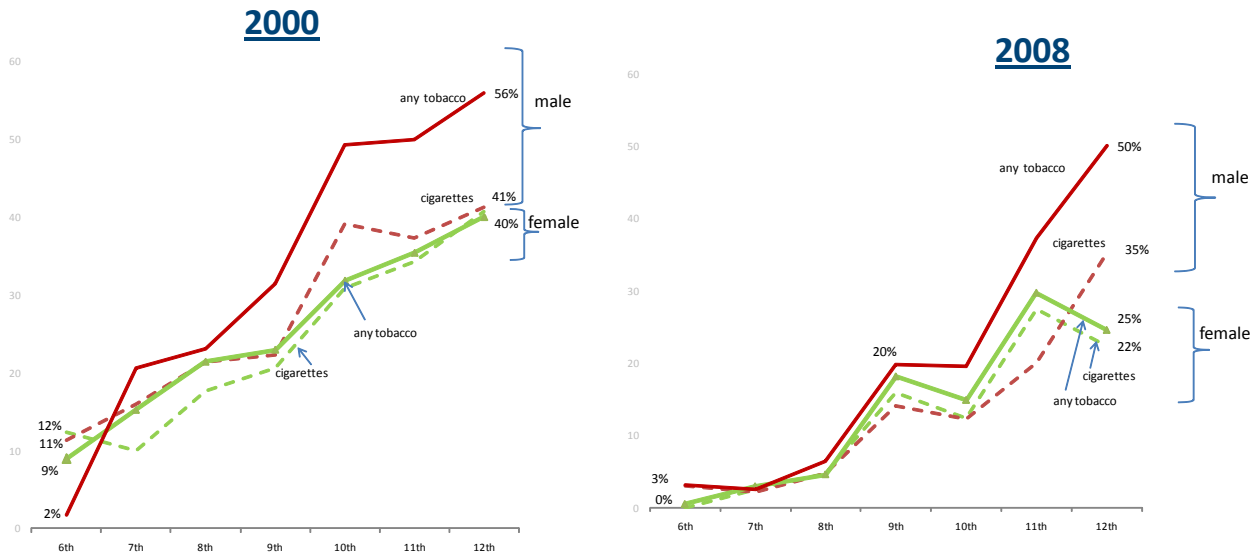
Annual Iowa Medicaid program costs for treating heart disease, cancer, hypertension, and stroke for Iowa Medicaid enrollees are more than $233 million. (Almost 18 % of the Iowa population is enrolled in Medicaid and an estimated 30%-35% of Medicaid enrollees use tobacco.) Strong evidence supports that Medicaid coverage to help smokers quit is highly cost-effective and saves money. After providing Medicaid coverage of smoking cessation services, states have seen the smoking rate among beneficiaries decline by as much as 26% in the following two-three years. In Massachusetts among benefit users, there was a 46% decrease in hospitalizations for heart attacks and a 49% decrease in hospitalizations for cardiovascular disease. It is estimated that these health gains saved more than $3 for every $1 spent on the cessation services benefits. Smoking cessation coverage likewise can save Medicare program costs which totaled $2.8 billion for the 514,000 elderly Iowans enrolled in 2009.

Sources: Selected text is taken directly from the CDC online factsheet on tobacco costs and expenditures:

Youth Tobacco Use: 35% of 12th grade males smoked cigarettes, 50% used any tobacco (smokeless tobacco or cigarettes) in 2008

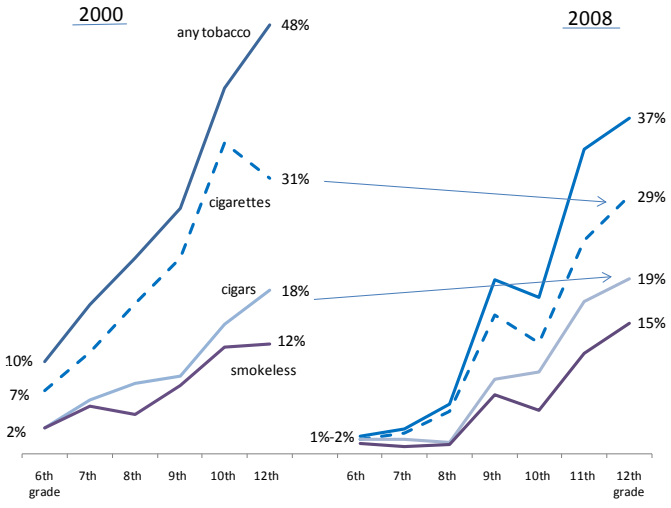
Current tobacco use among sixth through twelfth grade youth, Iowa, 2000, 2008

by sex



By sex, percent of Iowa students in 6th through 12th grade who used any form of tobacco and who used cigarettes on one or more of the past 30 days, 2000, 2008. Source: IYTS, IA Dept. of Public Health

overall



Percent of Iowa students in 6th through 12th grade who used tobacco products on one or more of the past 30 days, 2000 and 2008. IYTS, Iowa Dept. of Public Health.

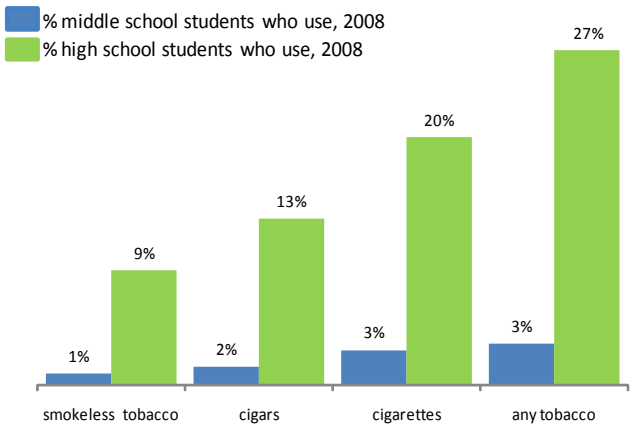
By sex (see charts above): While tobacco use prevalence rates have declined dramatically among Iowa youth since 2000, tobacco use rates remain high for both male and female high school students, especially in the last few years of high school. For both sexes, tobacco use still grows exponentially between early middle school and late high school.

In 2008, half of all twelfth grade male students were current tobacco users (25% of female 12th grade students used tobacco that year), representing a 1500% increase during the 6 years between 6th grade and 12th grade. While 50% of male high school seniors using tobacco is a high percent, it represents a decline from the 56% who were current tobacco users in 2000.

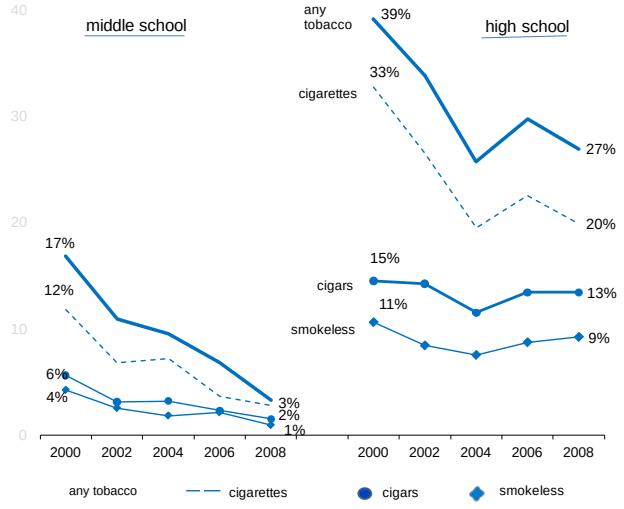
Trends by grade-level overall: The previous graph on page 8 shows that from early middle school to late high school, use of all forms of tobacco grows dramatically among Iowa youth. Historically, most tobacco users begin using and become addicted to tobacco before age 18. Among Iowa youth in late high school, the cigarette use rate (29% of twelfth grade students) is *higher than the rate for every adult age* group in Iowa.

Among students in twelfth grade, the use of tobacco overall and cigarettes dropped between 2000 and 2008, while the use of smokeless tobacco and cigars grew.

Current tobacco use prevalence trends among all middle school (6th- 8th grade) and all high school (9th- 12th grade) youth, Iowa



Percent of Iowa students in nmddle and high school students who used tobacco products during the past 30 days (current use), 2008, Source: IA Youth Tobacco Survey, Iowa Dept. of Public Health



Trends in the percent of Iowa middle and high school students who used tobacco on one or more of the past 30 days, 2000-2008. Source: Iowa Youth Tobacco Survey, IA Dept. of Public Health.

The two charts above show tobacco use trends between 2000 and 2008 for all middle school and all high schools students (as opposed to 6th – 12th grade-specific rates seen in earlier charts) in Iowa.

For both middle school students and high school students, overall tobacco and cigarette use declined dramatically between 2000 and 2008. Middle school youth current cigarette use declined from 12% to 3% between 2000 and 2008, a 75% decline. High school student current cigarette use declined from 33% to 20% between 2000 and 2008, a 36% decline

The use rates of cigars and smokeless tobacco were much lower than cigarette use rate to begin with and so, while declining for both middle and high school students, their decline in use was less dramatic. Among middle school students: smokeless tobacco use declined from 4% to 1%, while cigar smoking declined from 6% to 2% between 2000 and 2008. Among high school students smokeless tobacco use from 11% to 9% and cigar use declined from 15% to 13% between 2000 and 2008.

Making Use of this Information

Future Strategies and Recommendations for Iowa

The Division of Tobacco Use Prevention and Control of the Iowa Department of Public Health works to reduce tobacco use and the toll of tobacco-caused disease and death by preventing youth from starting, helping adults to quit, and preventing exposure to secondhand smoke.

To achieve these goals, the Division follows Centers for Disease Prevention and Control (CDC) guidelines for comprehensive tobacco control programs. State-level initiatives include Quitline Iowa cessation services and enforcement of Iowa's Smokefree Air Act as well as supporting laws prohibiting tobacco sales to minors.

Local tobacco control programs, called Community Partnerships, support tobacco prevention and cessation initiatives at the county level. The Division also conducts ongoing surveillance of tobacco use by youth and adults in Iowa. For more information see the Division of Tobacco Use Prevention and Control's Web site: http://www.idph.state.ia.us/tobacco

Links to Other Programs in Iowa Addressing Tobacco Use Prevention:

The Iowa Tobacco Prevention Alliance (ITPA) is the only statewide non-profit organization in Iowa solely dedicated to reducing tobacco use and exposure to secondhand smoke. ITPA is a coalition of individuals and organizations (American Lung Association, American Cancer Society, American Heart Association and others) that has made the long-term commitment to the cause of tobacco prevention and control as its sole priority. ITPA's **mission** is to provide sustained statewide leadership in the effort to save lives by reducing the social acceptance of tobacco and eliminating its use through advocacy and education. Contact: http://www.iowatpa.org.

National Healthy People 2020 Objectives

CDC's Healthy People 2020 has more than 70 national tobacco use prevention and control objectives that fall into three broad categories:

- tobacco use (use prevention among adults, youth, pregnant women)
- health systems change (Medicaid coverage, provider screening for use and cessation services/counseling)
- environmental and social change (prevention of secondhand smoke exposure , preemption laws, raising tobacco excise tax, enforcement of sales to minors laws, reducing tobacco promotion advertising directed at youth and tobacco counter-marketing)

(See Healthy People 2020 Web site for more details: **http://www.healthypeople.gov/2020/default.aspx**

Quitline Iowa

The statewide toll-free tobacco use cessation counseling and referral service. People who use tobacco can call without charge:

800-QuitNow (800-784-8669)

Definitions

Current cigarette smoking: Current cigarette smoking is defined as having smoked a cigarette on one or more of the past 30 days.

Smokeless tobacco: The two main types of smokeless tobacco in the United States are chewing tobacco and snuff (tobacco held in mouth between gums and cheek or inhaled. Snus (Swedish for snuff) is a form of snuff sold in small pouches that are placed under the lip against the gum.

Smokeless tobacco is not a safe alternative to smoking cigarettes. Smokeless tobacco use can cause cancer, oral health problems, and nicotine addiction. Adolescents who use smokeless tobacco are more likely to become cigarette smokers. High school students are more likely than adults to use smokeless tobacco. (CDC Smokeless Tobacco Facts online)

Current smokeless tobacco use is defined as having used on at least one of the past 30 days.

Iowa Smokefree Air Act: Iowa's law that bans cigarette smoking in most workplaces and public venues such as retail stores, restaurants and bars. At least half of all states have smoke-free air laws.

Prevalence rates: The *crude* tobacco use prevalence rates found in this supplement were calculated by simply dividing the annual number of Iowans in a subpopulation who report using tobacco at the time they were surveyed by the total number of people in that subpopulation. Crude rates were graphed in this report to compare Iowa adults to the U.S., as U.S. age-adjusted rates were not available. All adult age-specific and youth rates in this report are also crude rates. Age-adjusted rates are usually preferable to crude when comparing differences between populations across time and to one another. Age-adjusted rates were calculated by weighting age-specific tobacco use rates in the Iowa adult population to a standard 2000 U.S. population distribution and

References: Iowa BRFSS
Iowa YTS

The Iowa Behavioral Risk Factor Surveillance System (BRFSS) is a telephone-based annual health survey of adults. It began to include questions about cigarette smoking in 1988 and has included questions about cigarette use every year since. Other forms of tobacco use are also periodically included. The BRFSS is conducted in every state and funded by the CDC. It is the primary source of data charted in this report. Most BRFSS-derived rates in this supplement are age-adjusted, rather than crude rates. (For further information visit the IDPH or CDC BRFSS Web sites: http://www.cdc.gov/BRFSS/; http://www.idph.state.ia.us/brfss/)

The Iowa Youth Tobacco Survey (IYTS) is a school based survey that was conducted every other year between 2000 and 2008. The IYTS was the source of information in the charts on youth tobacco usage in Iowa in this report.

For copies of full reports of the Iowa Youth Tobacco Survey and other information on the burden of tobacco in Iowa, visit the Iowa Dept. of Public Health's, tobacco program Web site: http://www.idph.state.ia.us/tobacco/default.asp.

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This Tobacco Use in Iowa supplement to the 2009 Iowa Chronic Disease Report was prepared by J. Muldoon, Iowa Dept. of Public Health, 2011. Contact: joann.muldoon@idph.iowa.gov.

2011

Cardiovascular Disease in Iowa

supplement to the

2009 Iowa Chronic Disease Report

Coronary Heart Disease in Iowa

What is Coronary Heart Disease (CHD)?

Coronary Heart Disease (CHD) is a condition that reduces blood flow through the coronary arteries to the heart muscles.

Iowa Ranking Nationally in CHD Mortality Rate (2007)

Iowa ranks 38th out of the 50 states. Higher numbers represent higher death rates.

Significant Findings from Mortality Data

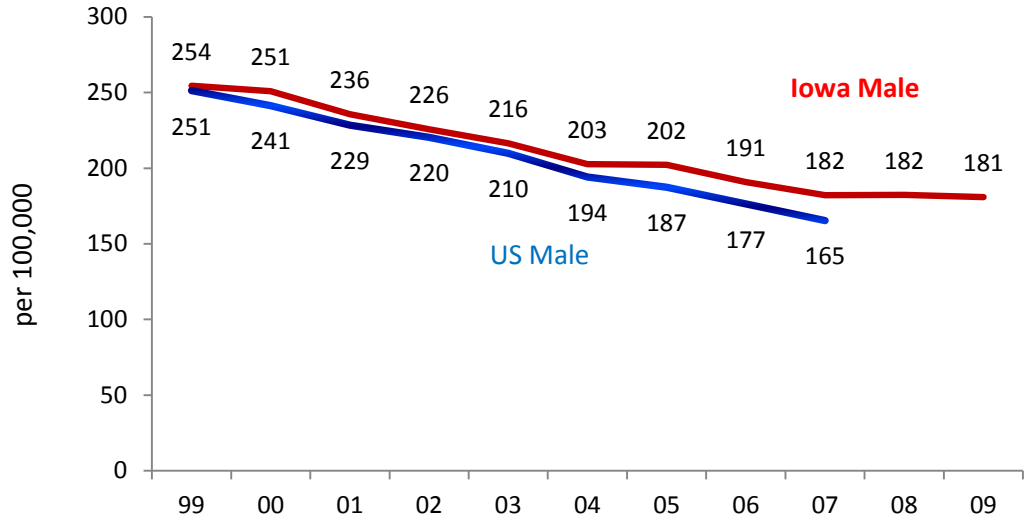
Trends in CHD deaths:

Despite the overall decrease in CHD deaths in Iowa, the death rates for males aged 35-44 and both males and females aged 45-54 showed an average 2% and 1% increase, respectively, during each of the past ten years (see Fig. 2).

Quick Facts

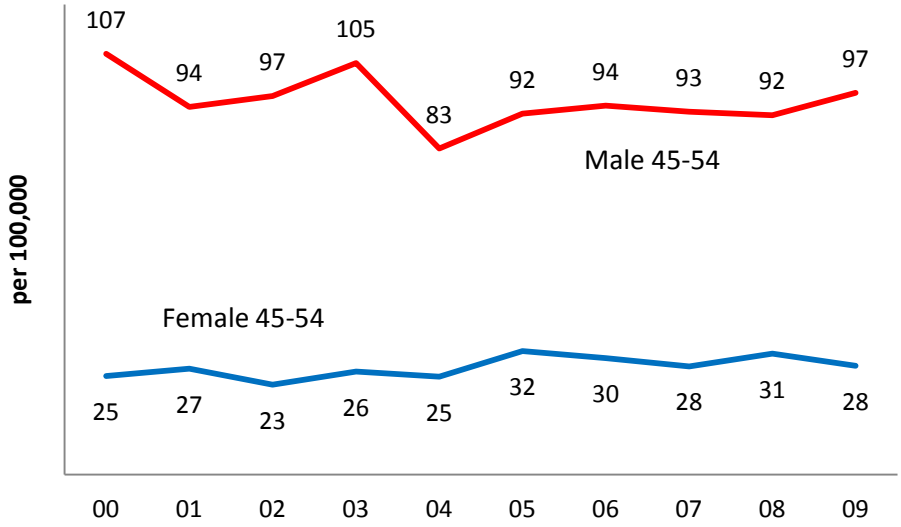
- 6,912 Iowans died of heart disease in 2009; the leading cause of death in Iowa since 1920. 75% of heart disease mortality, 5,161 deaths, was due to CHD. CHD is responsible for one of every five deaths in Iowa.
- CHD includes heart attack (acute myocardial infarction, 32%) and chest pain (angina pectoris). The male CHD death rate has always exceeded the female death rate. The male (181 deaths/100,000) to female (94/100,000) ratio was 1.9.
- Since 1999, Iowa's male CHD death rate was higher than the national male average (see Fig. 1). In 2007, Iowa's male CHD death rate was higher than the national average by 17 deaths/100,000 (182.1/100,000 vs. 165.4/100,000).
- Though CHD is an age-related disease, about 1,200 (42%) males vs. 400 (17%) females who died from CHD were younger than age 75.
- CHD is also a leading cause of premature, permanent disability in the Iowa workforce. It is estimated that about 138,000 Iowans have had a heart attack or CHD, 6% of Iowan adult population. (BRFSS, 2010)
- Iowa has a 30% reduction in the CHD death rate since 2000, from 187.1/100,000 in 2000 to 131.6/100,000 in 2009 and has met the national Healthy People 2010 objective of reducing the CHD death rate to 162/100,000 since 2004.

Fig. 1 CHD Age-Adjusted Death Rates Iowa Males vs. the US Males



Since 1999, Iowa's male CHD death rate was higher than the national male's average. In 2007, Iowa's male CHD death rate was higher than the national average by 17 deaths/100,000 (182.1/100,000 vs. 165.4/100,000).

Fig. 2 CHD Death Rate by Specific Age Group, Iowa



Despite the overall decrease in CHD in Iowa, age-specific death rates for males aged 35-44 (data not shown here) showed a 2% increase on average, and both male and females aged 45-54 had a 1% increase annually in the past ten years.

Source: The years before 2008 are from http://wonder.cdc.gov/cmf-icd10.htm, icd10 I20-I25. The 2008 and 2009 data is from Vital Records, Iowa Department of Public Health.

Gender and Race/Ethnicity Disparities

Males showed significantly higher premature CHD death rates than females. Males younger than age 65 had 3 times the rate for females in the same age group.

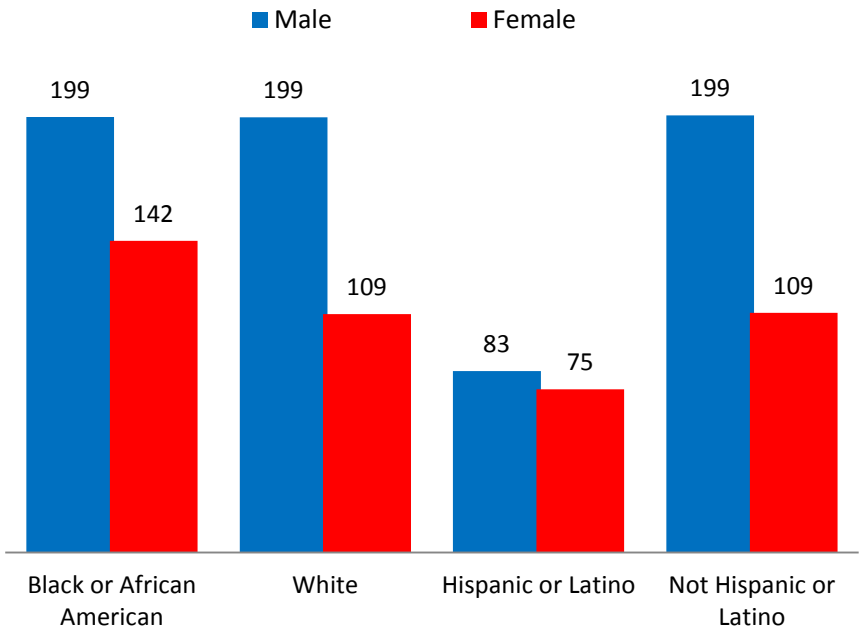
Table 1. CHD Death Rate by Age Group and Gender, Iowa 2009

	Male		Female		Ratio
Age group	Num	Rate per 100,000	Num	Rate Per 100,00	between M/F
<45	57	26.3	15	6.6	4.0
45-54	214	97.4	61	27.7	3.5
55-64	388	220.3	125	70.0	3.1
65-74	502	494.4	215	186.3	2.7
75-84	761	1,222.7	600	674.5	1.8
85+	823	3,616.9	1,400	2,622.0	1.4
Total	2,745	180.8	2,416	94.4	1.9

Black and White males showed about the same CHD death rates (2003-2007 combined); however black females exceeded white females by33 deaths/100,000: 142.2/100,000 vs. 108.8/100,000 during the same period.

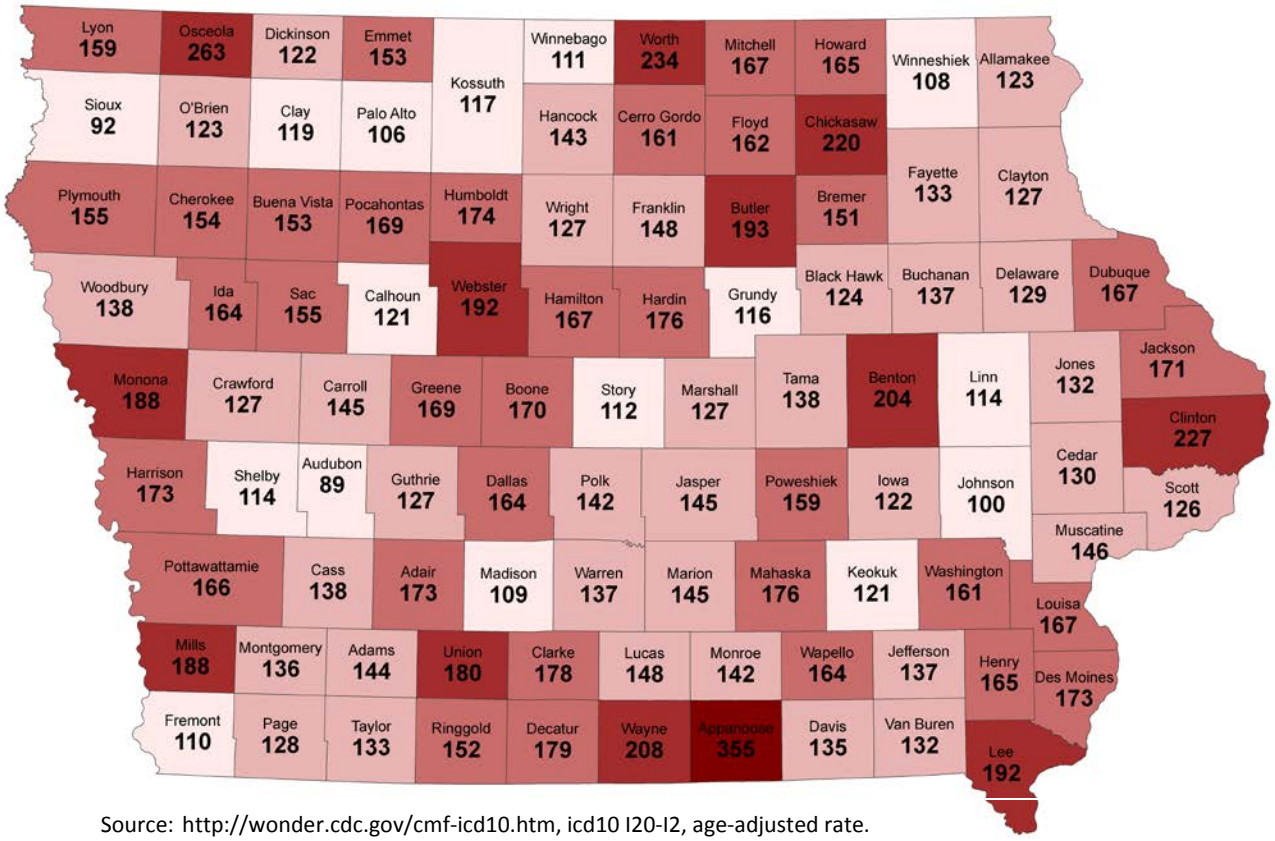
Non-Hispanic males and females had higher CHD deaths than their Hispanic counterparts.

Fig. 3 CHD Age-Adjusted Death Rate by Race, Hispanic Origin and Gender, Iowa 2003-2007



Mortality by Geographic Variation

Fig. 4 CHD Age-Adjusted Death Rate by County, 2003-2007



Source: http://wonder.cdc.gov/cmf-icd10.htm, icd10 I20-I2, age-adjusted rate.

- In 2003-2007 combined, CHD death rates ranged from 89 deaths/100,000 in Audubon County to 355 deaths/100,000 in Appanoose County.
- Nine counties had an increased CHD death rate compared to the rates during 1999-2002 average. They were Appanoose, Worth, Butler, Chickasaw, Howard, Carroll, Lee, Washington and Emmet.
- One county's rate did not change (Guthrie) and 80 counties had a decreased rate compared to the rates of 1999-2002 combined.

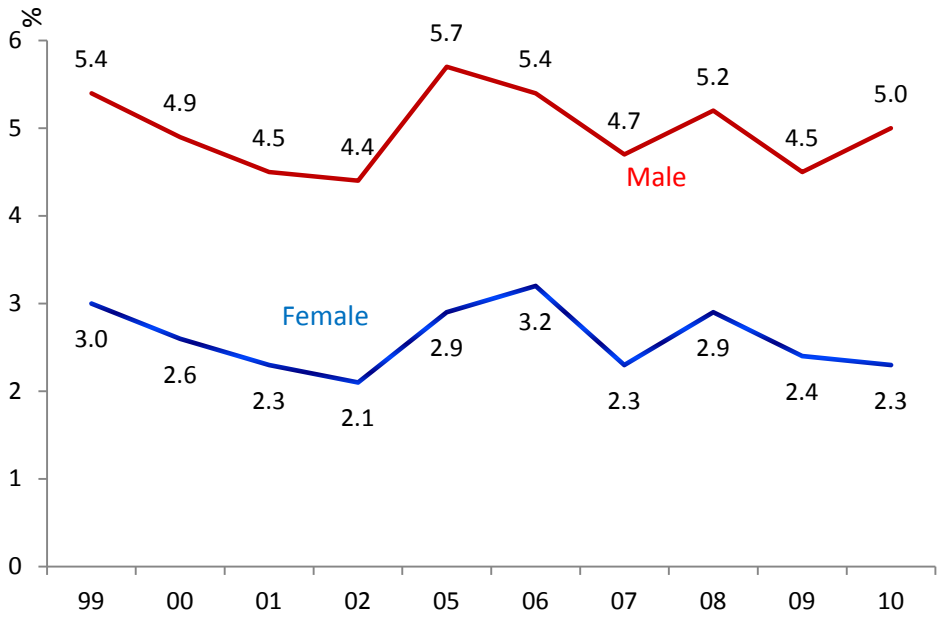
CHD Prevalence

The prevalence data for heart diseases is collected through the Behavioral Risk factor Surveillance System (BRFSS). About 6% of Iowans reported that they were told they either had a heart attack or coronary heart disease. The percentage represented about 138,000 Iowans (2010).

In the past decade, both Iowa males and females did not show significant changes in CHD prevalence.

Similar to the mortality rate, Iowa males (5%, 2010) had two times CHD prevalence rate of Iowa female's (2.3%, 2010).

Fig. 5 Prevalence of CHD among Iowa Adults, 1999-2010



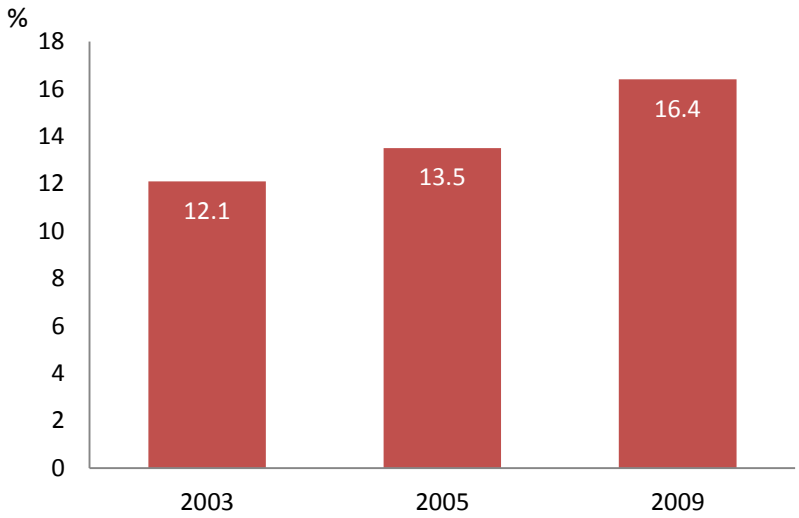
Sources: The years before 2008 are from http://www.cdc.gov/dhdsp/. The years of 2008-2010 are from Iowa BRFSS, Iowa Department of Public Health. All rates are age-adjusted based on self-report: 'have you even been told by a doctor or other health professional that you had coronary heart disease? In 2003 and 2004, Iowa did not include this question in the BRFSS survey.

Of heart attack symptoms (2009):

- 62% Iowans knew that pain or discomfort in the jaw, neck, or back was a symptom;
- 66.7% thought that feeling faint, light-headed, or weak was a symptom; 95% knew that chest pain or discomfort was a symptom;
- Only 41.2% knew that sudden trouble seeing in one or both eyes was not a symptom;
- 89% knew that pain or discomfort in the arm or shoulder was a symptom; and
- 87.9% knew that shortness of breath was a symptom of a heart attack.
- Only 16% correctly knew all six symptoms of a heart attack.

http://www.idph.state.ia.us/brfss/common/pdf/2009BRFSSannual.pdf. The rates in the six questions of symptom are crude rate

Fig. 6 Prevalence of Recognition of Signs and Symptoms of Heart Attack



Sources: The year 2003 and 2005 are from http://www.cdc.gov/dhdsp/. The year 2009 is from Iowa BRFSS, Iowa Department of Public Health. Rates are age-adjusted based on correct responses to all of the six questions on the left. The questions were included only the three years as indicated above in Iowa BRFSS survey.

CHD Hospitalization

- **14% of hospitalizations resulted from major cardiovascular diseases (2009), including heart disease and stroke, about one out of every seven hospital stays.**
- **In 2009, Iowa reported over 13,000 coronary heart disease (CHD) hospital stays, which was the most common cardiovascular disease causing hospitalizations (27% of the total, see Fig. 6).**
- **Of hospital stays due to CHD, acute myocardial infarction* (AMI or heart attack, 6,058) and coronary atherosclerosis (7,291) accounted for 12% and 15% of all major cardiovascular disease, respectively.**
    - **Among AMI hospital stays**
        - **62% were males; of them, 47% were under age 65 vs. 28% for women**
        - **64% of them came from the emergency department**
    - **Among coronary atherosclerosis hospital stays**
        - **64% were males; of them , 44% of males were under age 65 vs. 33% for women**
        - **44% of them were admitted by physician's order**
- **Like mortality data, CHD hospital stays showed a steadily declining trend in Iowa, with an average 6% decrease per year from 2000-2009.**

Note: *AMI: ICD-9-CM 410; Coronary Atherosclerosis and other coronary heart disease: ICD-9-CM 411-414, 429.2

Fig. 7 Hospital Stays by Major Cardiovascular Diseases, Iowa 2009

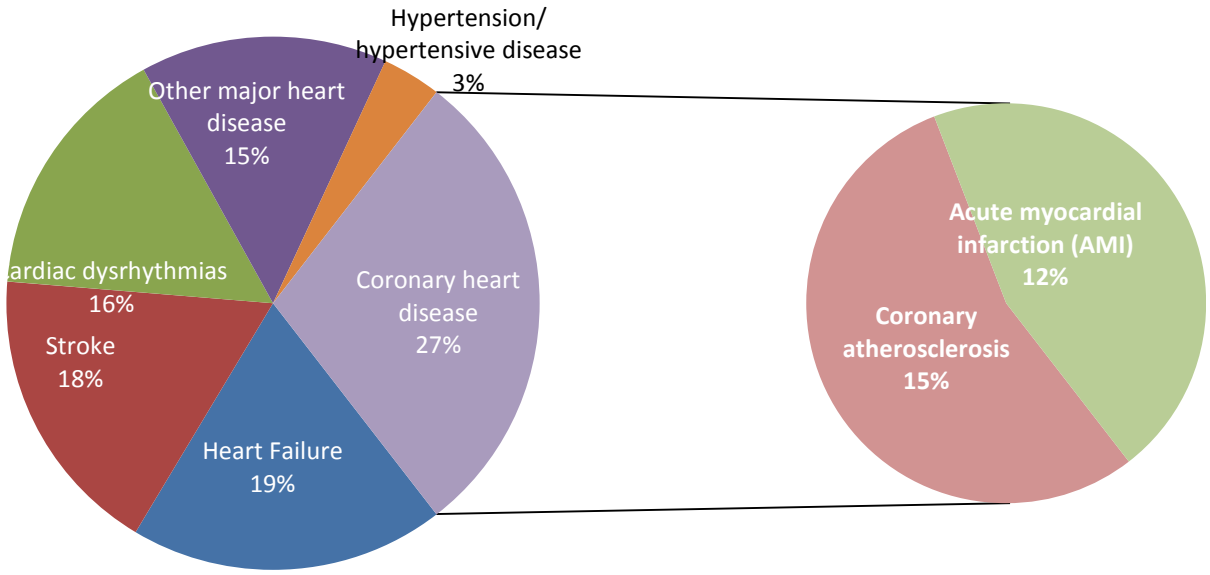


Table 2. Hospital Stays MI by Discharge Status, 2009

Age Group	Number	Home (%)	LTC (%)	Died In-Hospital (%)
Male				
<35	40	92.5	5	
35-44	180	90.6	0.6	1.1
45-54	646	89.9	0.5	1.6
55-64	885	87.0	1.1	2.8
65-74	835	81.0	5.4	4.0
75-84	727	67.8	14.4	7.3
>84	422	47.2	33.4	12.3
Sub Total	**3735**	**78.2**	**8.2**	**4.7**
Female				
<35	11	90.9		
35-44	66	89.4		
45-54	213	91.1	0.5	3.3
55-64	363	82.4	5.2	2.2
65-74	444	73.0	11.0	5.9
75-84	610	59.2	24.1	6.7
>84	616	42.7	38.0	12.8
Sub Total	**2323**	**65.0**	**19.4**	**6.9**
Total	**6058**	**73.1**	**12.5**	**5.5**

Outcomes of AMI Hospital Stays

- **The proportion of in-hospital deaths for AMI and coronary atherosclerosis was 5.5% and 0.8% (data not shown here), respectively. Females had a higher AMI death rate (7%) than the males (5%).**
- **The proportion of females who were discharged to long-term care (LTC, 19%) was 2 times higher than the one for males (8%).**
- **90% of patients aged 54 or younger were discharged to home. 18% of patients aged 55 or older were discharged to LTC.**

Table 3. Number and Hospitalization Costs due to Coronary Heart Diseases, Iowa

	2007		2008		% Chg from 2007	
	Number of discharges	Total Hospital costs	Number of discharges	Total Hospital costs	Number of Discharge	Hospital Costs
AMI	6,577	$ 98,101,298	6,711	$ 109,951,482	2%	12%
Coronary Atherosclerosis	10,597	$ 146,612,031	9,972	$ 150,868,274	-6%	3%
Total	17,174	$ 244,713,329	16,683	$ 260,819,756	-3%	7%

Source: HCUP State Inpatient Databases, Agency for Healthcare Research and Quality (AHRQ), based on data collected by the Iowa Hospital Association. Total hospital charges were converted to costs using cost-to-charge ratios based on hospital accounting reports from the Centers for Medicare and Medicaid Services (CMS). 2008 costs data is the latest year available.

- While the hospitalizations due to coronary heart disease were decreasing, the total hospitalization costs for CHD increased from $244.7 million in 2007 to $260.8 million in 2008 (7% increase). Of the total costs, Medicare was the largest payer source:
  - Total Medicare payments were $176.6 million (63%);
  - Total Medicaid paid $13 million (5%);
  - Private insurance paid $75 million (29%) and
  - Uninsured and others paid $8.8 million (3%)

Making Use of this Information

Prevention and Control Strategies

The Iowa Department of Public Health (IDPH) received funding for the Heart Disease and Stroke Prevention (HDSP) program for four years beginning in 2009 from the CDC.

The funding requires funded states to address the "ABCS" of heart disease and stroke prevention, and policy, system and environmental change that will decrease risk factors with a focus on preventing and controlling high blood pressure through reducing sodium intake. Following CDC's guidelines and priorities, the Iowa HDSP program, works with its partners, to meet six goals in a state plan:

1. Control and raise awareness of high blood pressure;
2. Control and raise awareness of high blood cholesterol;
3. Improve emergency response;
4. Improve healthcare quality;
5. Increase awareness of signs and symptoms of heart attack and stroke and the need to call 911; and
6. Eliminate disparities

What are the implications of these findings?

The gap between the mortality rate for Iowa males and national males is becoming larger, which means Iowa males have a slower decline in the overall CHD rate than the trend of national males. Currently, IDPH receives funding that targets older women for heart disease and stroke screening and risk reduction. There is a need in Iowa to implement evidence-based prevention awareness, screening and risk factor reduction targeted at younger men.

Who, besides IDPH, works on heart disease prevention and control here in Iowa?

- **Iowa Healthcare Collaborative**
- **American Heart/Stroke Association**
- **University of Iowa, College of Public Health**
- **University of Iowa, College of Dentistry**
- **Iowa Cardiovascular and Stroke Task Force**

Healthy People 2020 Goal:

Reduce coronary heart disease deaths to 100.8/100,000

In 2009, the Iowa CHD death rate was higher than the new national Healthy People 2020 objective by 31 deaths/100,000 (131.6/100,000 vs. 100.8/100,000). If Iowa could reduce CHD by 3 deaths/100,000 in each of the next ten years, we

References:

1. 2009 Vital Statistics of Iowa: http://www.idph.state.ia.us/apl/common/pdf/health_statistics/2009/vital_stats_2009.pdf/
2. CDC WONDER at http://wonder.cdc.gov/
3. Division for Heart Disease and Stroke Prevention: Data Trends and Maps at CDC website: http://apps.nccd.cdc.gov/NCVDSS_DTM/Default.aspx
4. Health in Iowa Annual Report from the 2009 BRFSS: http://www.idph.state.ia.us/brfss/common/pdf/2009BRFSSannual.pdf/
5. State Statistics on All Stays at http://hcupnet.ahrq.gov/HCUPnet.jsp/
6. This Heart Disease in Iowa supplement to the 2009 Iowa Chronic Disease Report was prepared by S. Cao and T. Meek, Iowa Dept. of Public Health, 2011.

2011

Stroke in Iowa

supplement to the

2009 Iowa Chronic Disease Report

Stroke in Iowa

What is stroke?

Stroke is the fourth leading cause of death in the United States, behind diseases of the heart, cancer and Chronic lower respiratory disease (2008).

A stroke occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked by a clot or bursts. When that happens, part of the brain cannot get the blood (and oxygen) it needs, so it starts to die.
Types of stroke:

- **Ischemic stroke** occurs as a result of an obstruction within a blood vessel supplying blood to the brain.
- **Hemorrhagic stroke** occurs when a weakened blood vessel ruptures.
- **TIA** (Transient Ischemic Attack) often called a "mini stroke". These warning strokes should be taken very seriously. TIA is caused by a temporary clot.

(http://www.strokeassociation.org/STROKEORG/AboutStroke)

Iowa Ranking Nationally in Stroke Mortality Rate

24 out of 51 states and DC with a higher number representing a higher death rate (2007).

Significant Findings from Mortality Data:

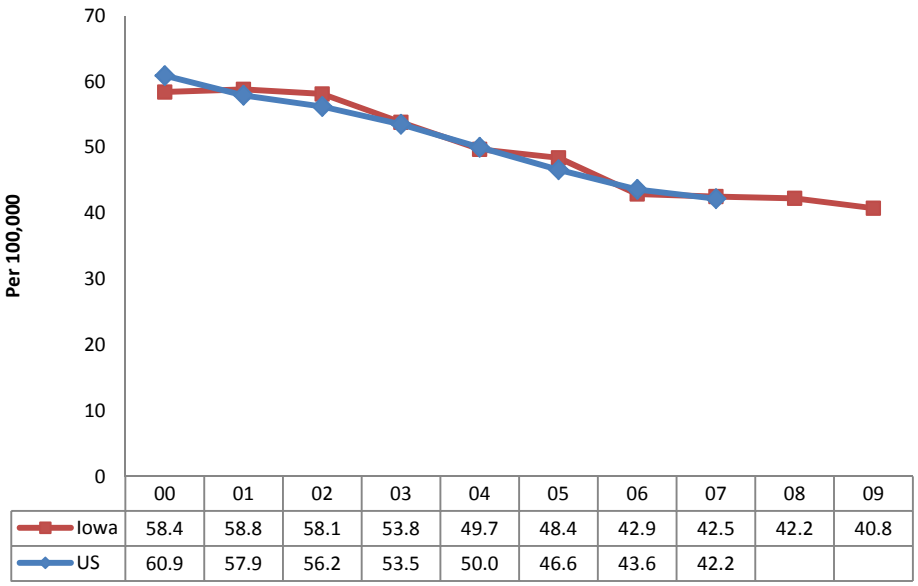
In the past decade, the Iowa stroke death rate has been reduced by 30%. The new goal for the next ten years is to reduce the stroke death rate by 20%. Continued large decreases in mortality may not be sustainable. Focus should be more on controlling risk factors and improving the quality of life for survivors.

Quick Facts

- Since 2008, stroke dropped from the third to the fourth leading cause of death in Iowa. By gender, stroke is still the third leading cause of death for Iowa women.
- The Iowa stroke death rate decreased by 30% from 58 deaths/100,000 in 2000 to 41 deaths/100,000 in 2009.
- Stroke caused 1,627 deaths among Iowans in 2009 – that's about one stroke death every five hours and 6% of all deaths in the state.
- Stroke kills more young men than young women: 14% of men vs. 6% women who died of stroke were younger than age 65 (2009).
- Ischemic strokes, which were 61% of stroke deaths in Iowa (2009), had the highest decrease rate (40%) from 1999 to 2007.
- Hemorrhages, which were 15% of stroke deaths in Iowa, had the lowest decrease rate (8%) in the same period of time.
- Iowa stroke death rates were slightly lower than the national averages since 2004; and achieved the national Healthy People 2010 goal (48/100,000) earlier in 2006 (43/100,000).
- Stroke hospitalization showed a decreasing trend in Iowa, but the magnitude was less than the death rate. Since 2000 the stroke hospitalization rate has dropped by 15%.
- Different from stroke death rate, men had a 30% higher stroke hospitalization rate than women.
- The average inpatient cost for stroke in 2008 was $9,282, which was 11% higher than in 2007.
- About 60,000 Iowans self-reported having a stroke (BRFSS, 2009), which was 2.4% of Iowans aged 18 and older.

Iowa Stroke Death Rate is close to the National Average

Age-adjusted Stroke Death Rate, Iowa vs. US

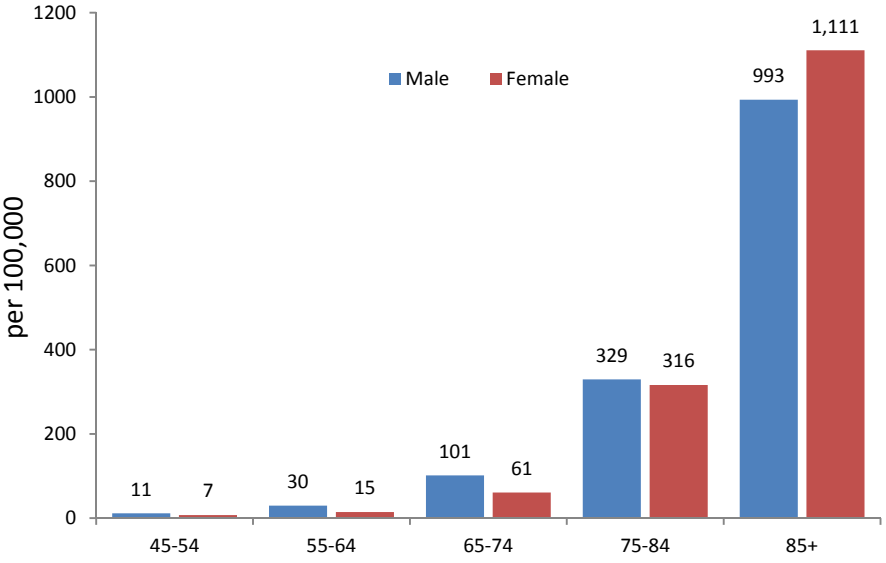


	00	01	02	03	04	05	06	07	08	09
Iowa	58.4	58.8	58.1	53.8	49.7	48.4	42.9	42.5	42.2	40.8
US	60.9	57.9	56.2	53.5	50.0	46.6	43.6	42.2		

The stroke death rate in Iowa decreased by 30% from 58 deaths/100,000 in 2000 to 41 deaths/100,000 in 2009.

The Iowa stroke death rates were slightly lower than the national averages since 2004; and achieved the national Healthy People 2010 goal (48/100,000) earlier in 2006 (43/100,000).

Stroke Death Rate by Sex and Age, Iowa, 2009



More men than women died of stroke in the age groups <75 each year.

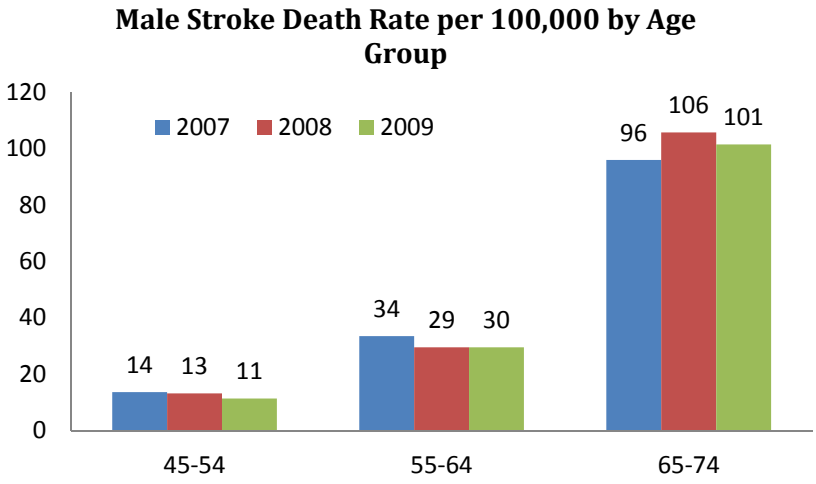
However, the women's total stroke deaths exceed the total number of men each year; more women died of stroke at age 85+.

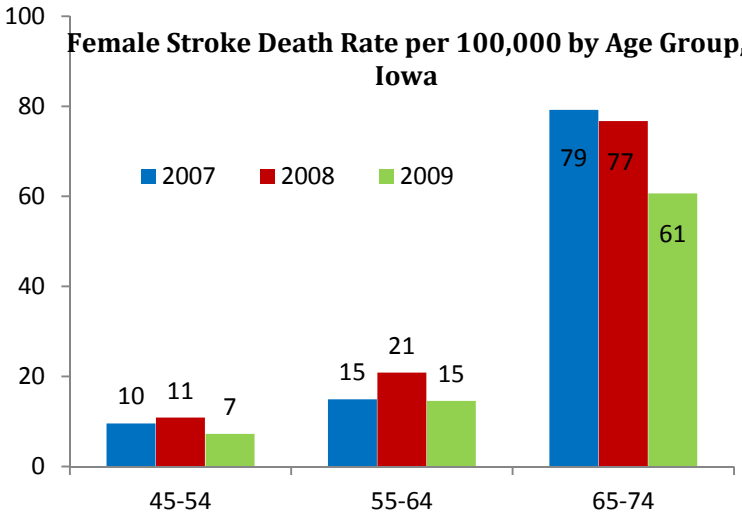
Stroke Kills More Young Men than Young Women

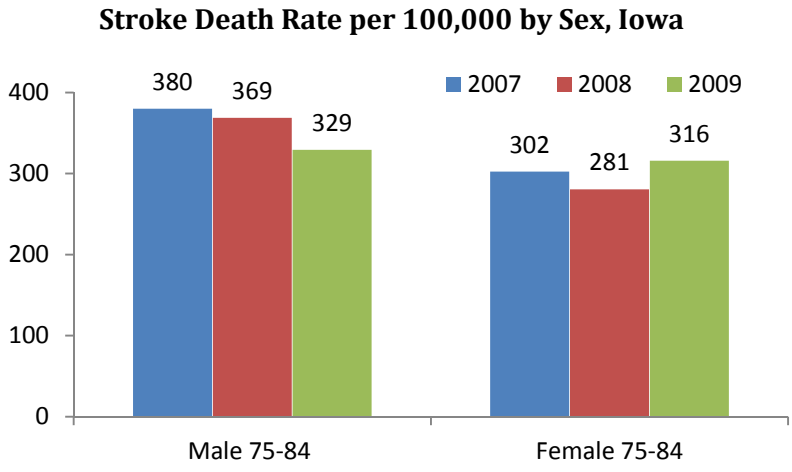
Before age 85, men had a higher stroke death rate in any age group and in any given year than that of women.

The rates for males aged 45-54, 55-64, 75-84 and for female 65-74 showed a decreasing trend during the past three years.

The rates for persons older than 85, both male and female, did not show any change (data not shown here).





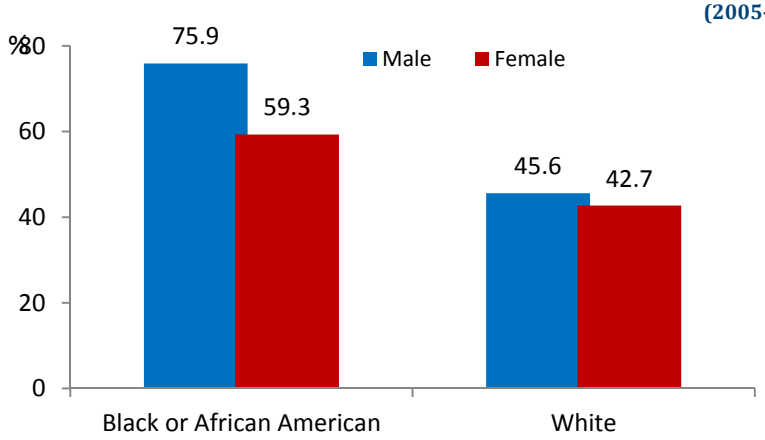


Health Disparities

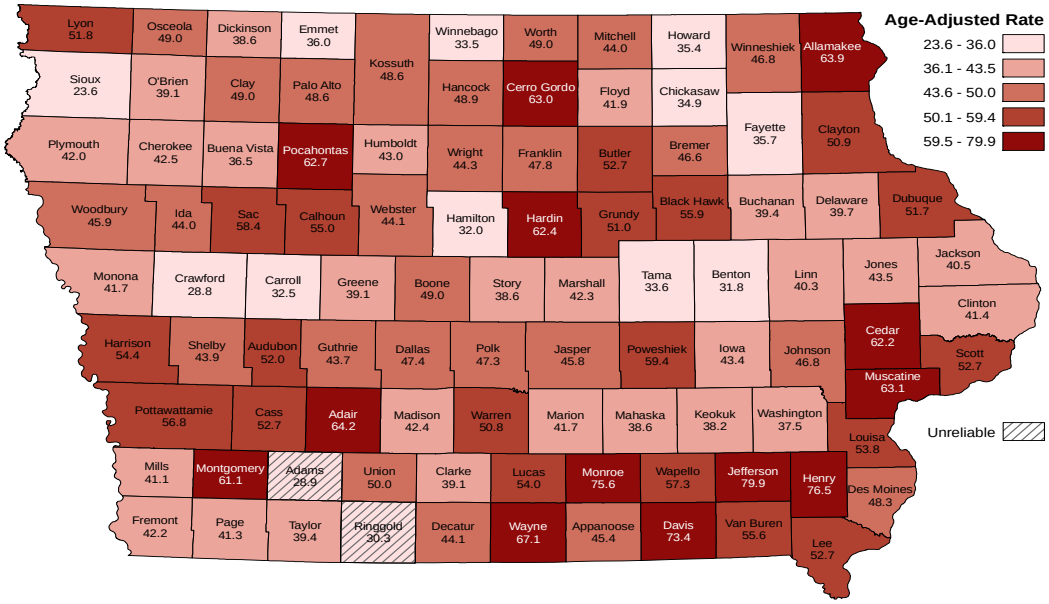
Black or African American men had a 66% higher stroke death rate (76/100,000) than White men (46/100,000) in Iowa.

Black or African American women had 39% higher rate (59/100,000) than the White females (43/100,000) in Iowa.

Age-Adjusted Stroke Death Rate by Race and Sex, Iowa, (2005-2007)



Age-Adjusted Stroke Death Rate by County, 2003-2007

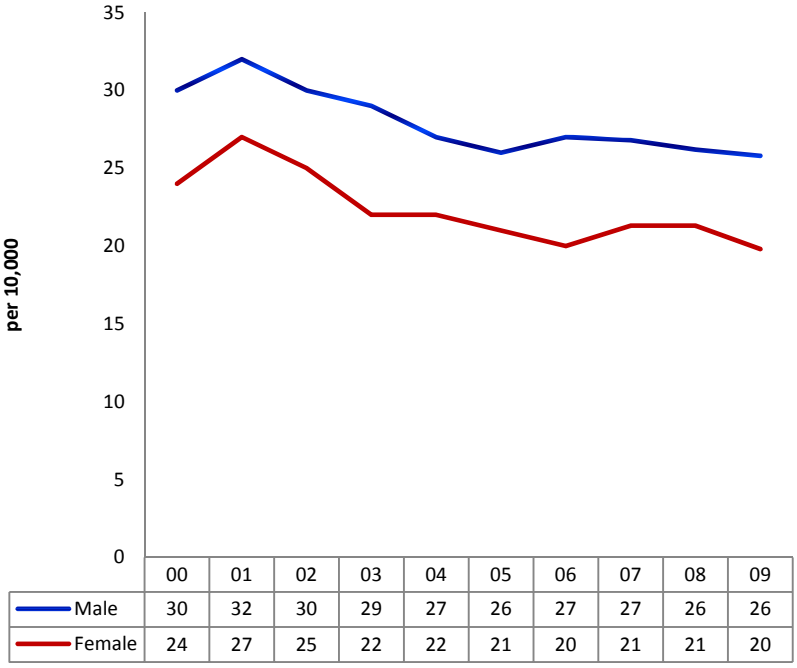


- Stroke death rates in 42 counties (2003-2007 average) were higher than the national Healthy People 2010 goal (48/100,000), while 55 counties had a stroke death rate below the national goal.
- Sioux county, in the northwest region, had the lowest stroke death rates (23/100,000,), while Jefferson County in the southeast corner, had the highest stroke death rate (80).
- Ten counties had stroke death rates higher than 60/100,000, and seven of them were in southeast corner of the state.

- Stroke hospitalizations showed a decreasing trend in Iowa, but the decreasing magnitude was smaller than the death rate. During 2000-2009, on average, there was a 2% annual decrease in the number of stroke hospitalizations.
- The stroke hospitalization rate in 2009 was 22.5/10,000, slightly lower than in 2008 (23.5/10,000).
- Unlike the stroke death rate, there is a big gap in stroke hospitalizations between genders: men (25.8/10,000, 2009) had a 30% higher stroke hospitalization rate than that of women (19.8/10,000).

Source: The years before 2007 are from Healthy Iowans. Iowa Chronic Disease Report. 2009. http://www.idph.state.ia.us/apl/common/pdf/health_statis

Iowa Stroke Inpatient Hospital Discharge Rate by Sex

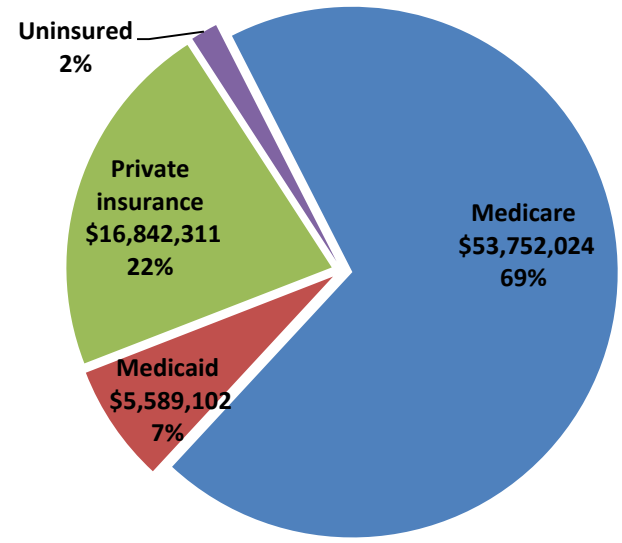


	00	01	02	03	04	05	06	07	08	09
Male	30	32	30	29	27	26	27	27	26	26
Female	24	27	25	22	22	21	20	21	21	20

- While the hospitalization rate was decreasing, the average inpatient cost was increasing; from $8,340 in 2007 to $9,282 in 2008; an 11% increase.
- In 2008, the total inpatient hospital costs were estimated at $ 78.2 million, of which public funding, including Medicare and Medicaid, paid more than $59 million (76%).

Source: Agency for Healthcare Research and Quality (AHRQ), based on data collected IHA. Total hospital charges were converted to costs using cost-to-charge ratios based on hospital accounting reports from the Centers for Medicare and Medicaid Services (CMS). 2008 cost estimate is the latest year available.

Iowa Stroke Inpatient Costs by Payer Source, 2008

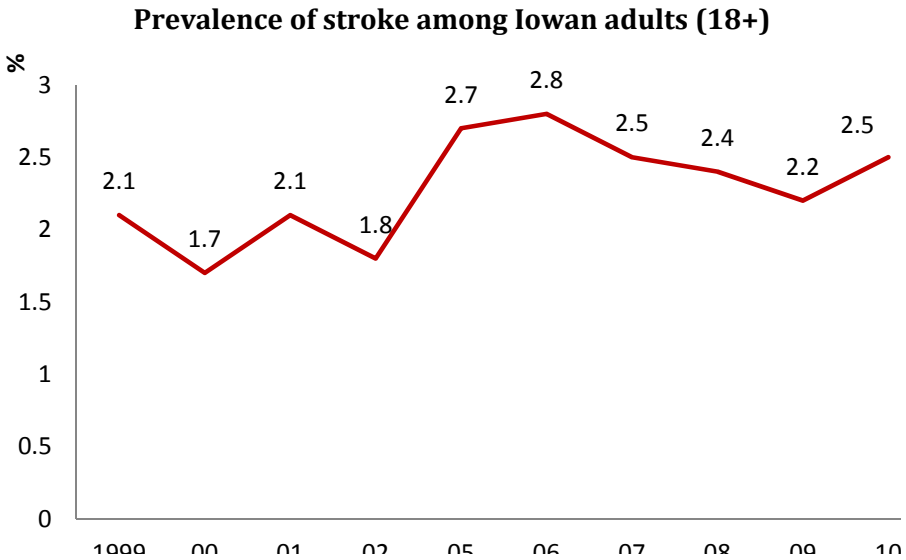


Stroke Prevalence

The stroke prevalence data is collected through the Behavioral Risk Factor Surveillance System (BRFSS).

In 2009, 2.5% of Iowans reported that they had been told they had a stroke, which represented 56,000 Iowan adults aged 18+.

In the past decade, Iowans did not show significant changes in stroke prevalence self-reporting. There is no significant difference between genders in the self-reporting.

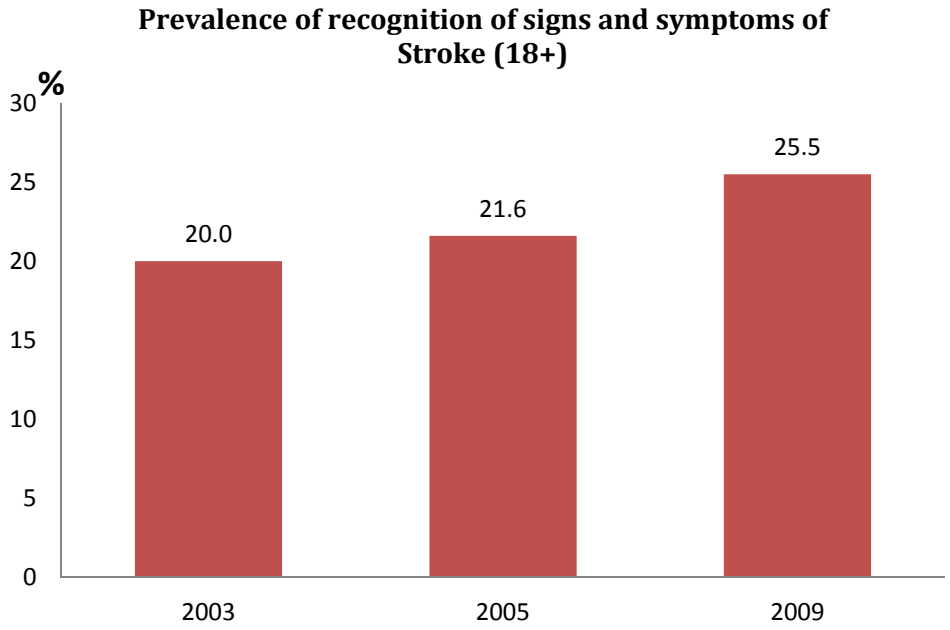


Sources: The years before 2008 are from http://www.cdc.gov/dhdsp/. The years of 2008-2010 are from Iowa BRFSS, Iowa Department of Public Health. Rates are age-adjusted based on self-report: 'have you even been told by a doctor or other health professional that you had a stroke?'

Stroke Symptom Awareness (2009):

- 93.3% knew that sudden confusion or trouble speaking was a symptom;
- 94.8% knew that sudden numbness of the face, arm, or leg, especially on one side was a symptom;
- 74.5% knew that sudden trouble seeing in one or both eyes was a symptom;
- 89.5% knew that sudden trouble walking, dizziness, or loss of balance was a symptom;
- Only 64.4% knew that severe head ache with no known cause was a symptom of a stroke.
- Only 25.5% correctly knew all six symptoms of a stroke, which increased since 2003.

http://www.idph.state.ia.us/brfss/common/pdf/2009BRFSSannual.pdf. The rates in the six questions of symptom are crude rate.



Sources: The year 2003 and 2005 are from http://www.cdc.gov/dhdsp/. The year 2009 is from Iowa BRFSS, Iowa Department of Public Health. Rates are age-adjusted based on correct responses to all of the six questions on the left. The questions were included only the three years as indicated above in Iowa BRFSS survey.

Making Use of this Information

Prevention and Control Strategies

In 2009, the Iowa Department of Public Health received a multiple year supplemental award of federal funding from the CDC to support the design and pilot implementation of a state stroke registry. IDPH plans to apply for CDC Paul Coverdell National Acute Stroke Registry (PCNASR) funding for an undetermined period beginning in 2012 that would, if funded, allow for full implementation of a stroke registry in Iowa.

Since 2008, the Iowa Department of Health has worked closely with other partners and members of the Iowa Stroke Task Force and the Iowa Cardiovascular and Stroke Task Force to improve the quality of Iowa's voluntary stroke triage system. This has allowed Iowa's Emergency Medical Services (EMS) personnel to triage and transport stroke patients to the hospital with the highest level of stroke care available within 30 minutes travel time.

The proposed stroke registry would serve as a central system to collect, compile, and analyze state stroke data. It would promote quality improvement of stroke systems of care in Iowa by linking the voluntary (EMS) records with the records of stroke care at Iowa's hospitals and eventually stroke rehabilitation records and death records. The overall intent of such a registry is to shorten the time between the onset of symptoms and receipt of the best possible care available. This in turn, will reduce overall stroke mortality and increase the survival of stroke patients so they can return to once again productive lives.

IDPH contracts with the University of Iowa - College of Public Health for the registry's design.

Who, besides IDPH, works on stroke prevention and control here in Iowa?

- **Iowa Healthcare Collaborative**
- **Iowa Stroke Task Force**
- **American Heart/Stroke Association**
- **University of Iowa, College of Public Health**
- **Iowa Cardiovascular and Stroke Task Force**

What are the implications of these findings?

- More Iowans need to be made aware of the signs and symptoms of stroke and the need for calling 9-1-1 immediately,
- Iowa needs to develop strategies for targeting younger males with education on maintaining healthy life styles and controlling risk factors for stroke.
- Iowa needs to continue its work towards developing a stroke system of care which will provide timely and evidence-based care for all stroke victims.

Healthy People 2020 Goal:

Reduce stroke deaths to 33.8/100,000

In 2009, the Iowa stroke death rate was higher than the new national Healthy People 2020 objective by 7 deaths/100,000 (40.8/100,000 vs. 33.8/100,000.

References:

1. 2009 Vital Statistics of Iowa: http://www.idph.state.ia.us/apl/common/pdf/health_statistics/2009/vital_stats_2009.pdf/
2. CDC WONDER http://wonder.cdc.gov/
3. Division for Heart Disease and Stroke Prevention: Data Trends and Maps at CDC website: http://apps.nccd.cdc.gov/NCVDSS_DTM/Default.aspx
4. Health in Iowa Annual Report from the 2009 BRFSS: http://www.idph.state.ia.us/brfss/common/pdf/2009BRFSSannual.pdf/
5. State Statistics on All Stays at http://hcupnet.ahrq.gov/HCUPnet.jsp/
6. Healthy Iowans. Iowa Chronic Disease Report. 2009. http://www.idph.state.ia.us/apl/common/pdf/health_statistics/chronic_disease_report.pd

This Stroke in Iowa supplement to the 2009 Iowa Chronic Disease Report was prepared by S. Cao and T. Meek, Iowa Dept. of Public Health, 2011.

2011

Diabetes in Iowa

supplement to the

2009 Iowa Chronic Disease Report

Diabetes in Iowa on the increase

What is diabetes? How can it be managed and prevented?

Diabetes is a chronic illness that is diagnosed based on a person having elevated levels of blood sugar (blood glucose). Most people with diabetes find its management challenging and a lifelong commitment. But, people with diabetes can live normal and healthy lives and avoid many, if not all, of the complications of diabetes. To do this, they must resolve to take control of their health and have needed social and medical support in this undertaking.

In adults, most diabetes is type 2, which responds well to keeping normal body weight, being physically active, eating a balanced diet and taking medication when needed.

Type 2 diabetes is so strongly associated with choosing healthy behaviors that most persons with normal blood sugar levels or with pre-diabetes can go a long way toward keeping themselves from ever developing diabetes if they take on the tough work of managing their weight, physical activity levels and diet. Social systems and physical environmental supports are essential to the success of Iowans' individual efforts to prevent and control diabetes.

Iowa Ranking Nationally: In 2010, 8 of every 100 Iowa adults had diagnosed diabetes, while nationally the median rate was 8.7% (median= half of states had higher, half had lower rates). State rates ranged from 5.8% to 12.4%.

Diagnosed adult diabetes prevalence rates in Iowa have historically been about the same as or slightly below the U.S. median rate.

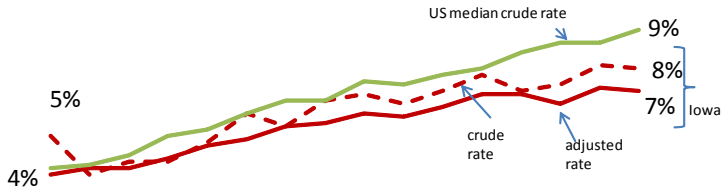
What are the implications of the increase in diabetes prevalence? Who in Iowa is working to prevent, manage and control diabetes? What are type 1 and 2 diabetes? See pages 7 and 8.

Quick Facts

- Mirroring the nation, the prevalence rate of diagnosed diabetes among Iowa adults has doubled since 1991, rising from 3.8% to 7.5% in 2010.
- 42% of adults *(950,000 Iowans)* now have diabetes or pre-diabetes--- 7%-8% of have diagnosed diabetes(174,000); 4%-5% have undiagnosed diabetes(120,000); and 32% have pre-diabetes (670,000) (Cowie, 2009).
- Each year, 1% of non-diabetic adults become diabetic (15,000-18,000 Iowans/year). (Boyle, 2010)
- Of persons born in 2000, one in three persons will develop diabetes during their lifetime unless current trends are reversed (Narayan, 2003).
- Most diabetes in adults is type 2 diabetes, which is strongly linked to socioeconomic, cultural and lifestyle factors (including diet, physical activity levels, and body weight). Aging and having a family history of diabetes also put one at-risk of diabetes.
- An estimated 25%-30% of the recent increase in diabetes prevalence in Iowa is due to increasing obesity (Ford, 1997). Among young adults who are obese and remain obese, 7 of every 10 will develop diabetes during their lifetime (Narayan, 2007).
- Diabetes is the leading cause of kidney failure, lower limb amputations and adult-onset blindness. Having diabetes lowers life expectancy by up to 15 years and increases risk of heart disease by two to four fold (Healthy People 2020 Web site). Diabetes is among the 10 leading causes of death in Iowa for all age groups 10-14 years and older.
- A portion of the increase in diabetes prevalence is due to persons with diabetes living longer due to better self-management and health care.
- 2,800-3,600 Iowa children and youth age 17 and younger have diabetes, most of which is type 1.

Minorities, older Iowans and men at higher risk

Diagnosed diabetes prevalence trends upward in Iowa and U.S.



	1995	96	97	98	99	00	01	02	03	04	05	06	07	08	9	2010
BRFSS Iowa adjusted rate	4.2	4.4	4.4	4.7	5.1	5.3	5.7	5.8	6.1	6.0	6.3	6.7	6.7	6.4	6.9	6.8
BRFSS Iowa crude rate	5.4	4.2	4.6	4.6	5.2	6.1	5.7	6.5	6.7	6.4	6.8	7.3	6.8	7.0	7.6	7.5
BRFSS U.S. median crude rate	4.4	4.5	4.8	5.4	5.6	6.1	6.5	6.5	7.1	7.0	7.3	7.5	8.0	8.3	8.3	8.7
BRFSS U.S. adjusted rate	not available															
NHIS, US adjusted rate			5.3	5.4	5.5	6	6.4	6.5	6.5	6.9	7.3	7.6	7.5	7.8	8.5	8.6

Percent of adults age 18 and older who self-report ever having been diagnosed with diabetes, exclusive of gestational diabetes (rate per 100 adults), Iowa 1996-2010
Sources: Iowa BRFSS, IA Dept. of Public Health; CDC National BRFSS Web site; National Health Interview Survey (NHIS) Web site, Early Release of Selected Estimates, 6/2011.

Iowa's rate of diagnosed adult diabetes prevalence has remained about the same as or slightly below the national median rate of adult diagnosed diabetes for every year 1995 through 2010.

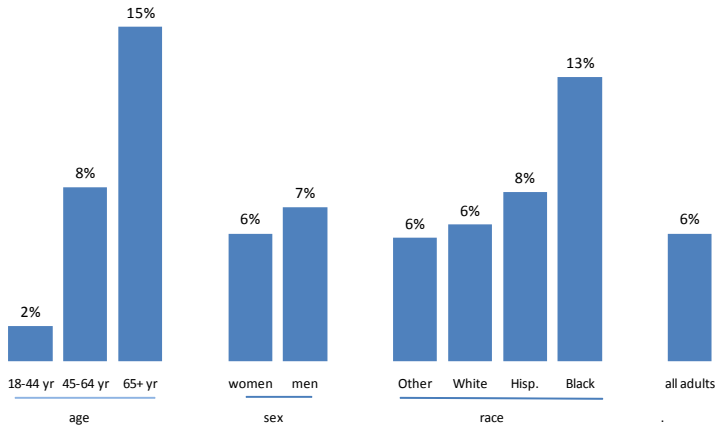
In 2010, the national median diagnosed diabetes prevalence rate was 8.7% while the Iowa rate was 7.5% (crude rates).

In 2006-08, the diabetes prevalence rate for Iowans age 65 and older (15.4%) was more than 8 times that of Iowans 18-44 years of age (1.7%). An estimated 18,000 Iowans 18-44 years of age had diagnosed diabetes, while 74,000 Iowans 65 years and older were diagnosed as diabetic.

The age-adjusted rate for men was about 20% higher than the age-adjusted rate for women (7.1% vs. 5.9%). BRFSS adjusted rates for men also show them to be at increased risk of overweight/obesity, cardiovascular disease and other chronic conditions compared to women.

Overall, minorities had age-adjusted rates of diabetes that were higher than that of whites: the risk of having diabetes for black adults was more than double that of white adults.

Diagnosed diabetes prevalence, by age, race, sex, Iowa 2006-08



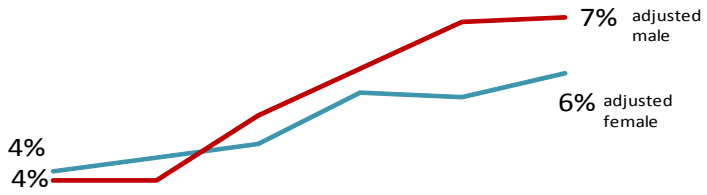
Estimated three year average annual prevalence rate of diabetes per 100 adults age 18 and older (percent of adults who self-report ever having been diagnosed with diabetes, exclusive of gestational diabetes), by age, by sex, race/ethnicity (sex and race rates are age-adjusted), Iowa, 2006-08.
Source: Iowa BRFSS, IA Dept. of Public Health

Diabetes risk on rise for both sexes, all ages 35+

Since 1997-99, diagnosed diabetes prevalence rates among Iowa men have exceeded those of Iowa women.

In 2006-08, the diabetes prevalence rate for men in Iowa was about 20% higher than the rate for women (7.1% among Iowa men vs. 5.9% among Iowa women, 2006-08 age-adjusted rate).

Trends in diagnosed diabetes prevalence, by sex, Iowa



	1991-93	1994-96	1997-99	2000-02	2003-05	2006-08
crude female	4.1	4.6	5.0	6.1	6.2	6.7
crude male	3.4	3.6	5.1	6.1	7.4	7.4
.						
adjusted female	3.8	4.1	4.4	5.5	5.4	5.9
adjusted male	3.6	3.6	5.0	6.0	7.0	7.1

Estimated average annual crude and age-adjusted, sex-specific prevalence rate of diabetes per 100 adults ages 18 years and older (percent of men and women who self-report ever having been diagnosed with diabetes, exclusive of gestational diabetes), Iowa, 1991-2008.

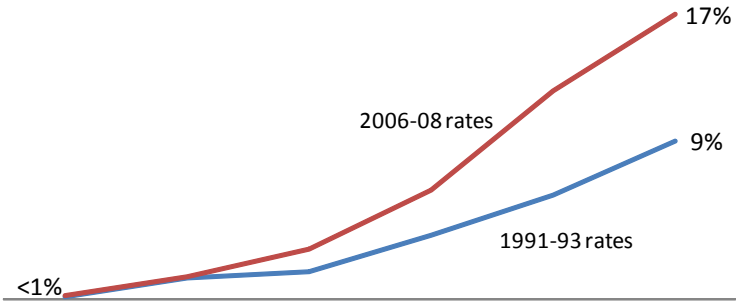
Sources: Iowa BRFSS, IA Dept. of Public Health

In 2006-08, the prevalence rate for Iowans age 65 and older (17%) was 55 times that of Iowans 18-24 years of age (0.3%).

Between 1991-93 and 2006-08, the rate of diabetes in adults 65 years and older increased 80%, going from 9% to 17% of older adults.

The diabetes prevalence rate for Iowans 55-64 years of age doubled during these 18 years, rising from 6% to 12%.

Trends in diagnosed diabetes prevalence, by age, Iowa



	18-24 years	25-34	35-44	45-54	55-64	65+ years
1991-93	0%	1%	2%	4%	6%	9%
2006-08	0%	1%	3%	6%	12%	17%

Three-year average annual percent of adults age 18 and older (prevalence rate of diabetes per 100 adults) who ever have been diagnosed with diabetes, exclusive of gestational diabetes, by age, Iowa, 1991-93 vs. 2006-2008 rates.

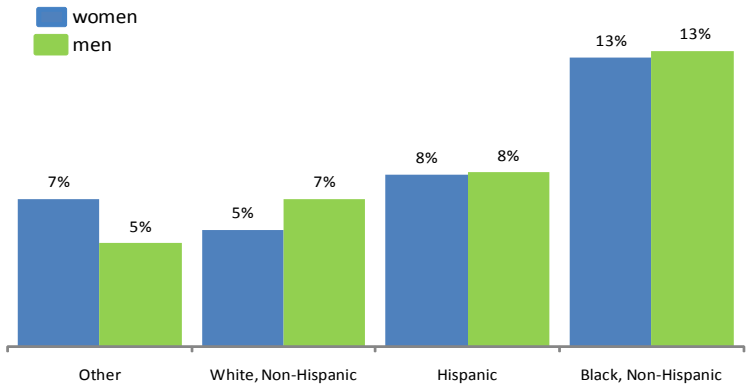
Source: Iowa BRFSS, IA Dept. of Public Health

Health Disparities: Black adults at high risk

Age-adjusted sex and race-specific diagnosed diabetes prevalence rates show that both black men and women in Iowa had rates of diabetes double or more those of same-sex white and the other minority race grouping of men and women. Rates for Hispanic men and women were also high relative to same-sex white and other race rates.

While white men and women were at lower risk of having diabetes compared to black and Hispanic men and women, white men (76,200 cases) and women (75,300 cases) account for about 95% of all cases of diabetes (151,500 of 161,700 cases of diagnosed adult diabetes) in Iowa during 2006-08.

Diagnosed diabetes prevalence, by race and sex, Iowa



Ten-year average annual age-adjusted diabetes prevalence rate per 100 adults, by race and Hispanic ethnicty, Iowa BRFSS, 1999-2008

Trends in diagnosed diabetes prevalence, by race, Iowa

	Crude rate						Adjusted rate		
	1990-94	1995-99	2000-04	2005-09	2008-10		1990-99	2000-09	2001-10
White	3.9	4.9	6.3	7.1	7.4	White	4.1	6.1	6.1
Black	3.3	12.2	10.1	11.2	12.6	Black	12.4	13.1	13
Other	na	4.5	3.5	5.8	8.1	Other	7.1	6.6	6.4
Hispanic	2.1	3.6	6.3	4.5	4.6	Hispanic	4.4	7.9	8.4

Five year average annual crude and 10 year-average annual age-adjusted pervalence rate of diabetes per 100 adults age 18 and older (percent of adults who self-report ever having been diagnosed with diabetes, exlusive of gestational diabetes), by race and ethnicity, Iowa, 1990-2010.

Gestational diabetes: African-American, Hispanic, Overweight Women at-risk

Gestational diabetes is a form of diabetes that occurs only during pregnancy. Like other forms of diabetes, it is found more frequently among pregnant African-Americans, Hispanic/Latino Americans, and American Indians, the obese and women with a family history of diabetes. During pregnancy, gestational diabetes requires treatment to optimize maternal blood glucose levels to lessen the risk of complications in the infant.

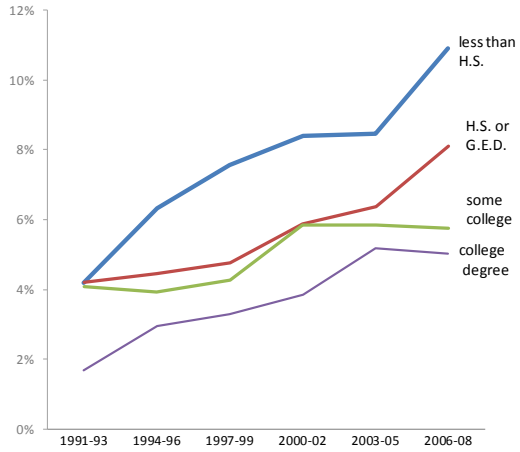
Women who have had gestational diabetes have a 35% to 60% chance of developing diabetes in the next 10–20 years.

- Reported rates of gestational diabetes range from 2% to 10% of pregnancies. However, using new diagnostic criteria being considered for use in the U.S. (and now in use in a multi-site international study) the rate of gestational diabetes would rise to 18% of all pregnancies.
- Immediately after pregnancy, 5% to 10% of women with gestational diabetes are found to have diabetes, usually type 2.

Source: CDC 2011 National Diabetes Factsheet

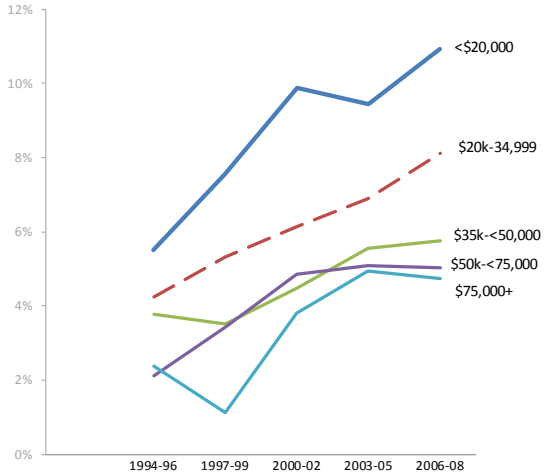
Health Disparities: Iowans of low income/education at-high risk

Trends in diagnosed diabetes prevalence by income and education, Iowa



	1991-93	1994-96	1997-99	2000-02	2003-05	2006-08
less than high school	4.2%	6.3%	7.6%	8.4%	8.5%	10.9%
high school/G.E.D.	4.2%	4.5%	4.8%	5.9%	6.4%	8.1%
some college/ tech school	4.1%	3.9%	4.3%	5.9%	5.8%	5.8%
college degree or higher	1.7%	3.0%	3.3%	3.8%	5.2%	5.0%

Three-year average annual age-adjusted diabetes prevalence rate per 100 adults, Iowa, 1991-2008. Source: Iowa BRFSS, IA Dept. of Public Health



	1994-96	1997-99	2000-02	2003-05	2006-08
less than $20,000	5.5%	7.5%	9.9%	9.4%	10.9%
$20,000 - <$35,000	4.2%	5.3%	6.1%	6.9%	8.1%
$35,000 - <$50,000	3.8%	3.5%	4.5%	5.5%	5.8%
$50,000 - <$75,000	2.1%	3.4%	4.9%	5.1%	5.0%
$75,000+	2.4%	1.1%	3.8%	4.9%	4.7%

Three-year average annual age-adjusted diabetes prevalence rate per 100 adults Iowa, 1994-2008. Source: Iowa BRFSS, IA Dept. Public Health.

Diabetes prevalence is strongly associated not only with increasing age and being Hispanic or black, but also with being poor and having less education.

Across time, both crude (not shown in chart) and age-adjusted rates (above) demonstrate a strong association between lower educational attainment and lower income and the risk of an Iowa adult having diabetes.

Rates of diabetes for 2006-08 show that having a household income of less than $20,000 puts one at more than double the risk of having diabetes compared to someone with a household income of $75,000 or more (10.9% vs. 4.7%).

Likewise, having less than a high school education puts adults at 74% greater risk of having diabetes compared to adults with a college degree or higher educational attainment (5% vs. 8.7% age-adjusted rates) in 2006-08.

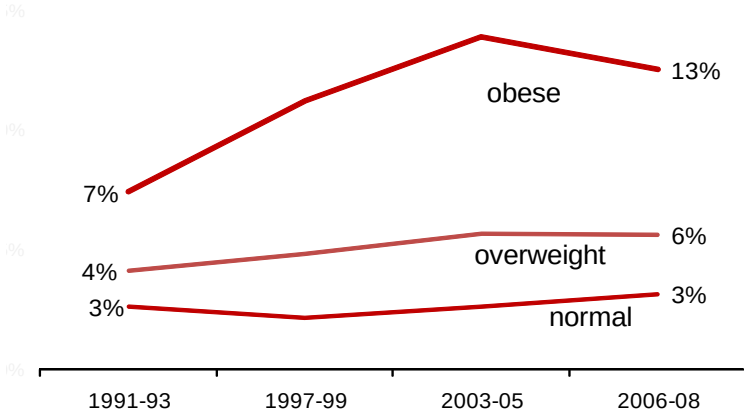
(For additional information about Iowa adult diabetes prevalence by income and education, see Table 3.1 of the 1991-2009 BRFSS Tables Supplement to 1991-2009 Full Report: Burden of Diabetes in Iowa on the IDPH diabetes program Web site: http://www.idph.state.ia.us/hpcdp/diabetes.asp.

Obese have 3-4 times the risk of diabetes

Obesity is one of the most modifiable and strongly associated risk factors for type 2 diabetes. Among obese adults in Iowa, the age-adjusted rate of diabetes prevalence rose 84%, from 6.9% to 12.7% between 1991-93 and 2006-08. Among overweight adults, diabetes prevalence increased 34% (rising from 3.5% to 4.7%) Among normal weight adults, the age-adjusted rate of diabetes increased 26% (rising from 2.5% to 3.2%).

The age-adjusted rate of diabetes among the obese was more than three times that of normal weight Iowa adults in 2006-08.

Trends in diagnosed diabetes prevalence by body mass index (body weight), Iowa



Three-year average age-adjusted percent of adults age 18 years and older (prevalence rate per 100 adults who have ever been diagnosed with diabetes, exclusive of gestational diabetes, by body weight (body mass index (BMI) status), 1991-2008
Source: Iowa BRFSS, Iowa Dept. of Public Health

Cost of diabetes

Because of increases in diabetes risk factors like obesity, an aging population and less physical activity, the diabetes incidence rate (% of population that is newly diagnosed each year with diabetes) is increasing. And, because those with diabetes are living longer due to better self-management and care, the number of persons in Iowa with diabetes (diabetes prevalence) has increased dramatically in the past 20 years. With health care costs increasing along with the number of Iowans who are diabetic, based on Centers for Disease Control and Prevention (CDC) national estimates, the estimated total (direct and indirect) annual cost of diabetes in Iowa was $1.74 billion in 2007. Direct medical costs in Iowa were estimated to be $1.16 billion. After adjusting for population age and sex differences, average medical expenditures among people with diagnosed diabetes were 2.3 times higher than what expenditures would be in the absence of diabetes. The indirect costs of diabetes in Iowa (disability, work loss, premature mortality) were estimated to be $580 million.

One in every ten health care dollars spent is estimated to be for diabetes-related medical treatment. (ADA Web site)

Making Use of this Information

Future Strategies and Recommendations for Iowa

What does the Iowa Department of Public Health (IDPH) now offer and plan to offer in the future in order to halt the current diabetes epidemic?

- Close collaboration with other IDPH programs addressing tobacco, cancer, physical activity and nutrition in order to increase awareness of diabetes risk factors, effective management strategies and support for policy initiatives at the state and local level that cut across shared chronic disease risk factors.
- Planning with those in Iowa responsible for health care reform efforts in order to assure that diabetes prevention and control is fully and appropriately addressed.
- Training for health care professionals through continuing education courses on diabetes prevention and management and promotion of the Dilated Eye Exam Project with care providers and educators statewide.
- Certification and support of community-based outpatient diabetes education programs.
- Monitoring and evaluation of diabetes-related services supported by the IDPH diabetes and other IDPH chronic disease prevention programs.
- Analysis and dissemination of information on the health status of Iowans living with diabetes or at-risk of developing diabetes and of the health services used by those with diabetes.

Links to Programs in Iowa Addressing Diabetes and Chronic Disease Interventions and data:

Iowa Diabetes Prevention & Control Program, IDPH:
http://www.idph.state.ia.us/hpcdp/diabetes.asp

Iowans Fit for Life, IDPH (physical activity/nutrition/obesity prevention):
http://www.idph.state.ia.us/iowansfitforlife/default.asp

Heart Disease & Stroke Prevention program, IDPH:
http://www.idph.state.ia.us/hpcdp/hdsp_home.asp

American Diabetes Association, Iowa Chapter:
http://www.diabetes.org/advocate/take-action/states/iowa.html

CDC, National Diabetes Prevention Program:
http://www.cdc.gov/diabetes/

Healthy People 2020 Goals: Health People 2020 has 20 national diabetes goals that seek to:

- reduce new cases of diabetes;
- reduce diabetes-related deaths overall and cardiovascular deaths that are diabetes-related;
- improve blood pressure, cholesterol and blood sugar control in diabetics; increase foot, dental exams among diabetics and improve glucose and A1c monitoring and control;
- improve diabetes self-management; and
- improve diabetes prevention among those with those with pre-diabetes through improving nutrition, physical activity levels and body weight and self-empowerment.

(www.healthypeople.gov/2020/topicsobjectives2020/default.asp)

Definitions

Diabetes: The body produces insulin to help move blood sugar from the blood and into the body's cells where the cells use sugar for energy. Blood sugar levels become too high either when the pancreas (an organ near the stomach) stops making insulin altogether (type 1 diabetes) or when the body becomes unable to use the often more-than-adequate amounts of insulin that it makes (type 2 diabetes). In type 2 diabetes, the ability to produce but not to use insulin is called 'insulin resistance'. (Becker, 2004)

Gestational diabetes is a form of diabetes that occurs only during pregnancy.

Pre-diabetes is a condition in which blood glucose levels are higher than normal but are not high enough for a diagnosis of diabetes. About half of people with pre-diabetes go on to develop diabetes within 10 years of first developing pre-diabetes

The eight-hour fasting plasma glucose (FPG) test is the preferred test for diagnosing both diabetes and pre-diabetes. However, the two-hour oral glucose tolerance test (OGTT or GT) in which people drink a sugary beverage is also frequently used to diagnosis diabetes. Recently plasma A1c levels have also come to be used. A diagnosis of diabetes can be made if one has an: FPG level of 126 mg glucose/dL or above, confirmed by repeat testing; an OGGT level of 200 mg glucose/dL or higher 2 hours after drinking the sugary beverage; or an A1c level of 6.5% or higher

Pre-diabetes is diagnosed based on blood glucose or A1c levels that are below those needed for a diagnosis of diabetes, but above normal levels. For people without diabetes, normal, non-fasting blood sugar levels usually range between 70 and 120 mg/dL (NIH, 2010).

Prevalence rates: The *crude* diabetes prevalence rates found in this supplement were calculated by simply dividing the annual number of Iowans in a subpopulation who have diagnosed diabetes by the total number of people in that subpopulation. Crude prevalence rates were graphed in this report to compare Iowa adults to the U.S., as U.S. age-adjusted rates were not available from BRFSS. Age-adjusted prevalence rates are preferable to crude when comparing differences between populations across time and to one another. Age-adjusted rates were calculated by weighting age-specific prevalence rates in Iowa to a standard 2000 U.S. population distribution and summing those weighted age-specific rates. (Also see age-adjusted definitions at: (http://wonder.cdc.gov/wonder/help/mcd.html.)

Iowa BRFSS

The Iowa Behavioral Risk Factor Surveillance System (BRFSS), a household interview survey of adults that began to include a core question covering diagnosed diabetes prevalence in 1988, is the primary source of data in this *Iowa Chronic Disease Report* supplemental update on diabetes. Most rates in this supplement are age-adjusted, rather than crude rates. Age-adjusting eliminates differences in rates that are attributable to populations being compared having difference age distributions. More detailed reports on the burden of diabetes in Iowa can be found at the Iowa Dept. of Public Health's, diabetes program Web site: http://www.idph.state.ia.us/hpcdp/diabetes.asp

Other References:

American Diabetes Association, *Economic Costs of Diabetes in the U.S.*, 2007, Diabetes Care, 32(3), pp. 596-615, 2008.

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National Institutes of Health (NIH), USDHHS, http://diabetes.niddk.nih.gov/dm/pubs/diagnosis/, accessed June 2010.

This diabetes supplement to the 2009 Iowa Chronic Disease Report was prepared by J. Muldoon, Iowa Dept. of Public Health, 2011. Contact: joann.muldoon@idph.iowa.gov.

2011

Colorectal Cancer in Iowa

supplement to the

2009 Iowa Chronic Disease Report

Colorectal cancer deaths down, screening and early detection up in Iowa

What is colorectal cancer?

Colorectal cancer (CRC), sometimes referred to as colon cancer, is a type of cancer that starts as a tiny growth or polyp in the colon (large intestine) or rectum. This type of cancer happens most often in men and women who are older than age 50 years.

Why is colorectal cancer early detection important?

Colorectal cancer is the second most common type of cancer and the third leading cause of all cancer deaths in Iowa. In 2009, an estimated 1,800 Iowans were diagnosed with and 625 died from colorectal cancer.

Colorectal cancer screening is important because in 70% of early-stage colorectal cancer cases no symptoms are reported ,yet when caught in this early stage, more than 90% of colorectal cancers are curable. If detected in later stages, less than 20% of Iowans with colorectal cancer survive. According to the Iowa Behavioral Risk Factor Surveillance System (BRFSS) survey, only 64% of Iowans age 50 and older have ever had a colonoscopy or sigmoidoscopy, the evidenced-based standard in colorectal cancer screening.

Iowa Ranking Nationally:

In 2010, 64% (64 of every 100 Iowans age 50 and older) had ever had a colonoscopy or sigmoidoscopy, while nationally the median rate was 65% (median= half of states had higher, half lower rates). Iowa's rate ranked 28th highest among the 50 states. States' rates ranged from 54% to 76% in 2010.

Quick Facts

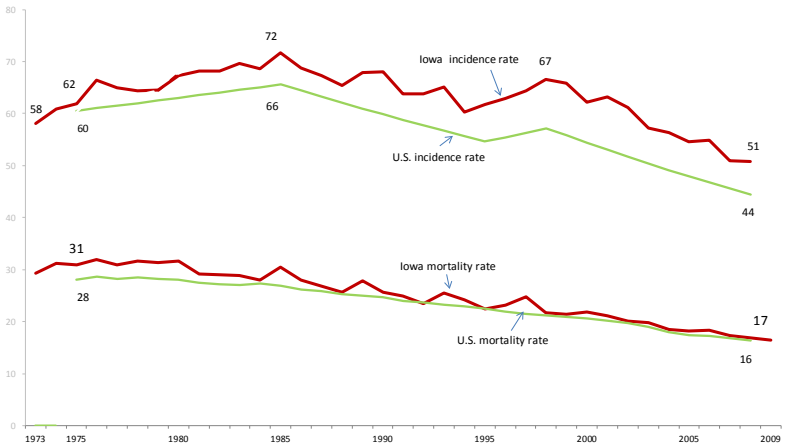
- The U.S. Preventive Services Task Force (USPSTF) has recommended three screening methods to reduce colorectal cancer: annual high-sensitivity fecal occult blood testing (FOBT); or, sigmoidoscopy every 5 years with FOBT between exams every three years; or, optical colonoscopy every 10 years. These recommendations apply to adults aged 50 to 75 years who are at average risk of the disease. Those at increased risk should be screened more often.
- In 2010, a large randomized clinical trial conducted in the United Kingdom was the first trial to show that sigmoidoscopy can reduce both the incidence of (by 31%) and the mortality from (by 43%) colorectal cancer.
- Modeling studies have estimated that, if current trends in reducing risk factors, increasing screening, and improving treatment persist, colorectal cancer mortality could decline by 36% between 2000 and 2020. With accelerated cancer control efforts, a 50% reduction by 2020 could be possible.
- Colorectal cancer surgical techniques and survival after surgery have improved over the past 15 years. Surgery can cure about 90% of colorectal cancers when they are found early.

(Information above taken directly from the NCI factsheet: Cancer Advances in Focus: Colorectal Cancer.)

What are the personal and the statewide benefits of being screened for colorectal cancer? What do the screening tests involve? Who in Iowa is working to prevent colorectal cancer deaths? **See pages 9-10.**

Burden of colorectal cancer in Iowa: Number of Deaths decline, age-adjusted rates decline

Colorectal cancer incidence, death rates, Iowa, U.S.



Annual age-adjusted colorectal cancer incidence (new cases) and mortalilty rate per 100,000 population, Iowa, 1973-2009. 2009 U.S. death data were not available for colorectal cancer from the SEER data bases as of November 2011. Chart above shows single year rates, table below is of multi-year averages. Sources: Iowa data: Iowa State Health Registry, Cancer Registry web site; U.S. data: National Cancer Institute SEER database web site.

Iowa average annual counts and rates of new cases of (incidence) and deaths from, colorectal cancer (rate/100,000 population)*

Number:	1973-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2009
cases diagnosed	1,783	2,045	2,111	2,068	2,137	2,045	1,843
deaths	873	884	864	810	774	713	643
Crude rate							
cases	61.6	70.8	75.8	73.4	73.9	69.7	62.0
deaths	30.1	30.6	31.0	28.8	26.8	24.3	21.6
Adjusted rate							
cases	63.1	68.4	68.1	64.1	64.3	60.0	52.8
deaths	31.0	29.3	27.8	24.7	22.7	20.3	17.4

* The line chart above is based on single-year annual rates for both Iowa and the U.S.. The data table above, however, to accomdate multiple decades of data in limited space, presents multi-year (usually 5-year) average annual rates. Iowa incidence data shown in the table are for 2005-08, not 2005-09, since 2009 incidence data were unavailable for Iowa as of November 2011 from the Iowa Cancer Registry.

Both the age-adjusted incidence rate of (rate of new cases) and age-adjusted morality rate from colorectal cancer have declined in Iowa since 1973.

Iowa's age-adjusted incidence rate declined by 16% between 1973-79 and 2005-08.

The age-adjusted colorectal cancer mortality rate decreased 44% between 1973-79 and 2005-09.

The decline in mortality is due not only to declining colorectal cancer incidence rates but increased early detection and more effective treatment.

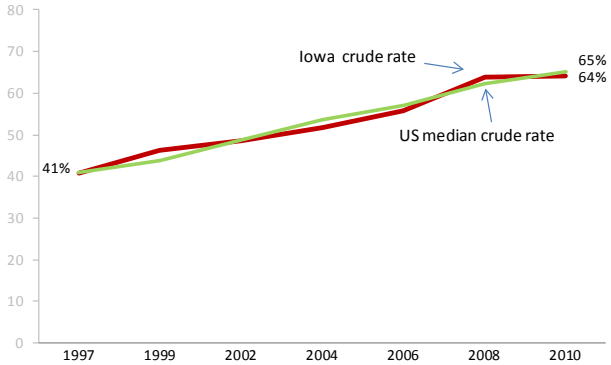
While between 1973 and 2008, Iowa's population overall grew by about 8%, the number of Iowans who are 50 and older grew by 34% and those middle-aged and older Iowans are the ones most at-risk for developing colorectal cancer. As a result, even though the age-adjusted incidence rate of colorectal cancer declined substantially, the *number* of new cases did not substantially decline (1,783 new cases/year in 1973-79 vs. 1,843/new cases/year in 2005-08). The crude colorectal cancer incidence also rate was also about the same in 2005-08 as it was in 1973-79. If the number of new colorectal cancer cases had kept pace with the growth in Iowa's population 50 years and older, there would likely would have been 400-550 additional cases of colorectal cancer per year in 2005-08--over and above the 1,843 cases that were diagnosed. More widespread colorectal cancer screening is in large measure responsible for this lower than expected number of new cases.

The number of deaths from colorectal cancer declined substantially, by 26%, between 1973-79 and 2005-09 (dropping from 873/year to 643/year) reflecting both increased early colorectal detection and more effective treatment.

While sex-specific colorectal cancer incidence and mortality rates are not shown in this report supplement, in Iowa and nationally, females consistently have incidence rates of colorectal cancer that are lower than those of males. In 2005-08, the Iowa age-adjusted colorectal cancer incidence rate for males was 29% higher than that of females (60/100,000 males vs. 46.7/100,000 females). The Iowa male mortality rate from colorectal cancer was 35% greater than that of females (21/100,000 males vs. 15/100,000 females) in 2005-09. Nationally, cancer incidence for men has declined in the past 20 years. while rates for women have stabilized.

Increase in colonoscopy/sigmoidoscopy screening in Iowa parallels increase nationally

Colonoscopy/sigmoidoscopy screening increases among adults 50 and older in Iowa and U.S.



	1997	1999	2002	2004	2006	2008	2010
BRFSS Iowa crude rate	40.7	46.4	48.6	51.6	55.8	63.8	64.2
BRFSS U.S. median crude rate	41	43.9	48.6	53.5	57.1	62.2	65.1
BRFSS Iowa adjusted rate	not available		43.3	47.7	51.6	60.1	61.5

Percent of adults age 50 and older who have had ever had a sigmoidoscopy or colonoscopy, Iowa and U.S., 1997-2010.

Sources: Iowa BRFSS, IA Dept. of Public Health; CDC National BRFSS Web site.

The percent of Iowa adults aged 50 years and older who had ever received a colonoscopy or sigmoidoscopy has steadily increased since 1997. Iowa's rate of screening closely paralleled the national screening rate for all years 1997 through 2010.

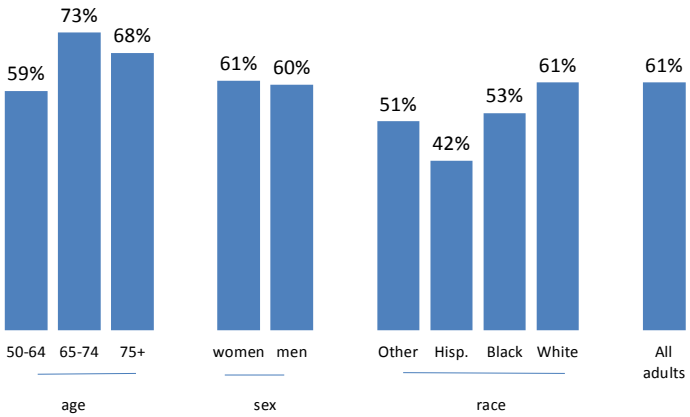
In 2010, the national median percent of adults aged 50 to and older who had ever had a colonoscopy or sigmoidoscopy was 65% while the Iowa rate was 64%.

During the two-year period 2008, 2010 (no data are collected in odd-numbered ylears), an average of 59% of Iowans age 50-64 years had ever received a colonoscopy or a sigmoidoscopy, a rate lower than for that of Iowans both 65-74 years old and 75 and older.

The colonoscopy/sigmoidoscopy screening rate for men (60%) was essentially the same as that for women (61%).

White adults aged 50 and older were 18% more likely than black adults and 35% more likely than Hispanic adults of that age to have ever had a colonoscopy or sigmoidoscopy.

Colonoscopy/sigmoidoscopy screening, by age, race, sex, Iowa adults



Two-year average annual percent of adults age 50 and older who have had ever had a sigmoidoscopy or colonoscopy screening for colorectal cancer (rate per 100 adults), by age and race, Iowa, 2008,2010. Sex, race and all adult rates are age adjusted. Due to small sample size, race rates are based on an average rate for 2002-2010. All data were collected in even years only.

Source: Iowa BRFSS, IA Dept. of Public Health

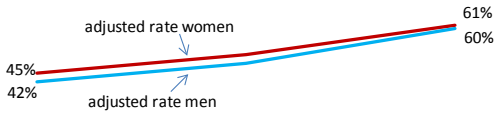
Women slightly more likely than men to have ever had a colonoscopy or sigmoidoscopy

Since 2002, the percent of both men and women who have ever received a colonoscopy or sigmoidoscopy has steadily increased: the percent of men who have been screened increased by 43% while the percent of women increased by 35%.

For all years shown, the rate of colorectal cancer screening was slightly higher for women than for men. A small difference --61% vs. 60% was seen in 2008,2010).

Nationally the lifetime risk of a colorectal cancer diagnosis for men is 5.7% and for women 5.1%. (USPSTF)

Trends in colonoscopy/sigmoidoscopy screening, by sex, Iowa adults



	2002	2004,06	2008,10
crude female	50.2%	52.4%	63.1%
crude male	46.6%	54.9%	64.8%
age adjusted female	44.8%	51.1%	61.3%
age adjusted male	41.7%	48.3%	60.3%

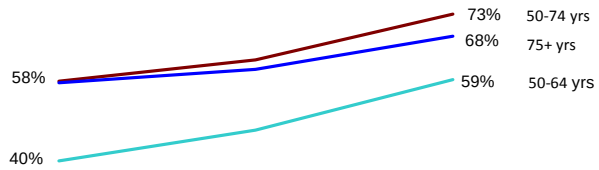
Percent of adults age 50 and older who have had ever had a sigmoidoscopy or colonoscopy screening for colorectal cancer (rate per 100 population), by sex, Iowa, 2002-2010. Data collected in even years only.
Source: Iowa BRFSS, IA Dept. of Public Health

More than 80% of diagnosed cases of colorectal cancer occurs in patients older than 55 years and the U.S. Preventive Services Task Force recommends that screening begin at age 50 for persons with an average risk of colorectal cancer.

For every age group of Iowa adults 50 and older, cancer screening increased between 2002 and the two-year 2008,2010 period.

Persons 75 years of age and older were somewhat less likely to have ever had a sigmoidoscopy or colonoscopy compared than were those 65-74 years of age, even though Medicare will pay for a colonoscopy during the first year of Medicare enrollment—usually age 65 years.

Trends in colonoscopy/sigmoidoscopy screening by age



	2002	2004, 2006	2008, 2010
50-64 years	40.4	47.2	58.5
65-74	58.2	62.9	73.1
75+	57.7	60.7	68.1

Estimated average annual age-specific percent of adults age 50 and older who have ever had a colonoscopy, Iowa, 2002-2010. Source: Iowa BRFSS, IA Dept. of Public Health

Health Disparities: Black women most screened

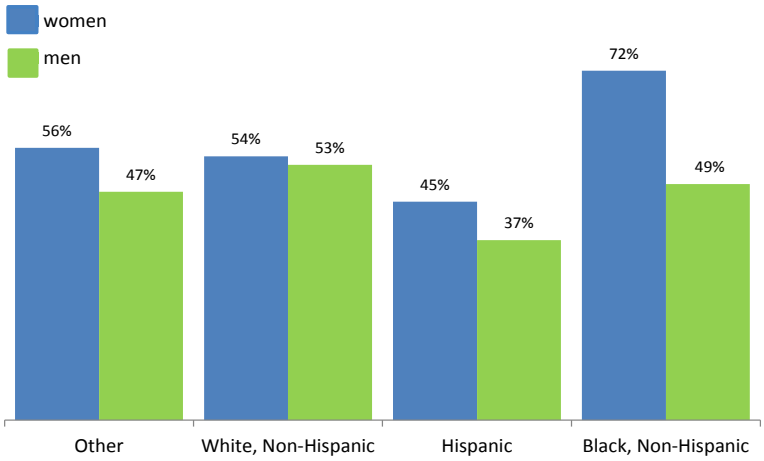
For the nine-year period 2002-2010, women of every race were more likely to have ever had a colonoscopy or sigmoidoscopy than men of the same race.

Hispanic men (37%), followed by Hispanic women (45%) were the least likely to have been screened compared to all other race/sex groups.

Black women (72%) were the most likely to have been screened of all race/sex groups.

(Nine years were used to compute age-adjusted rates due to small sample size for age-groups among minority races.)

Trends in colonoscopy/sigmoidoscopy screening by race, Iowa adults

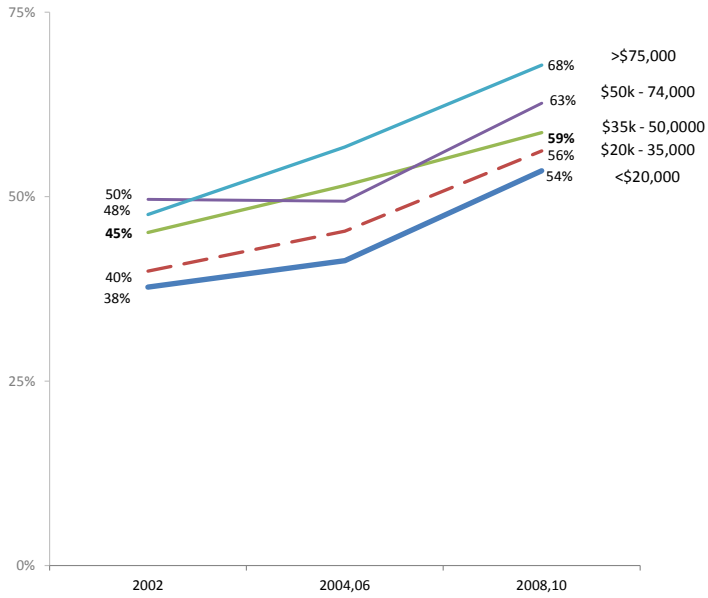


Average annual age-adjusted percent of adults age 50 and older (rate per 100 popultion) who self-report ever having received a sigmoidoscopy or colonoscopy, by sex and race/ethnicity, Iowa, 2002-2010. Data collected during even years only.

Source: Iowa BRFSS, IA Dept. of Public Health

Disparities: Iowans of low income least screened

Trends in colonoscopy/sigmoidoscopy screening by income, Iowa adults



Average annual age-adjusted percent of adults age 50 and older (rate per 100 population) who self-report ever having received a sigmoidoscopy or colonoscopy, by household income, Iowa, 2002-2010. Data collected during even years only.

Source: Iowa BRFSS, IA Dept. of Public Health

Since 2002, the rate of ever having received a colonoscopy or sigmoidoscopy increased in every income group—the rate increased for low income as well as high income Iowans.

However, across time, adults of the lowest income are consistently least likely to have ever been screened for colorectal cancer while higher income groups are the most likely to have been screened.

In 2008,2010, the percent Iowa adults with annual incomes of less than $20,000 who had ever been screened for colorectal cancer was 21% lower than the rate of adults with annual incomes of $75,000 or more (54% vs. 68%).

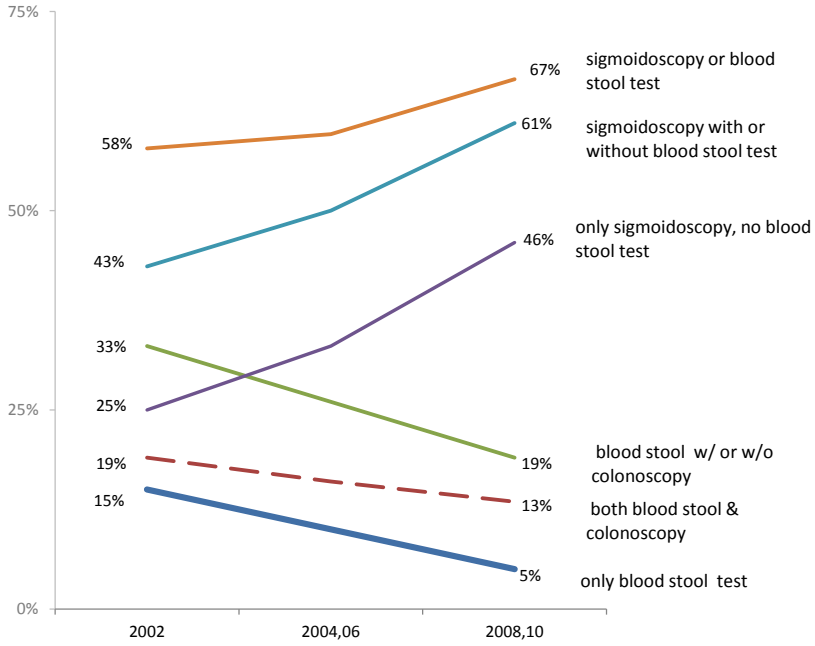
(For additional information about Iowa colorectal cancer screening, see the IDPH, Iowa Get Screened program Web site: http://www.idph.state.ia.us/IGS/.)

Blood stool testing declines as colonoscopy/ sigmoidoscopy screening increases

While the percent of adults who had ever had a colonoscopy or sigmoidoscopy increased 42% between 2002 and 2008,2010 (rising from 43% to 61%), the percent who had received a blood stool test during the past two years decreased by 42% -- dropping from 33% to 19%. Screening guidelines recommend a blood stool (fecal occult) test annually among adults aged 50 years and older.

In 2008,10, 33% of Iowa adults had not received a blood stool test in the past two years nor had they ever had a colonoscopy or sigmoidoscopy. This is down from 42% in 2002.

Trends in blood stool and colonoscopy/sigmoidoscopy screening, Iowa



Average annual age-adjusted percent of adults age 50 and older (rate per 100 population) who self-report ever having received a sigmoidoscopy or colonoscopy or who report having had a blood stool test in the past two years, Iowa, 2002-2010. Data collected during even years only. Source: Iowa BRFSS, IA Dept. of Public Health

Dollars Spent on Colorectal Cancer Screening is Cost-Effective

Colorectal cancer is the third most common type of cancer and the second leading cause of cancer death in the United States. Current levels of colorectal screening fall behind those of other effective cancer screening tests (Pap smears, mammography). The attainment of national and state goals for colorectal cancer screening in the adult population 50 and older could save an additional 18,000 lives per year nationally and more than 200 per year in Iowa.

The U.S. Preventive Services Task Force (USPSTF) updated its national colorectal cancer screening guidelines in 2008. In completing this update, an extensive literature review of the cost-effectiveness of colorectal cancer screening was completed. This review found that most published studies estimated the cost-effectiveness ratio for colorectal cancer screening as recommended as by the USPSTF versus no screening at less than $20,000 per year of life saved (Annals of Internal Medicine). A ratio of $20,000 or less per year of life saved is frequently suggested as an upper cost limit in determining the cost-effectiveness of a health care procedure.)

Screening definitions from the U.S. Preventive Services Task Force

Fecal occult blood testing (FOBT or **blood stool test)** refers to the implementation of the protocol of collecting and testing six samples from three consecutive stools of a patient following a specified diet.

Flexible **sigmoidoscopy** refers to the direct visual examination of the lower third of the colon and rectum by a trained examiner using a flexible 60-cm endoscope after satisfactory cleansing of the descending and sigmoid colon. An abnormal finding on sigmoidoscopy should be followed by colonoscopy.

A **colonoscopy** is the direct visual examination of the entire colon and rectum using a colonoscope. Sometimes a double-contrast barium enema, radiologic examination of the entire colorectum by instilling both barium and air to define the contours of the colorectal mucosa, is conducted instead of a colonoscopy. A positive finding on double-contrast barium enema should usually be followed by endoscopy. (USPSTF)

Definitions of rates

Incidence rate: The rate of newly diagnosed colorectal cancer cases occurring in the year(s) specified in the population noted. The **crude incidence rates** found in this supplement were calculated by simply dividing the number of Iowans in the subpopulation of interest who were newly diagnosed with colorectal cancer in a year by the total number of people in that subpopulation that year. For multi-year rates, the average annual number of new cases and the average annual population count were used for the included years . Annual crude mortality rates were similarly calculated. Crude rates are important because they provide a measure of the absolute magnitude of the colorectal cancer.

Age-adjusted rates for both incidence and mortality rates are preferable to crude when comparing differences between several populations or differences in the same population across time. **Age-adjusted** rates are calculated by weighting age-specific incidence (or mortality) rates in Iowa to a standard 2000 U.S. population distribution and summing those weighted age-specific rates. Age-adjusting eliminates differences in rates between the populations being compared that might solely be attributable to one population being older/younger than another.

(Also see age-adjusted definitions at: http://wonder.cdc.gov/wonder/help/mcd.html.

Making Use of this Information

Future Strategies and Recommendations for Iowa

The Iowa Get Screened (IGS): Colorectal Cancer Program was established in 2009 by a grant from the Centers for Disease Control and Prevention. Housed at the Iowa Department of Public Health (IDPH), the goal of the program is to reduce mortality from colorectal cancer in Iowa by increasing the number of men and women who receive colorectal cancer screening. Through the course of the program approximately 5,000 screenings – Fecal Immunochemical Tests (FIT's) and colonoscopies – will be provided to eligible Iowans. Along with providing screening, Iowa Get Screened also provides supportive services and referral for diagnosis and treatment to Iowans with abnormal screening results. Iowan's who are eligible to enter the program must be 50-64 years of age, underinsured or uninsured, have incomes of up to 250 percent of the Federal Poverty Guidelines (FPG) and have an average risk for developing colorectal cancer.

For more information see the IGS Web site: hhttp://www.idph.state.ia.us/IGS/Default.aspx .

Links to Other Programs in Iowa Addressing Colorectal Cancer Prevention and Treatment:

- Iowa Cancer Consortium
- American Cancer Society
- National Cancer Institute
- Centers for Disease Control
- Prevent Cancer Foundation
- Colorectal Cancer Coalition
- Colon Cancer Alliance
- National Comprehensive Cancer Network
- United States Preventive Services Task Force
- National Colorectal Cancer Roundtable
- Centers for Medicare & Medicaid Services
- Fight Cancer
- Crohn's Disease
- Iowa Cancer Registry

Colorectal Cancer Assistance Resources

- David's Fight
- Cops Against Cancer

Iowa Get Screened Local Program Sites:

For more information on where to find an Iowa Get Screened screening site near you, call: **1-800-237-1225** or visit the Iowa Get Screened Web site at: http://www.idph.state.ia.us/IGS/.

National Healthy People 2020 Objectives

CDC's Healthy People 2020 has six national objectives directly related to colorectal cancer:

- Increase the proportion of adults who were counseled by their providers about colorectal cancer screening.
- Increase the proportion of adults who receive a colorectal cancer screening based on the most recent guidelines.**
- Increase the proportion of cancer survivors who are living 5 years or longer after diagnosis.
- Increase the mental and physical health-related quality of life of cancer survivors (developmental).
- Reduce the colorectal cancer death rate.
- Reduce invasive colorectal cancer incidence.

(See *Healthy People 2020* Web site for more details: **http://www.healthypeople.gov/2020/default.aspx**)

**This is one of 26 national Leading Health Indicators for Healthy People 2020. The 26 leading health indicators are selected from the more than 1,200 indicators in the national Health People 2020 initiative. Specifically, the national leading health indicator for colorectal cancer is: Increase the number of persons aged 50 to 75 years of age who have had colorectal cancer screening (a blood stool test in the past year *or* a sigmoidoscopy in the past 5 years in combination with a blood stool test in the past 3 years *or* a colonoscopy in the past 10 years) from 54.2% (2008) to 70.5% by 2020 (data source: National Health Interview Survey).

References: Iowa BRFSS Iowa State Health Registry

The Iowa Behavioral Risk Factor Surveillance System (BRFSS), a household interview survey of adults that began in the mid-1980's, is the primary source of colorectal cancer screening data charted in this report .Most BRFSS-derived rates in this supplement are age-adjusted, rather than crude rates.

For further information visit the IDPH or CDC BRFSS Web sites: http://www.cdc.gov/BRFSS/; http://www.idph.state.ia.us/brfss/

The Iowa State Health Registry, State Cancer Registry is a National Cancer Institute funded statewide surveillance system for cancer. In place since the mid-1970's, the cancer registry has available online, cancer incidence and mortality data for all years 1973 forward. Iowa colorectal cancer incidence and mortality data in this supplement was found on the cancer registry Web site:

http://www.cancer-rates.info/ia/index.php

Other References:

National Cancer Institute, *Cancer Advances in Focus: Colorectal Cancer*, NCI Web site, accessed October 2011: http://www.cancer.gov/cancertopics/factsheet/ cancer-advances-in-focus/colorectal.

Pignone, M et al., *Cost Effectiveness of Analyses of Colorectal Cancer Screening: A Systematic Review for the U.S. Preventive Services Task Force,* Annals of Internal Medicine, 137(2), pp. 96-104, 6/2002 and AHRQ Pub. No. 03-519, 5/2002.

U.S. Preventive Services Task Force (USPSTF), *Screening for Colorectal Cancer: Recommendation Statement, http://www.uspreventiveservicestaskforce.org/uspst08/colocancer/colors.htm*, accessed 2011.

This colorectal cancer supplement to the 2009 Iowa Chronic Disease Report Supplement was prepared by Joann Muldoon, Iowa Dept. of Public Health, 2011. Contact: joann.muldoon@idph.iowa.gov.

2011

Breast and Cervical Cancer in Iowa

supplement to the

2009 Iowa Chronic Disease Report

Breast and Cervical Cancer in Iowa

Why is breast and cervical cancer early detection and treatment important?

In 2012, about 2,100 women in Iowa will find out they have breast cancer and about 430 women will die from this cancer. Among Iowa females, breast cancer is the most common type of cancer and the second leading cause of cancer-related deaths, surpassed only by lung cancer.

One in eight women will develop breast cancer in her lifetime.

While lifestyle plays a role in developing breast cancer, most breast cancers result from multiple risk factors many of which are not easy to change (age at puberty, age at menopause, being older, family history). Fortunately, most breast cancers can be caught early and when they are caught early, more than 95% of breast cancers are curable. Yearly mammograms are the best way to find breast cancer early. Clinical Breast Exams (CBE) by a health care provider; and monthly self-breast exams (SBE or BSE) (checking one's own breasts) are also important. Older women have the highest risk for breast cancer but are the least likely to have regular mammograms.

Risk factors for developing or dying from cervical cancer are: having the human papillomavirus (HPV); not having regular Pap tests; smoking; being of low income; and, having sex: when you are very young; with many different people; with a partner who has had sex with many other people; or, without a condom. Unlike most other cancers, most cervical cancers can be prevented with a vaccination—the HPV vaccine.

Iowa's vs. other states' breast and cervical cancer screening rates and death rates -- See page 3.

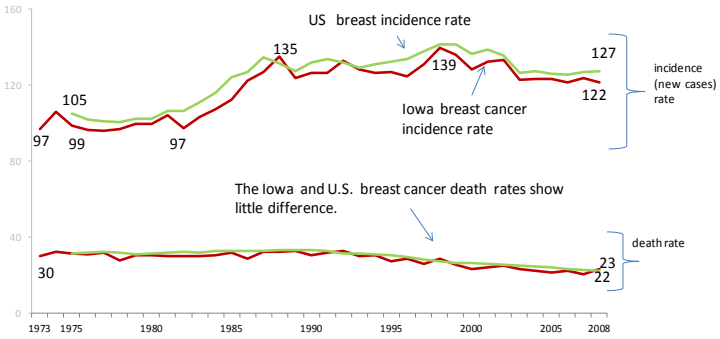
Who is screened and who could benefit from increased breast and cervical cancer screening? See pages 6-9 of this report.

Quick Facts

- Breast cancer can happen at any age, but is more common as women grow older-75% is found in women older than 50 years. Other risk factors include: family history; starting menstruation before age 12, starting menopause after age 55; certain birth control pills, estrogen and progestins (hormones); never giving birth; having a first baby after age 30; drinking alcohol; and, weighing too much, especially after menopause.
- Some women have multiple risk factors yet never develop breast cancer while others have few risks yet develop this cancer. This is why breast cancer screening is important for all women.
- Mammograms and Pap smears can find breast and cervical cancer early, before women have noticeable symptoms, when treatment is most likely to help.
- Almost all cervical cancers are caused by human papillomavirus (HPV), a common virus that can be passed from one person to another during sex. There are many types of HPV. Some HPV types can cause changes on a woman's cervix that can lead to cervical cancer over time, while other types can cause genital warts.
- HPV is so common that most people get it at some time in their lives. HPV usually causes no symptoms so you can't tell that you have it. For most women, HPV will go away on its own; however, if it does not, there is a chance that over time it may cause cervical cancer.
- In addition to HPV, other things that can increase a woman's risk of cervical cancer include—
  - Smoking.
  - Having HIV (the virus that causes AIDS) or another condition that makes it hard for your body to fight off health problems.
  - Using birth control pills for a long time (five or more years).
  - Having given birth to three or more children.
  - Lack of regular Pap smears
  - Being middle aged
  - having had many sexual partners or having sex with a man who has had many sexual partners.
- Cervical cancer is preventable through the HPV vaccine and through Pap tests. Pap tests detect pre-cancerous cervical cells that can then be treated before they become cancer.

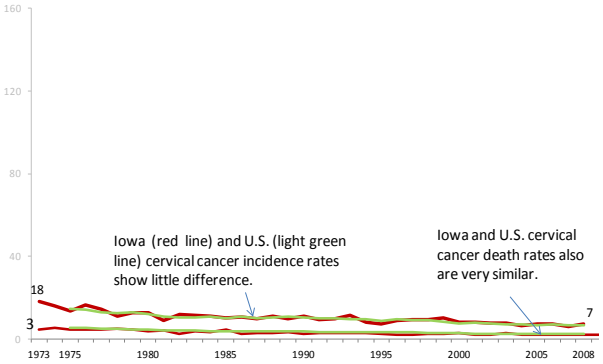
Breast and cervical cancer-- rates of new cases, death decline

Female breast cancer incidence rates increase from 1973 to 1998, on decline since 1998



Annual age-adjusted rate of breast cancer incidence and death per 100,000 females, Iowa and the U.S., 1979-2008.
Sources: Iowa Cancer Registry Cancer web site, State Health Registry; National Cancer Institute, SEER Fast Stats online.

Cervical cancer incidence and death rates slowly, steadily decline since 1973



Annual age-adjusted rate of cervical cancer incidence and death per 100,000 females, Iowa and the U.S., 1979-2008.
Sources: Iowa Cancer Registry Cancer web site, State Health Registry; National Cancer Institute, SEER Fast Stats onlin

Average annual incidence (new cases) of and deaths from breast cancer, number and rate/100,000 population, 1973-2009, females, Iowa and U.S.
(U.S. rates given as range of annual rates as multi-year rates were not available.
At the time this report was written, incidence for were not available for 2009.)

	1973-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-08
Number in Iowa							
new cases	1,460	1,583	1,970	2,094	2,237	2,217	2,171
deaths	550	472	530	548	500	454	434
Incidence rate-crude							
Iowa	98	106	137	145	151	149	144
U.S.	not available						
Incidence rate-adjusted							
Iowa	99	102	124	128	132	128	122
U.S. range for period	95-104	102-116	124-134	129-134	132-141	127-138	125-127
Death rate-adjusted							**2005-09**
Iowa	31	30	32	31	27	24	22
U.S.-range for period	31-32	32-33	33-33	31-33	27-31	24-27	22-24

Average annual incidence (new cases) of and deaths from cervical cancer, number and rate/100,000 population, 1973-2009, Iowa and U.S.
(U.S. rates given as range of annual rates as multi-year rates were not available.)

	1973-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-08
Number in Iowa							
new cases	196	159	144	145	135	114	105
deaths	72	53	49	44	38	40	36
Incidence rate-crude							
Iowa	13	11	10	10	9	8	7
U.S.	not available						
Incidence rate-adjusted							
Iowa	15	11	10	10	9	8	7
U.S.-range for period	13 -15	10 - 11	10 - 11	10 - 11	8 - 10	7 - 8	7 - 7
Death rate-adjusted							**2005-09**
Iowa	3	3	3	3	2	2	2
U.S.-range for period	5 - 6	4 - 4	3 - 4	3 - 3	2 - 3	2 - 3	2 - 2

Breast and cervical cancer-- rates of new cases, deaths, continued

Breast cancer:

Between 1973-79 and 1995-99, the age-adjusted breast cancer incidence rate (rate of new cases of breast cancer) among Iowa females increased by 35%.

Much of this increase was due to more women receiving mammograms and subsequently having their breast cancer detected at an earlier, rather than later stage. With breast cancer through the 1990's increasingly being detected at an earlier stage, fewer cancers were left to be detected during the past 10 to 15 years and breast cancer incidence rates have declined.

In 2005-08, the breast cancer incidence rate (122 cases/100,000 females) was 10% lower than peak incidence rate of (132 cases/100,000 females) in 1995-99. In 2005-09, the Iowa breast cancer mortality rate was 22/100,000, 29% lower than peak rate of 32/100,000 in 1985-89.

In 2005-08 for every five new cases of breast cancer diagnosed, there was one death from breast cancer, down from one death for every three new cases in 1973-79.

Iowa vs. the U.S.: For most of the almost 36-year period shown in the graph on page 2, the Iowa breast cancer incidence rate was slightly lower than the national rate. The Iowa breast cancer death rate closely followed the national death rate for breast cancer for all years shown. In 2005-09, Iowa's age-adjusted death rate from breast cancer was 22/100,000 females. Iowa's death rate ranking 34th highest among the 50 states (States' range: 18/100,000-26/100,000 females.) in 2005-08. (National data for 2009 were unavailable at the time this report was written.)

Cervical cancer:

Cervical cancer and liver cancer (the latter prevented by the hepatitis B vaccine) are the only two common cancers that are readily prevented through vaccination.

The vaccine for the Human Papilloma Virus (HPV) was introduced in 2006. Since cervical cancer takes 7-12 years to develop after HPV exposure, the HPV vaccine should have a significant impact in reducing cervical cancer sometime in the next 10 to 20 years.

But even now, before the effect of the HPV vaccine is apparent, the incidence rate of cervical cancer has been declining. Since 1973-79, the incidence rate of cervical cancer has dropped by half from 15 cases per 100,000 females to 7/100,000 female in 2005-08. Treatment of pre-cancerous lesions detected during a Pap test likely accounts for much of this decline.

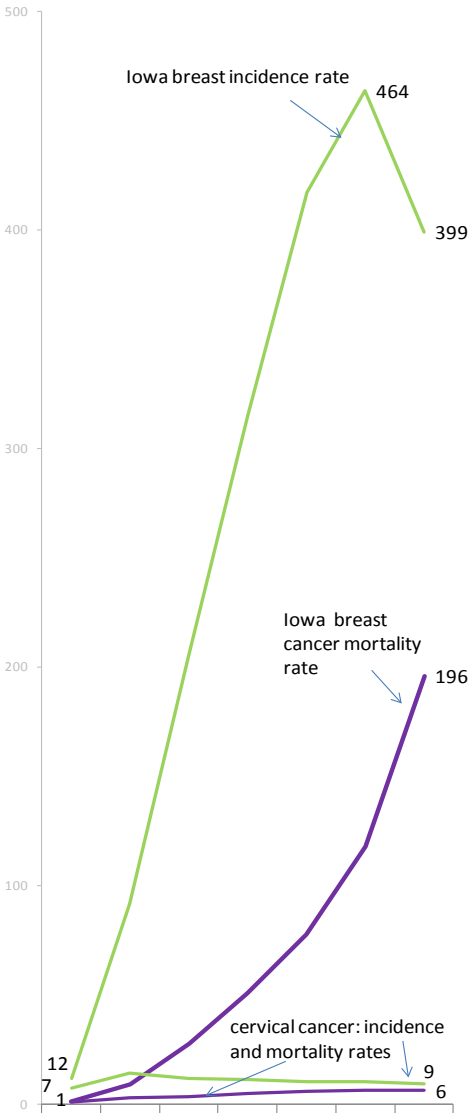
Cervical cancer is much less common than breast cancer--in 2005-08, cervical cancer was 17 times less common than breast cancer. About one in every 150 women in the U.S. develops cervical cancer in her lifetime.

In 2005-08, there was one death from cervical cancer for every 3.5 new cases.

Iowa vs. the U.S.: For all of the 36 years shown in the graph on page 2, Iowa cervical cancer incidence and death rates closely parallel national rates. In 2005-09, Iowa's age-adjusted death rate from cervical cancer was 2.1/100,000 females. Iowa's death rate ranked 32nd highest among the 50 states (States' range: 1.3/100,000 to 4.9/100,000 females) in 2005-08.

Incidence rate of breast cancer cases increases dramatically through age 75-84, while the incidence rate of cervical cancer peaks in middle age and levels off.

Iowa breast and cervical cancer incidence and death rates, by age



	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85+ years
Deaths: breast	1	9	28	51	78	118	196
Deaths: cervical	1	3	4	5	6	7	6
Incidence: breast	12	92	205	315	417	464	399
Incidence: cervical	7	14	12	11	10	10	9

Annual crude age-specific rcate of breast cancer and cervical cancer incidence and death per 100,000 females 25 years and older, Iowa , 1999-2007. (Incidence rates are for 1999-2006 only.) Source: CDC Wonder Web site.

Breast cancer:

Both breast cancer incidence and death rates increase dramatically with age.

During 1999 to 2007, compared to women 25-34 years of age, women age 75 -84 years and women 85 years and older had breast cancer incidence rates respectively 39 times and 33 times greater than women 25-34.

Breast cancer death rates are almost 200 times greater among women 75 and older compared to women 25-34 years old.

Breast cancer incidence rates peak among women ages 75-84 years, while deaths rates from breast cancer continue to increase through to the oldest age cohort--women age 85 years and older.

Cervical cancer:

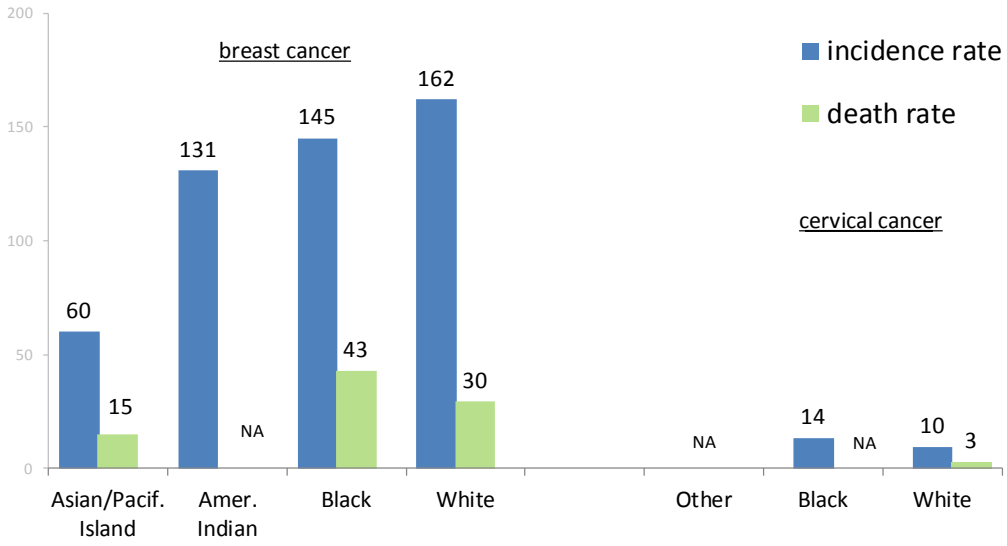
Breast cancer incidence rates outstrip cervical cancer incidence rates for all age groups, and after age 35 outstrip cervical cancer incidence rates by as much as 46 fold.

Age-specific cervical cancer incidence rates peak at 35 to 44 years, in contrast to breast cancer incidence rates which increase through age 75-84 years.

Like incidence rates, death rates from cervical cancer are very low compared to breast cancer death rates. Unlike breast cancer, death rates from cervical cancer between women of different age groups vary little and increase only slightly with age.

Breast and cervical cancer incidence and mortality differences by race

Iowa breast and cervical cancer incidence and death rates by race



Average annual age-adjusted, race-specific rate of breast cancer and cervical cancer incidence and rate of death per 100,000 females 15 and older, Iowa, 1999-2007. (Incidence rates are for 1999-2006 only.) NA= not available, numbers too small to calculate reliable rates. Source: CDC Wonder Web site.

White women have the highest breast cancer incidence rate of all races, while black women have the highest breast cancer mortality rate.

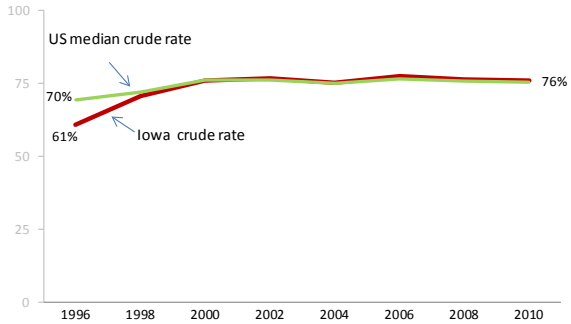
The breast cancer incidence rate for black women was 10% lower than the rate for white women, while the breast cancer death rate for black women was 43% greater than that of white women

The cervical cancer incidence rate of black women was 40% higher than that of white women.

Counts of deaths from cervical cancer were too low to compute rates for racial groups other than white women. Among white women, the cervical cancer death rate was 3/100,000, about one tenth of the breast cancer death rate for white women.

Breast cancer screening steady, cervical cancer screening down

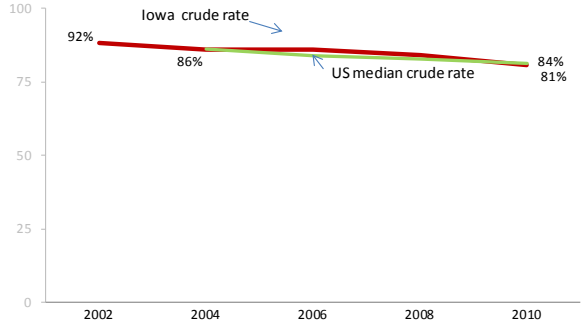
Mammogram screening rate in Iowa same as in U.S.—24% of women not screened in past two years in 2010



	1996	1998	2000	2002	2004	2006	2008	2010
BRFSS Iowa crude rate	61	70.6	76.2	76.9	75.2	77.5	76.5	76.1
BRFSS U.S. median crude rate	69.5	72.1	76.1	76.1	74.9	76.5	76	75.6
BRFSS Iowa adjusted rate	not available			76.8	75.2	77.3	76.1	75.9
BRFSS U.S. adjusted rate	not available							

Percent of women 40 and older who have had a mammogram in the past two years , Iowa, 1996-2010.
Sources: Iowa BRFSS, IA Dept. of Public Health; CDC National BRFSS Web site.

Decline in Pap smear screening in Iowa parallels national decline— 16% of Iowa women not screened as recommended in 2010



	2002	2004	2006	2008	2010
BRFSS Iowa crude rate	88.1	86	86.1	84	80.6
BRFSS U.S. median crude rate	na	86	84	82.9	81.1
BRFSS Iowa adjusted rate	87.8	85.7	85.7	83.7	80.2
BRFSS U.S. adjusted rate	not available				

Percent of women 18 and older who have had a Pap test for cervical cancer in the past three years as recommended , Iowa, 2002-2010.

In 2010, 76% of women in Iowa 40 years of age and older had received a mammogram in the past two years, an increase of 25% from 1996 when 61% of women in this age group had received a mammogram during the past two years (crude rates).

However, since 2000 the percent of women in Iowa that has received a mammogram has remained level, varying between 75% and 78%.

Trends in the rate of mammography screening among women in Iowa closely match the trend in mammography screening nationally. In 2010, Iowa's screening rate of 76% ranked 24th from the top among the 50 states. (States' rate ranged from 64% to 86%.)

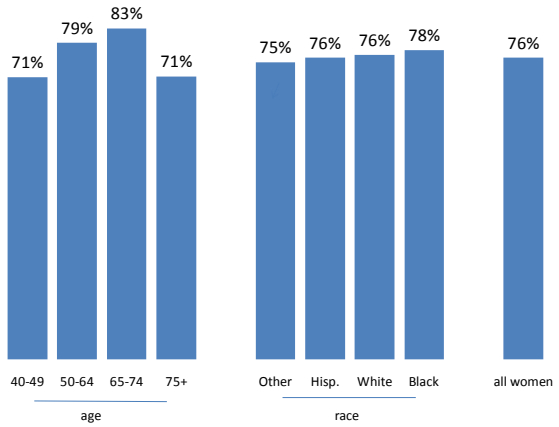
In 2010, 80.6% of Iowa women 18 and older reported having had a Pap smear in the past 3 years, down by 9% from 2002 when 88% of women reported being having had a Pap smear in the past three years (crude rate). Age-adjusted rates of Pap smear screening show similar trends.

Iowa trends showing a decline in Pap testing since 2002 are consistent with declining trends in national rates of Pap testing.

Iowa rates of Pap smear screening closely parallel the national median rate for the same year for all years 2002 through 2010. Iowa's rate of 81% in 2010 ranked 24th from the top among the 50 states. (States' rate ranged from 73% to 89%.)

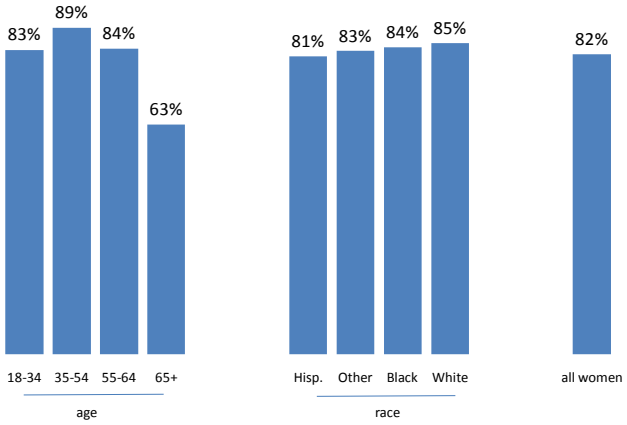
Differences in screening rates varies little by race, a lot by age

Women 50-74 most likely to receive mammograms, racial differences small



Two-year average annual percent of women age 18 and older who have had a mammogram in the past two years (rate per 100 women), by age and race, Iowa, 2008,2010. Race and all women rates are age adjusted. Race rates are based on data from 2002-2010 due to small sample size. Source: Iowa BRFSS, IA Dept. of Public Health

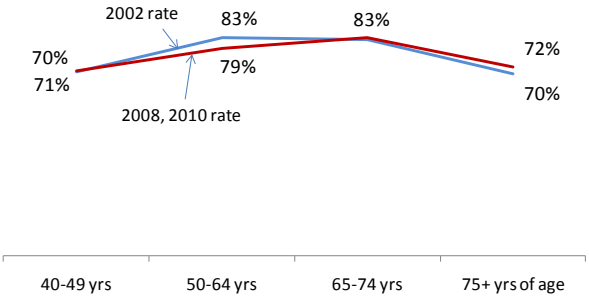
Pap smears: Women 18-34 at high risk, but only 83% screened as recommended



Two-year average annual percent of women age 18 and older who have had a Pap smear screening for cervical cancer in the past three years (rate per 100 women), by age and race, Iowa, 2008,2010. Race and all women rates are age adjusted. Race rates are based on data from 2002-2010 due to small sample size. Source: Iowa BRFSS, IA Dept. of Public Health

Trends by age: Since 2002, the percent of women given Pap smears declined for most age groups, mammogram screening steady for most age groups.

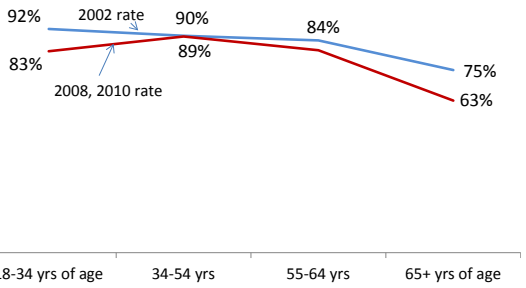
Mammogram trends by age, Iowa



Average annual percent of women age 40 and older who have had a mammograph in the past two years (rate per 100 women), by age, Iowa, 2002 vs. 2008,2010 average.

Source: Iowa BRFSS, IA Dept. of Public Health

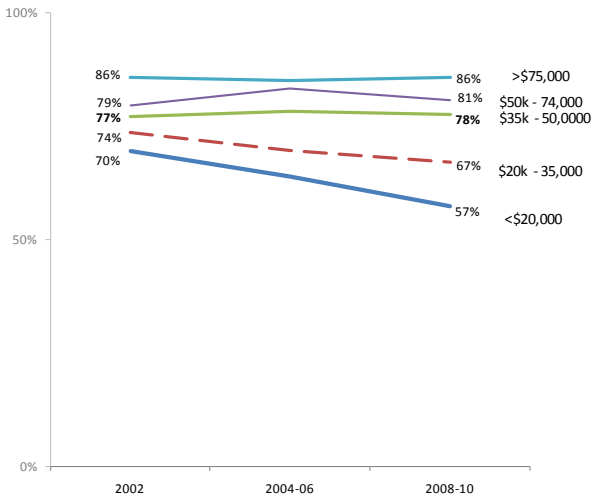
Pap trends by age, Iowa



Average annual percent of women age 18 and older who have had a Pap smear in the past three years (rate per 100 women), by age, Iowa, 2002 vs. 2008,2010 average.
Source: Iowa BRFSS, IA Dept. of Public Health

Health Disparities: Low income least screened for breast, cervical cancer

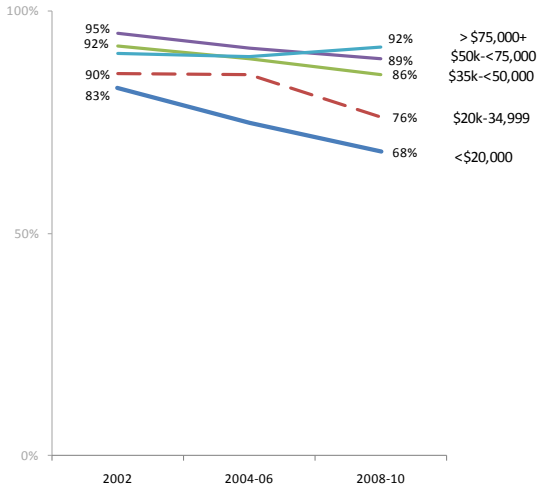
Mammogram trends by income, Iowa



Average annual age-adjusted percent of women age 40 and older who report having had a mammogram in the past two years (rate per 100 women), by household income level, Iowa, 2002-2010.

Source: Iowa BRFSS, IA Dept. of Public Health

Pap smear trends by income, Iowa



Average annual age-adjusted percent of women age 18 and older who report having had a Pap smear in the past three years (rate per 100 women), by household income level, Iowa, 2002-2010.

Source: Iowa BRFSS, IA Dept. of Public Health

Women with the lowest income are the least likely to be screened for breast or cervical cancer.

Women age 40 and older with incomes of less than $20,000 were a third less likely to be have received a mammogram in the past two years than were women of the same age with incomes of $75,000 or more (57% vs. 86%) in 2008, 2010.

Women age 18 and older with incomes of less than $20,000 were a quarter less likely to be have received a Pap smear in the past three years than were women with incomes of $75,000 or more (68% vs. 92%) in 2008, 2010.

(For additional information about breast and cervical cancer screening in Iowa, see the Bureau of Health Promotion and Chronic Disease Prevention, IDPH Web site: Web site: http://www.idph.state.ia.us/HPCDP/default.asp.)

The Cost of Breast and Cervical Cancer

Breast cancer treatment costs are lower when breast cancer is detected early:
As is the case with many other chronic diseases, Iowa's aging population means more women then ever before are being diagnosed with, treated for and surviving breast cancer. One in eight women in Iowa will be diagnosed with breast cancer during her lifetime. Not only are more women needing breast cancer screening and treatment, but the cost of that treatment, as for most other diseases, continues to increase substantially. In 2010, total health care costs in the U.S. were estimated to be $2 trillion, with breast cancer treatment accounting for about $17 billion of those costs. (NIH, NCI) By 2020 in Iowa, annual breast cancer treatment costs are expected to top $230 million (1% of the national breast cancer treatment cost in 2020 of $23 billion, reflecting a 40% increase from the estimated $170 million cost of breast cancer treatment in Iowa in 2010). Early breast cancer detection is important not only because early detection saves lives and improves quality of life for survivors, but because early stage breast cancer costs as much as five times less to treat than advanced breast cancer. (Subramanian)

Cost Effectiveness of Breast Cancer Prevention and Early Detection shown:
Based on dozens of studies showing the effectiveness of mammography, the U.S. Preventive Services Task Force and the Centers for Disease Control recommend routine mammography screening for women ages 50 to 75 (and as needed for women younger than 50 or older than 75). The American Cancer Society and the National Cancer Institute recommend annual or bi-annual mammograms beginning at age 40 and set no upper age limit.) Iowa data show that since 1990,when routine mammography screening became widespread, age-adjusted breast cancer mortality rates have declined by 31%. Two large-scale studies, one involving 130,000 women and another including more 1 million women found that those who received regular mammograms lowered their death rates by more than 30% (Tabar et al.). and 29% (Hellquist et al.), respectively.

Cervical cancer treatment costs declining:
National treatment costs for cervical cancer stood at $1.6 billion in 2010. In Iowa in 2010, cervical cancer treatment costs were about $16 million. Unlike for almost all other cancers, due primarily to women receiving the HPV vaccine and routine Pap tests, the cost of cervical cancer treatment is expected to decline to $15 million by 2020. During this same time, overall cancer treatment costs are expected to increase by 50% to $187 billion.

Cost effectiveness of cervical cancer prevention and early detection shown:
The HPV vaccine prevents cervical cancer by preventing women (and men who may transmit the HPV) from becoming infected with the virus that causes almost all cervical cancer. The Pap test both prevent s cancer—by detecting precancerous cells so they can be removed before becoming cancer—as well as detect s cancer at an early state. Through preventing cancer from developing altogether and catching cervical cancers early when they are both curable and less expensive to treat, the Pap test and HPV vaccine save health care costs.

Breast cancer costs lives: While nationally and in Iowa cancer is the second leading cause of death among both males and females--it follows closely behind heart disease –among Iowans less than 75 years of age (premature death), cancer is the leading cause of death. Among Iowa females for every year 2004 through 2008, breast cancer was the second leading cause of premature mortality (deaths before age 75 years), second only to lung cancer. (CDC Wonder)

Making Use of this Information

Strategies and Recommendations for Iowa

The *Care for Yourself Breast and Cervical Cancer Early Detection Program* (IA BCCEDP) services are part of a national program that helps reduce deaths from these two diseases. To reduce your risk, you must have regular screening tests. If the *Care for Yourself* BCCEDP is right for you, local staff can help you schedule: clinical breast exams, mammograms, pelvic exams, and Pap tests. If the tests you receive through the *Care for Yourself* BCCEDP show you have breast or cervical cancer, local staff will help you find treatment.

(The *Care for Yourself Program Well-Integrated Screening and Evaluation for Women Across the Nation* (WISEWOMAN) services are also part of a national program focusing on chronic disease in women. WISEWOMAN helps reduce deaths and disability from heart disease and stroke. To reduce your risk, you must have regular screening tests. If the *Care for Yourself* WISEWOMAN Program is right for you, local staff can help you schedule: Height and weight measurements, blood pressure, cholesterol, and glucose tests, to check your heart disease risk. You can also receive education and encouragement for making small health changes that lower your heart disease risk.)

Is the *Care for Yourself* program right for you?

Age	Are you over age 40 and under age 65?
Income	See eligibility guidelines online: http://www.idph.state.ia.us/careforyourself/default.asp
Insurance	Do you have no health insurance? ° Do you have insurance that does not cover these services? Are you unable to pay insurance deductibles or co-payments? Do you not have Medicare Part B coverage?

For more information, contact your local Care for Yourself, program or call (800) 369-2229 or (800) 735-2942 (V/TTY).

You may also write to us at:

Iowa Care for Yourself Program, Breast & Cervical Cancer Early Detection/ WISEWOMAN
Iowa Department of Public Health, Lucas State Office Building
321 East 12th Street, Des Moines, IA 50319-0075

Source of information on this page and the linkages to other programs found here is the IDPH, IA BCCEDP Web site: http://www.idph.state.ia.us/CCC/default.asp.

Making Use of this Information

Care for Yourself Program

The statewide toll-free number for the Iowa Department of Public Health breast and cervical cancer early detection program is:

800-735-2942

Links to Other Programs in Iowa Addressing breast and cervical cancer:

- American Cancer Society
- American Dietetic Association
- American Heart Association
- American Institute for Cancer Research
- Black Women's Health Imperative
- Cancer Care
- CDC Treatment Act
- Centers for Disease Control and Prevention
- CMS (Centers for Medicare and Medicaid Services) formerly HCFA (Health Care Financing Administration)
- Consumer Information
- Iowa Comprehensive Cancer Control Program
- Iowa Consortium for Comprehensive Cancer Control
- Iowa Women's Health Information Center
- Lance Armstrong Foundation
- Living Beyond Breast Cancer
- Minority Health
- National Alliance for Hispanic Health
- National Breast and Cervical Cancer Program
- National Cancer Institute
- National Cervical Cancer Coalition
- National Women's Health Information Center
- National Women's Health Resource Center
- Prevent Cancer Foundation
- Susan G. Komen for the Cure

National Healthy People 2020 Objectives

CDC's Healthy People 2020 has more than a dozen national cancer prevention and control objectives that pertain directly to breast and cervical cancer. These objectives call for the nation to:

- Decrease breast and cervical cancer mortality rates
- Decease the rate of breast and cervical cancers diagnosed at a late stage
- Increase the proportion of those diagnosed with cancer who live five-years or longer after diagnosis
- Reduce the proportion of women with the HPV virus
- Increase percent of females aged 13 to 15 years having been vaccinated with 3 or more doses of the HPV vaccine
- Increase the mental and physical health-related quality of life of cancer survivors
- Increase the proportion of women who receive breast and cervical cancer screening based on the most recent guidelines
- Increase the proportion of adults who were counseled about cancer screening guidelines.
- Increase counseling about and screening for breast and ovarian cancer that are genetically linked

(See *Healthy People 2020* Web site for more details and additional objectives covering such cancer risk factors as nutrition, healthy body weight and physical activity:

http://www.healthypeople.gov/2020/default.aspx

References: Iowa BRFSS, State Health Registry of Iowa, NCI SEER database

Definitions

Incidence rate: The rate of newly diagnosed breast or cervical cancer cases occurring in the year(s) specified in the population of females in Iowa noted.

The crude incidence rates found in this supplement were calculated by simply dividing the number of Iowans in the subpopulation of interest who were newly diagnosed with colorectal cancer in a year by the total number of people in that subpopulation that year. For multi-year rates, the average annual number of new cases and the average annual population count were used for the included years . Annual crude mortality rates were similarly calculated. Crude rates are important because they provide a measure of the absolute magnitude of breast and cervical cancer.

Age-adjusted rates of both incidence and mortality are preferable to crude rates when comparing differences between several populations or differences in the same population across time. Age-adjusted rates are calculated by weighting age-specific incidence (or mortality) rates in Iowa to a standard 2000 U.S. population distribution and summing those weighted age-specific rates. Age-adjusting eliminates differences in rates between the populations being compared that might solely be attributable to one population being older/younger than another.

(Also see age-adjusted definitions at: http://wonder.cdc.gov/wonder/help/mcd.html.

Crude rates of Pap and mammography testing were used in this report to compare rates in Iowa to the U.S. since age-adjusted rates were not available for the U.S. from the CDC national BRFSS Web site.

The Iowa Behavioral Risk Factor Surveillance System (BRFSS), a household interview survey of adults that began to include a question about a woman's most recent mammogram has been asked since 1987 and about her most recent Pap test since 1991. The BRFSS is the primary source of data on cancer screening charted in this report and most Iowa BRFSS-derived rates in this supplement are age-adjusted, rather than crude rates. (For further information visit the IDPH or CDC BRFSS Web sites: http://www.cdc.gov/BRFSS/; http://www.idph.state.ia.us/brfss/

The Iowa State Health Registry, State Cancer Registry and the national SEER cancer registry of the National Cancer Institute were the sources of cancer incidence and mortality statistics in this report. In place since the mid-1970's, the Iowa Cancer Registry has available online cancer incidence and mortality data for all years 1973 forward. Iowa breast and cervical cancer incidence and mortality data in this supplement was found on the cancer registry Web site:

http://www.cancer-rates.info/ia/index.php

National and additional Iowa cancer incidence and mortality data were also taken from the National Cancer Institutes' Surveillance, Epidemiology and End Results (SEER) Web site:

http://seer.cancer.gov/statistics/

For copies of other cancer reports for Iowa, visit the Iowa Dept. of Public Health's, breast and cervical cancer screening program Web site:

http://www.idph.state.ia.us/CCC/default.asp.

Other References:

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This Breast and Cervical Cancer in Iowa supplement to the 2009 Iowa Chronic Disease Report was prepared by J. Muldoon, Iowa Dept. of Public Health, 2011. Contact: joann.muldoon@idph.iowa.gov.