Colorado

Health & Environmental ASSESSMENT

2013

Colorado Department of Public Health and Environment

Colorado Health and Environmental Asessment

Letter from the Executive Director

Dear fellow Coloradans,

I hope you share my enthusiasm for living in Colorado, a truly great place to live with clear blue skies and world-class recreational opportunities. Our distinct geography and new industry development continue to keep Colorado one of the fastest growing states in the nation.

Part of our appeal is the health and wellbeing of our residents. Colorado has great successes in protecting environmental quality and the public's health. At the same time, we know not all Coloradans have the same opportunities to reach their best health or live in the healthiest environment. Depending on where they reside, Coloradans can have varying access to key factors affecting well-being, such as education, employment opportunities, safe living environments, healthy food and access to affordable health care. Strengthening our state as a whole calls for building systems that promote health for all residents.

We face the same challenges as the nation in supporting nutritious eating and active living for all residents. Mental health and substance abuse is one of the most common concerns among our local communities, and we lose far too many people each year to suicide. We also have disparities in key measures such as infant mortality, life expectancy and educational attainment among our population. On the upside, we face exciting new opportunities in disease prevention and access to care brought by national health reform, which provides new opportunities to address not only these concerns, but also to increase early detection of cancer and improve management of conditions related to cardiovascular disease. We also are fortunate in that many of our citizens and visitors support our efforts to keep our air, water and land clean now and into the future.

Understanding the factors influencing the health and environment of Coloradans is the first step in determining needed improvements. This assessment considers the complex interplay between the many determinants of health, telling the story of Coloradans at this point in time. It includes, but is not limited to, information about social conditions, risk factors, quality of life, morbidity and mortality, community assets and national forces. This report is unique in that it offers information about a wide range of important factors in one document and provides linkages to additional resources with more detailed information.

The 2013 Colorado Health and Environmental Assessment is also a call to action for organizations and individuals across the state. It will be used to inform decisions about current and future health priorities, and guide development of the 2014 Colorado Public and Environmental Health Improvement Plan.

The Colorado Department of Public Health and Environment and its partners are dedicated to protecting and improving the health and environment of the people of Colorado. We are grateful for the strong partnerships among local and state organizations and our citizens who share an unwavering commitment to this mission. Thank you for your partnership in creating a healthier Colorado.

Sincerely,

Larry Wolk, MD, MSPH
Executive Director and Chief Medical Officer
Colorado Department of Public Health and Environment

THE STATEWIDE PARTNERS THAT CAME FORWARD TO PUT THIS EFFORT TOGETHER ARE MANY. The following organizations are recognized for their contribution of data, their staff engagement in this process and their commitment to improve the health of Coloradans.

- Colorado Department of Public Health and Environment's Divisions and Programs
- Colorado's Local Public Health Agencies
- Colorado Department of Education and the public school systems
- Colorado Department Health Care Policy and Financing
- Colorado Department of Human Services, Division of Behavioral Health, Colorado
- The Colorado Health Institute
- The Colorado School of Public Health
- The Caring for Colorado Foundation
- The Colorado Health Foundation
- The Colorado Trust

A list of individual contributors is on pages 81-83.

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THE 2013 COLORADO HEALTH AND ENVIRONMENTAL ASSESSMENT IS A BROAD OVERVIEW OF THE FACTORS INFLUENCING THE HEALTH AND ENVIRONMENT OF COLORADANS. This report presents data and information from a variety of sources and includes population demographics, population-wide health and environmental issues, including those disproportionately affecting specific subpopulations. Identifying existing and emerging issues will inform public and environmental health improvement efforts to be outlined in the 2014 Colorado Public Health Improvement Plan and provide a baseline by which to monitor change. Public health assessment and improvement planning is recommended by the Association of State and Territorial Health Officials and the National Association of City and County Health Officials, mandated by the 2008 Colorado Public Health Act and required for voluntary accreditation by the national Public Health Accreditation Board. For the state of Colorado, this process has been supported by federal performance improvement funding from the Centers for Disease Control and Prevention's Office of State, Tribal, Local and Territorial Support.

Colorado's Public Health System

Colorado's Public Health Act

In 2008, Colorado's legislature passed and the governor signed the Public Health Act to update Colorado's public health system. The Colorado General Assembly declared the following:

"The public health system reduces health care costs by preventing disease and injury, promoting healthy behavior, and reducing the incidents of chronic diseases and conditions. Thus, the public health system is a critical part of any health care reform. Each community in Colorado should provide high-quality public health services regardless of its location…. A strong public health infrastructure is needed . . . and is a shared responsibility among state and local public health agencies and their partners within the public health system."

The intent of the Public Health Act of 2008 was to improve the performance of the public health system in order to improve the health outcomes of Colorado's residents and visitors. The Act called upon the Colorado Board of Health to ensure the Colorado Department of Public Health and Environment (CDPHE) develops a comprehensive statewide public health improvement plan every five years that assesses and sets priorities for the public health system and local public health agencies to conduct community health assessment and improvement plans every five years.

Colorado State Board of Health

The nine-member State Board of Health was established in 1877 by Colorado's First General Assembly. The current primary duties of the State Board of Health are to adopt or revise standards, rules and regulations to administer the public health laws of the state, act in an advisory capacity to the Colorado Department of Public Health and Environment on matters pertaining to public health, and approve grants to local public health agencies and community-based organizations for a variety of public health efforts. In addition to the Board of Health, a variety of other state boards and commissions related to public health have been established by Colorado statute, including the Air Quality Control Commission, Colorado HIV and AIDS Prevention Grant Program Advisory Committee, Minority Health Advisory Commission, State Emergency Medical Services and Trauma Advisory Council and the Water Quality Control Commission.

Colorado Department of Public Health and Environment

The Colorado Department of Public Health and Environment is one of 16 governor's cabinet-level departments, and serves to protect and improve the health of Colorado's people and the quality of its environment. The department pursues its mission through broad-based health and environmental protection programs, including disease prevention; control of disease outbreaks; health statistics and vital records; health facilities licensure and certification; health promotion; maternal, child, adolescent, and women's health; tuberculosis and refugee health; prevention and treatment of sexually transmitted diseases and HIV; nutrition services; suicide and injury prevention; emergency medical services; disease prevention and intervention services for children and youth; and laboratory and radiation services, and emergency preparedness. The department's environmental responsibilities span a full array of activities, including air and water quality protection and improvement; hazardous waste and solid waste management; pollution prevention, environmental leadership; and consumer protection.

Local Health Public Health

Colorado's 54 local public health agencies provide a host of public and environmental health services, depending on their community needs, which in turn supports CDPHE in meeting its responsibilities across the state. The locally delivered core public health services* include monitoring community health needs; communicable disease surveillance and services, such as immunizations and STI treatment; health and wellness promotion; public health inspections at restaurants, schools, and childcare facilities; vector control for diseases spread by insects and animals; and rapid local response to emergencies to potentially avoid or minimize the impact of costly public health disasters.

Public Health Partners

The public health system is much broader than local and state governmental public health. For public health to work effectively it must partner with many other federal, state and local governmental entities, community based organizations, private business, health care providers, schools, academic institutions and nationally affiliated public health related associations. The collective expertise and action from diverse sectors of the community yields the greatest potential for public health improvement.

Frameworks Guiding the 2013 Colorado Health and Environmental Assessment

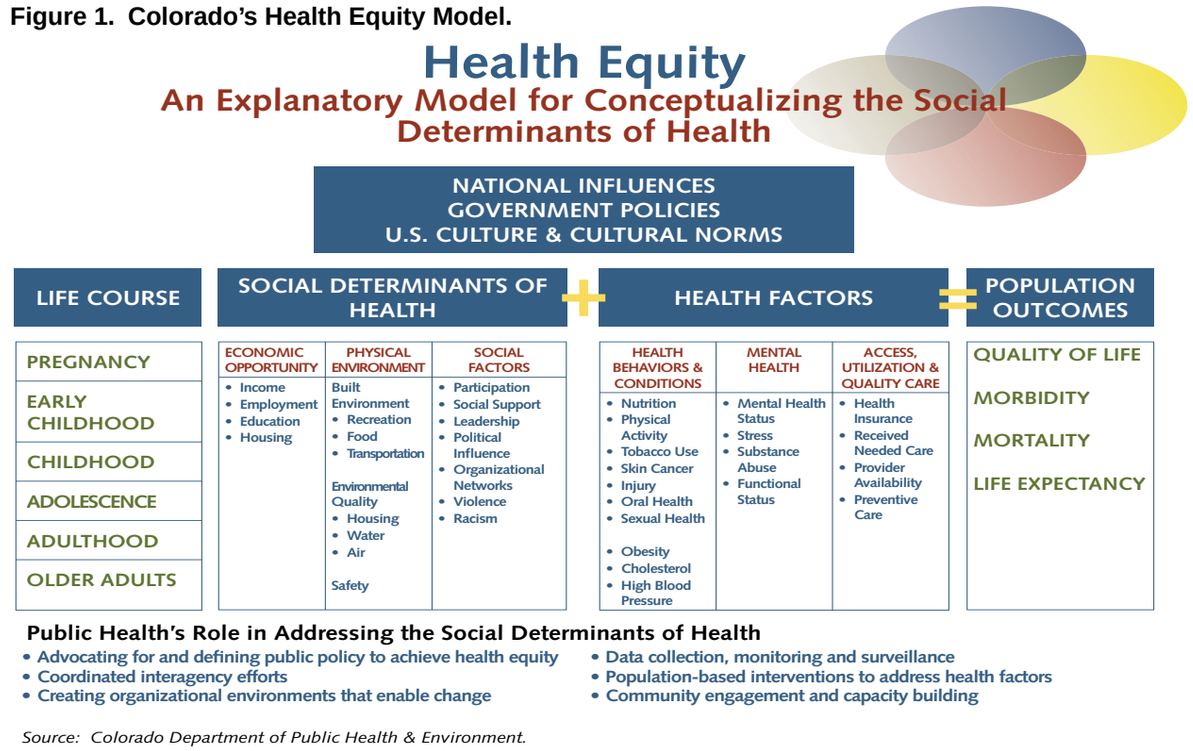
Development of the 2013 Colorado Health and Environmental Assessment followed Colorado's Health Assessment and Planning System, a structured process of best practices in assessment and planning designed to be lead by local and state public health agencies. The assessment incorporates two frameworks: Colorado's Health Equity Model and Healthy People 2020. Also informing this process were Colorado's Winnable Battles, local public health priorities and plans, and the Governor's 2013 report, *The State of Health: Colorado's Commitment to Become the Healthiest State*.

Colorado's Health Equity Model

The Health Equity Model (Figure 1) is a visual model for conceptualizing the broad, complex and interrelated determinants of health that was developed at the Colorado Department of Public Health and Environment and is being promoted by the Association of State and Territorial Health Officials.

The Model recognizes that social determinants vary at every stage of life and have profound impacts on population health. Life expectancy, quality of life and other health outcomes are influenced by a variety of factors including genetics; the physical, economic and social environment; health behaviors; and access to quality health care. Successful health promotion and disease management considers both the various facets of life that shape health and the inherent interplay between them.

Figure 1. Colorado's Health Equity Model.



Source: Colorado Department of Public Health & Environment.

Health equity is the "attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities."

Social determinants of health are "conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks."

Definitions come from Healthy People 2020

* Assessment, Planning and Communication; Vital Records and Statistics; Communicable Disease Prevention, Investigation and Control; Prevention and Population Health Promotion; Emergency Preparedness and Response; Environmental Health; and Administration and Governance in accordance with 6 CCR 1014-7.

The goal is to optimize the determinants of health so that everyone can live long, healthy and thriving lives. As a step toward achieving health equity, Colorado conducted this assessment to determine the current health status of its populations. By presenting data across all aspects of the health equity model, this assessment provides a baseline for establishing priorities and monitoring progress for population outcomes and the various determinants of health.

Healthy People 2020

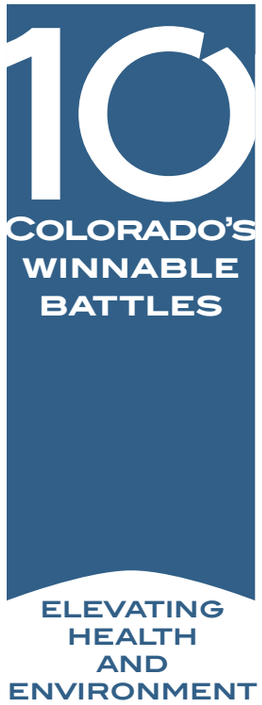
Healthy People, a program of the United States Department of Health & Human Services, has provided science-based, 10-year national objectives for improving the health of all Americans since 1979. The program establishes benchmarks and monitors progress over time in order to encourage collaborations across communities and sectors, empower individuals toward making informed health decisions, and measure the impact of prevention activities.

Healthy People 2020 objectives are achievable, measurable and applicable at the national, state and local levels. Throughout this assessment, relevant Healthy People 2020 objectives are presented as a basis of comparison in places where indicators allow. For more information about Healthy People 2020, visit www.healthypeople.gov.

Colorado Winnable Battles

Colorado's Winnable Battles were selected in 2011 as priorities for improving the public health and environment. They are: (**1**) clean air, (**2**) clean water, (**3**) infectious disease prevention, (**4**) injury prevention, (**5**) mental health and substance abuse, (**6**) obesity, (**7**) oral health, (**8**) safe food, (**9**) tobacco and (**10**) unintended pregnancies. Many of these priorities align with the Centers for Disease Control and Prevention's Winnable Battles or the Seven Priorities for the Environmental Protection Agency's Future, while others reflect Colorado's own unique priorities. To learn more, visit the Colorado Winnable Battle website.

Information relating to each of the Colorado Winnable Battle topic areas can be found in the following locations in this report:



Colorado Winnable Battle	Section(s)	Page
Clean Air	Physical Environment	27
Clean Water	Physical Environment	24
Infectious Disease Prevention	Population Health Outcomes	54
Injury Prevention	Population Health Outcomes	71
Mental Health & Substance Abuse	Mental Health	42
Obesity	Physical Environment	17
	Health Behaviors	37
	Population Health Outcomes	64
Oral Health	Access, Utilization & Quality of Health Care	53
Safe Food	Population Health Outcomes	54
Tobacco	Physical Environment	19
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Unintended Pregnancies	Health Behaviors	40

Local Public Health Assessments and Improvement Plans

Colorado's local public health agencies have completed community health assessments, prioritized issues in consideration of the state's Winnable Battles and many are now implementing their plans for public health improvement with their community partners. Local public health assessment, planning and community engagement efforts informed development of this statewide assessment. This coordinated state and local planning process enables enhanced management of resources, increased readiness for public health agency accreditation, and a more efficient approach to improving health outcomes.

The State of Health: Colorado's Commitment to Become the Healthiest State

The State of Health: Colorado's Commitment to Become the Healthiest State was released in May 2013. It is a plan to create a comprehensive and person-centered statewide system to address a broad range of health needs, deliver the best care at the best value and help Coloradans achieve the best health possible. The plan reflects input from stakeholders including health care providers, advocates, lawmakers, insurance companies and foundations.

Four focus areas were defined, the first—*Promote Prevention & Wellness: Preventing obesity, supporting improved mental health and better oral health, reducing substance abuse and encouraging wellness among state employees*—includes three Colorado Winnable Battles.

The other focus areas addressing health care reform are: *Expand Coverage, Access & Capacity; Improve Health System Integration & Quality; and Enhance Value & Strengthening Sustainability.*

The full report is available at www.colorado.gov/stateofhealth.

THIS SECTION OFFERS TIPS AND GUIDANCE FOR READING THIS ASSESSMENT AND INTERPRETING THE DATA PRESENTED.

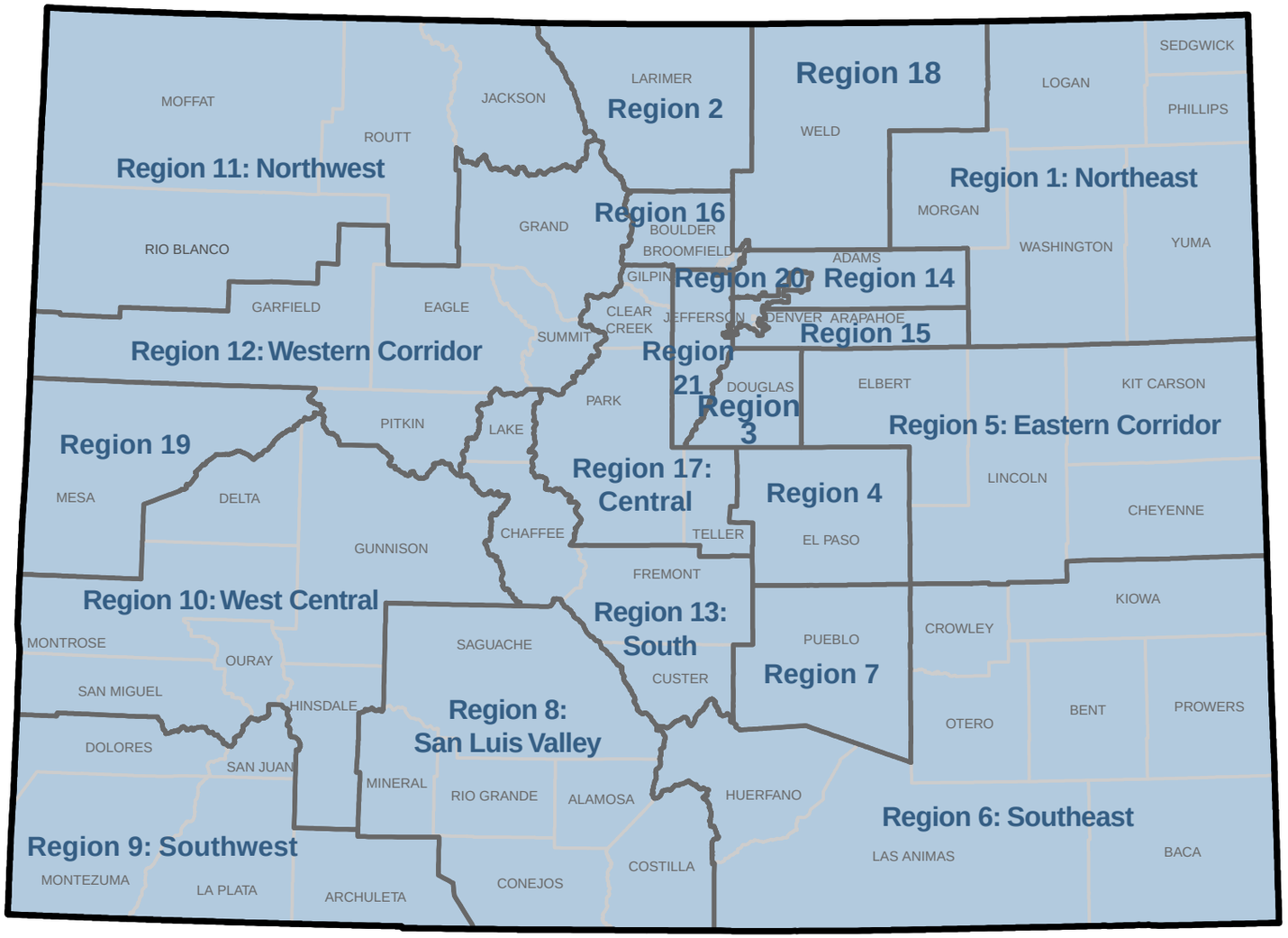
Organization of Indicators

In organizing the identified quantitative and qualitative information according to the Health Equity Framework, indicators were assigned to specific categories. Some indicators may be related to multiple categories found in this Framework. However, they were organized into the specific categories as just one of several possible ways to best display the information. Due to the broad nature of this assessment, it was not feasible to include all relevant data; substantially more data are available in each area than could be included in this assessment.

Health Statistics Regions

Throughout the report the data are often described by Health Statistics Region. Health Statistics Regions were constructed by the Health Statistics Section at the Colorado Department of Public Health & Environment to be used for regional analysis, particularly when county level data do not have sufficient sample size or numbers of events for reliable interpretation. These 21 regions were based on grouping counties with similar demographic characteristics and service patterns after receiving input from the local communities. The regions range from one to eight counties (Figure 2).

Figure 2. Health Statistics Regions.



Source: Colorado Department of Public Health and Environment , Center for Health and Environmental Information and Statistics, Health Statistics Section.

Referencing Years of Data

The report presents the most current and complete data available at the time of publication. Throughout the report, the data are referred to either with the corresponding data year or present tense and use of the word "current." When the year or years are not referenced within the body of text, they can be found in the references.

Population Estimates, Confidence Intervals and Statistical Significance

Population Estimates

When data is not available for an entire population, a sample, or subset of the population is used to estimate the value for the broader population. This is known as a population estimate. The accuracy of a population estimate depends upon a variety of factors, such as the size of the sample and the degree to which the sample is representative of the larger population.

Confidence Intervals

Confidence intervals are a statistical method used to describe the reliability of a population estimate. Calculating a confidence interval provides a better indication of what the "true" estimate might be. A 95 percent confidence interval indicates that the "true" estimate will be a value between the lower and upper limits of the confidence interval 95 percent of the time. A narrow confidence interval means that one can be fairly confident that the true population value is relatively close to the population estimate. A wide confidence interval means that there is more variability in what the true population value is likely to be.

For the purposes of this report confidence intervals have been included where they were available and appropriate. Most data were calculated with 95 percent confidence intervals.

Statistical Significance

The use of the word "significant" in this report has been used intentionally to describe data only when there are statistically significant differences. These statistically significant differences are most often assessed by whether the confidence intervals between two measures overlap (not significant, or insignificant) or do not overlap (significant). A data point is described as insignificant, when sample data do not provide enough information about the true population values to conclude with confidence that the true population values are not the same. It is appropriate to interpret the use of this word as such throughout the report. It is important to note that statistical significance is not indicative of the size of the difference; both small and large differences can be statistically significant.

Race/Ethnicity Categories

Data are frequently displayed by race and ethnicity categories throughout the report. There are numerous ways of categorizing this information and due to the large number of data sources, the race/ethnicity categories are not displayed the same for all data. Because of the variance of methodologies for categorizing race/ethnicity the data are defaulted to the groupings determined by or most often used by the primary data source.

Geography

NAMED FOR ITS RED SOIL, COLORADO IS A COLORFUL GEOGRAPHICAL LANDSCAPE OF MOUNTAINS, PLAINS, VALLEYS, CANYONS, LAKES, HOT SPRINGS, FARMLAND AND SAND DUNES. COLORADO RANKS EIGHTH IN THE NATION IN SIZE AND STRADDLES THE CONTINENTAL DIVIDE, WHICH SEPARATES RIVERS FLOWING TO THE PACIFIC OCEAN AND THE GULF OF MEXICO. THE AVERAGE ELEVATION OF COLORADO IS 6,800 FEET, MAKING IT ONE OF THE NATION'S HIGHEST STATES. There are 54 mountain peaks in Colorado over 14,000 feet high and more than a thousand peaks over 10,000 feet high. The San Juan Mountains in the southern part of the state have 27 mountain peaks over 14,000 feet, making this a challenging and rugged area for both living and travel. Colorado is geographically referred to as having four main descriptive zones: (1) the Western Slope, which extends the length of the state to the west of the Continental Divide; (2) the Central Mountains; (3) the Front Range, which extends along the foothills on the east side of the mountains and; (4) the Eastern Plains, which extends from the Front Range out to the Kansas border.

With its national parks, world-class resorts and year-around sunshine, Colorado has much to offer to its more than 5 million residents and nearly 60 million yearly visitors.[1,2] The state covers nearly 104,000 square miles of land, ranging in elevation from 3,315 to 14,433 feet. Paralleling the diversity of the state's landscape, the populations living across the state's 64 counties and two tribal nations, represent a wide variety of cultures, industries, political beliefs and health needs.

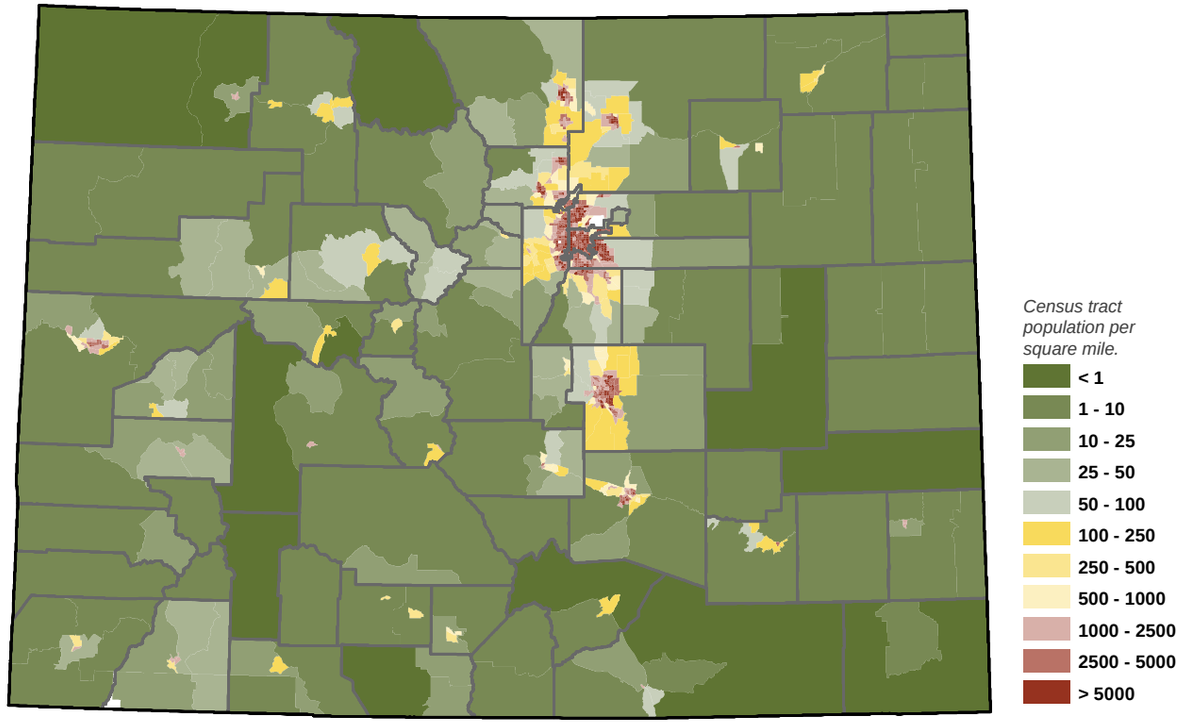
Weather

The deep canyons and numerous mesas throughout the mountain ranges across the state continue to isolate communities. Unexpected snow storms can occur any time of the year in the Central Mountains and are often unpredictable, which continue to complicate progress in advancing technology for both air and cable communication in these areas. The Colorado temperatures are equally as diverse; summer temperatures may reach as high as 102°F and winter temperatures as low as -20°F. Flash floods and high water can occur any time between the months of May and August in canyons and along river beds, impacting communities each spring, particularly when mountain run-off and spring storms converge. The Eastern Plains and the Denver Metro area also are prone to tornadoes that have caused destruction as early as March and as late at July. High winds coming off the mountains can be a concern for wildfires that may happen in the Central Mountains, the Foothills or on the Eastern Plains, as well as contribute to blizzard conditions and severe rain storms.

Colorado's Population and Diversity

As of 2011, there were just over 5.1 million people living in Colorado. Approximately 85% of the Colorado population lives in areas defined as urban, primarily in a narrow belt along the eastern side of the Rocky Mountains. This 200-mile stretch of the Front Range includes Fort Collins, Denver, Colorado Springs, and Pueblo. While most of the population resides in urban areas, the largest portion of Colorado's landscape is comprised of rural and frontier communities (Figure 3). Due to the large recreational draw of tourists to Colorado, there also are several resort communities. These communities are located mostly on the Western Slope and have a small permanent resident population but experience seasonal influxes of both tourists and temporary resident workers.

Figure 3. Colorado population density, 2010.



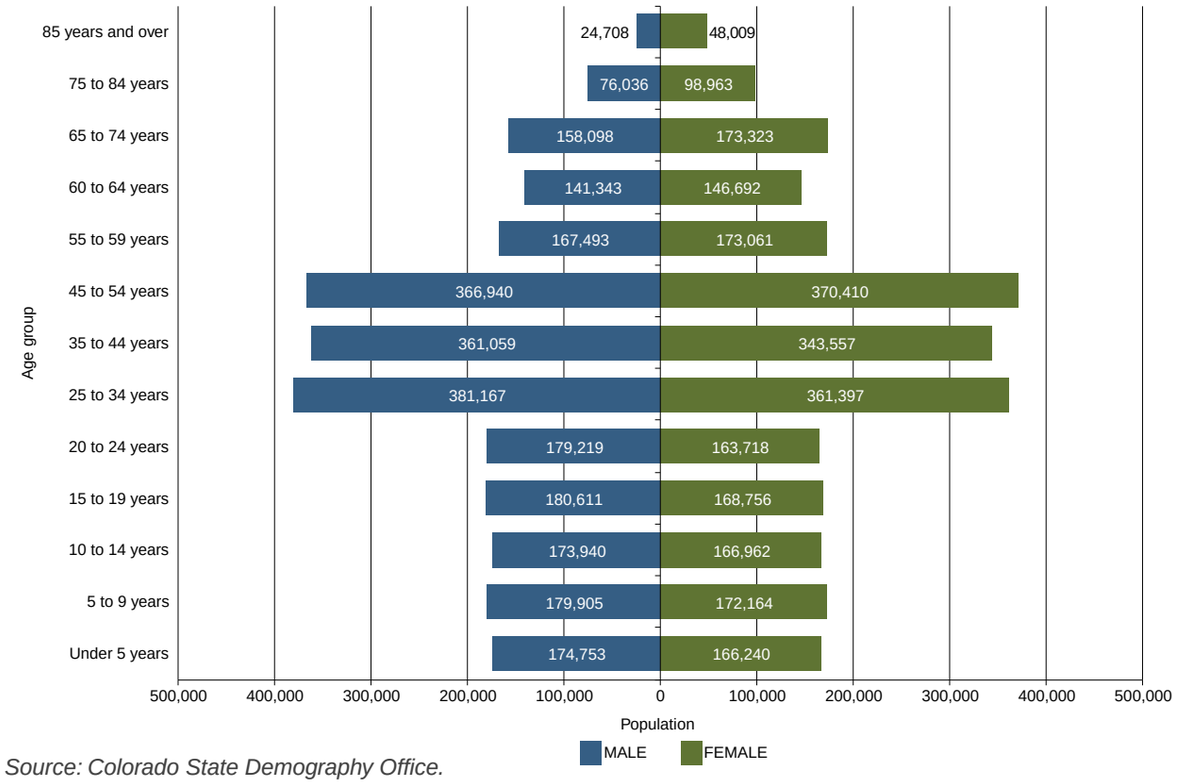
Source: U.S Census Bureau.

Sources

1. Longwoods International. Colorado sees record 57.9 million visitors spend $10.76 billion in '11. Retrieved from website: http://www.longwoods-intl.com/2012/06/colorado-sees-record-57-9-million-visitors-spend-10-76-billion-in-11/
2. United States Department of Commerce. Guide to 2010 Census State and Local Geography – Colorado. Retrieved from website: http://www.census.gov/geo/reference/guidestloc/st08_co.html

The three largest age groups in Colorado are between 25 and 54. While the population is nearly evenly split between males and females, males outnumber females through age 44 years and females outnumber males starting at age 45 years (Figure 4).

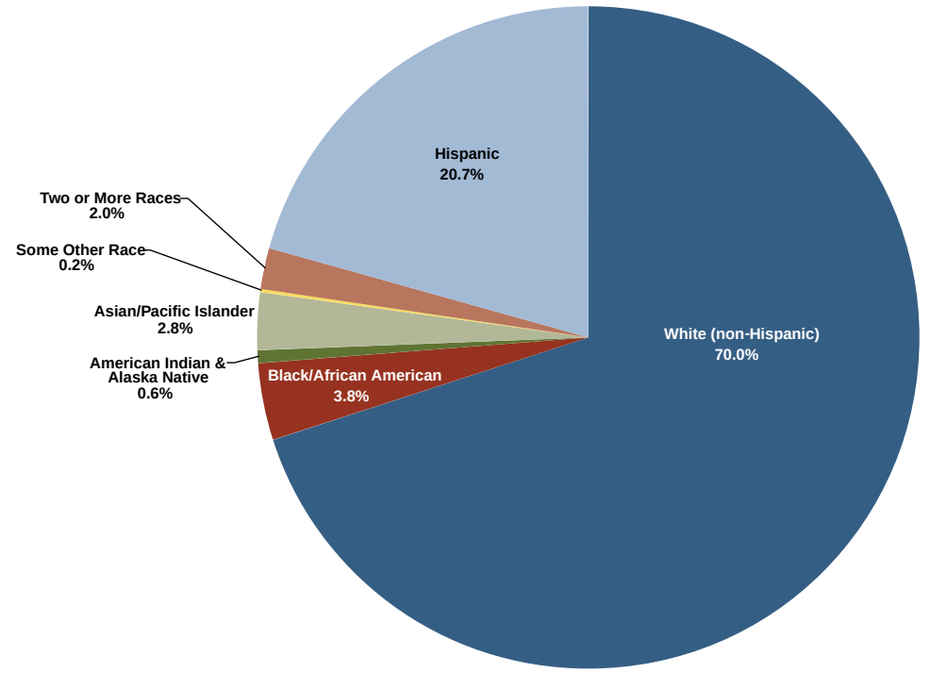
Figure 4. Colorado population by age group and gender, 2011.



Source: Colorado State Demography Office.

The majority (70.0%) of Colorado's current population is non-Hispanic White, while 20.7% is Hispanic, 3.8% is Black and 2.8% is Asian American or Pacific Islander (Figure 5). American Indian/Native Alaskans make up less than one percent of the total population, but are a unique characteristic to Colorado. Colorado has two federally-recognized tribal nations in the southwest corner of the state that operate as their own jurisdictions: The Ute Mountain Ute and the Southern Ute.[1] The two tribes have a total of 3,468 enrolled members residing both on and off the reservations.[2] A total of 56,010 American Indian/Native Alaskans live throughout Colorado, 46,395 in urban areas and 9,615 in rural parts of the state.[3]

Figure 5. Percent of Colorado population by race/ethnicity, 2010.



Source: Colorado State Demography Office.

Population Trends

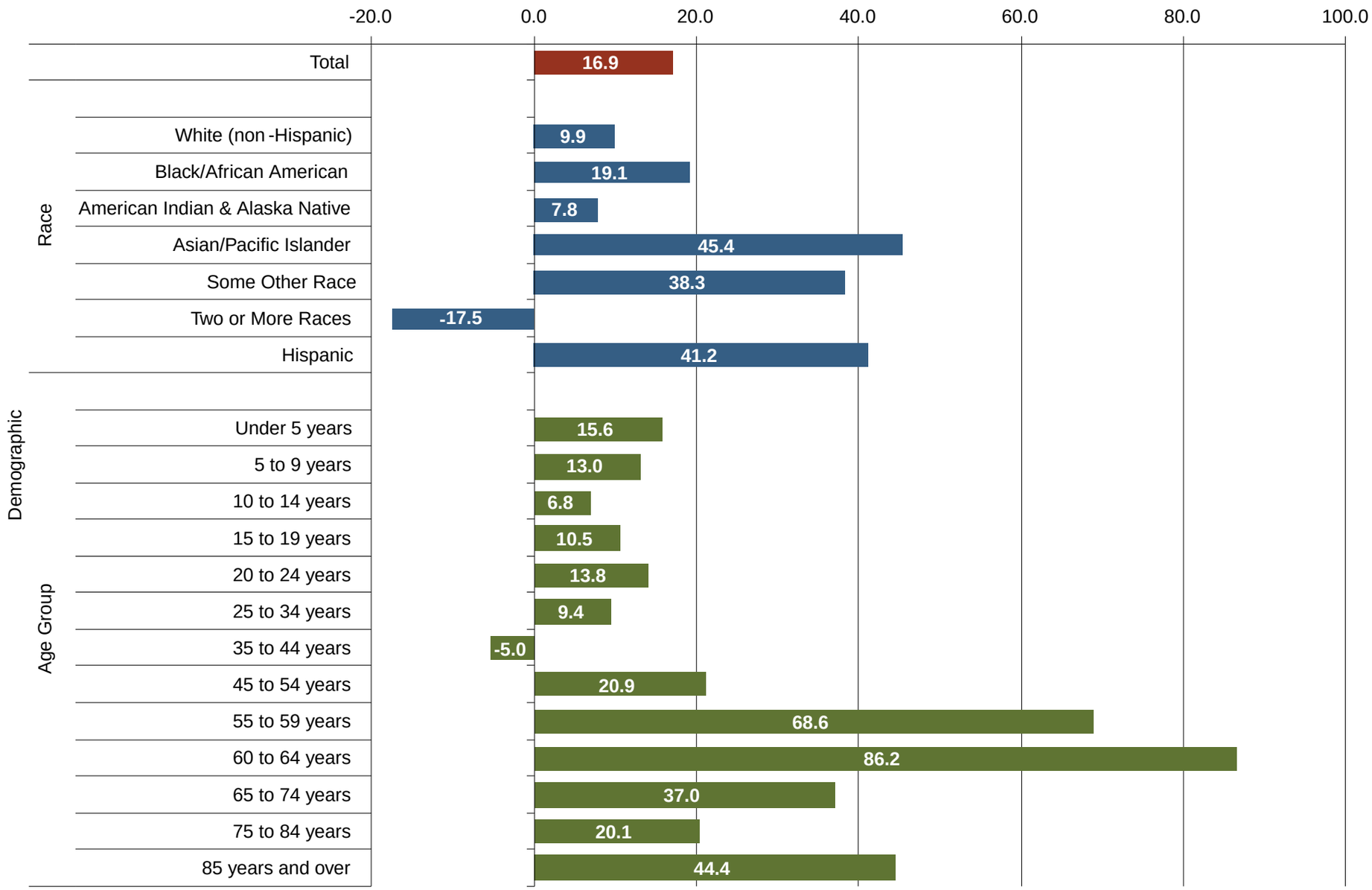
Colorado is one of the fastest growing states in the nation and forecasts project that in 2025, Colorado will have a population of 6,413,554.[4] This population growth is due to births, increases in life expectancy, international immigrants and incoming residents from other states.

Sources

1. United States Department of Commerce, United States Census Bureau. American Community Survey. Washington, D.C.
2. Colorado Commission of Indian Affairs.
3. United States Census Bureau, 2010 Census.
4. Colorado Department of Local Affairs, State Demography Office. 2011 Population Data. Accessed from http://www.colorado.gov/cs/Satellite?c=Page&childpagename=DOLA-Main%2FCBONLayout&cid=1251593300013&pagename=CBONWrapper

From 2000 to 2010, the Colorado population increased 16.9%. Colorado's population is increasingly older and the greatest population growth was in the 55- to 64-year-old age range. While the majority of Colorado's population is non-Hispanic white, the populations growing most quickly are Asian/Pacific Islander and Hispanic (Figure 6).

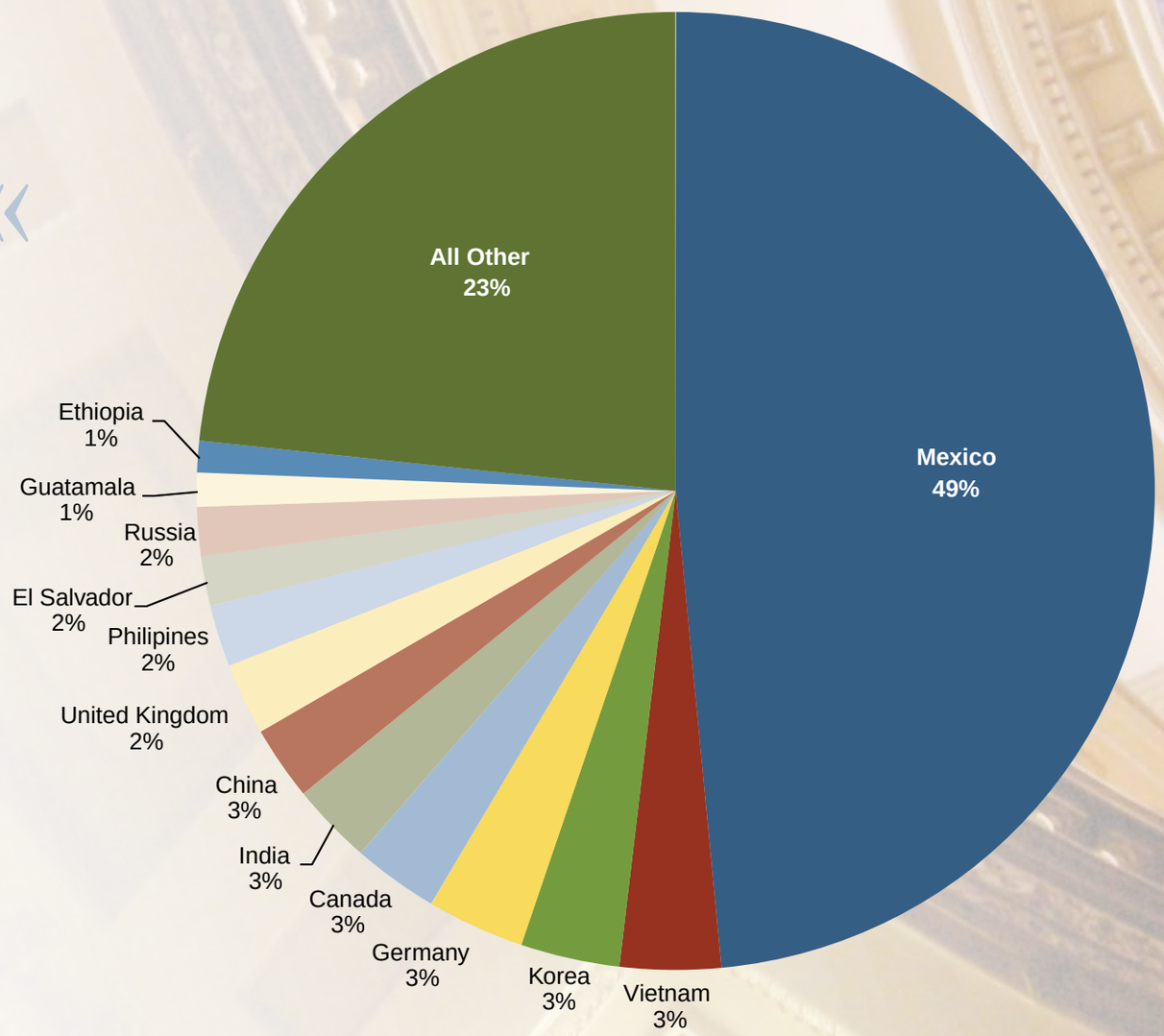
Figure 6. Percent of absolute population change from 2000 to 2010 in Colorado overall and by race/ethnicity and age.



Source: Colorado State Demography Office.

Colorado, similar to the nation as a whole, has experienced growth in its immigrant communities and nearly 10% of Coloradans were born in a foreign county. While this foreign-born population comes from all over the world, almost half come from Mexico (Figure 7). A third (34.1%) of foreign-born Coloradans are naturalized United States citizens.[1] Nearly 800,000 (16.7% of) Coloradans age five years or over speak a language other than English at home. While the majority also speak English, 38.0% speak English less than "very well."[1]

Figure 7. Percent of total foreign-born Colorado population by birth country, 2007-2011 combined.



Source: U.S. Census Bureau American Community Survey.

Government Structure

Colorado is a home rule or local rule state, where local governments are free to pass laws and ordinances within the bounds of state and federal constitutions. The state government provides support to local government in resources and technical knowledge. Regulatory enforcement occurs at both the local and state level. Public health and environment regulatory authority is predominantly at the state level.

Colorado's National Context

Reports such as United Health Foundation's *America's Health Rankings* consider the determinants of health† and health outcomes‡ to make broad comparisons across the United States. This report ranked Colorado 11th overall in 2012, a slight improvement from its rank of 14th in 2011. Table 1 (next page) highlights additional strengths and challenges in Colorado as compared to the rest of the nation.

Sources

† Measures for determinants of health: behaviors, community and environment, policies and clinical care.

‡ Measures for health outcomes: prevalence of diabetes, number of poor mental or physical health days in last 30 days, health disparity, infant mortality rate, cardiovascular death rate, cancer death rate and premature death.

1. United States Department of Commerce, United States Census Bureau. 2011 American Community Survey. Washington, D.C.

Table 1. Colorado's strengths and challenges in the national context.

Strengths	Challenges
Lowest obesity rate and lowest levels of physical inactivity[1]	2nd highest rate of nonmedical use of prescription pain relievers[4]
Lowest prevalence of diabetes, heart disease and stroke[1]	One of the lowest rates of childhood immunization coverage (ranks 45th)[1]
Ranks 2nd for overall well-being[2]	One of the states with the largest disparities between counties in overall mortality (ranks 44th)[1]
4th highest breastfeeding rate in the nation[3]	5th highest suicide rate[1]
5th lowest air pollution levels[1]	Ranks 37th for prevalence of binge drinking[1]
Ranks 6th for preventable hospitalizations[1]	Significant racial and ethnic disparities in infant mortality and life expectancy

Sources:

1. *United Health Foundation. America's Health Rankings. Accessed from http://www.americashealthrankings.org/*
2. *Gallup Healthways Well-Being Index, 2012,Gallup, Inc. and Healthways, Inc. Available at: http://www.well-beingindex.com/files/2013WBIrankings/CO_2012StateReport.pdf*
3. *Centers for Disease Control and Prevention National Immunization Survey (NIS), Provisional Data, 2010 births.*
4. *SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2010 (Revised March 2012) and 2011.*

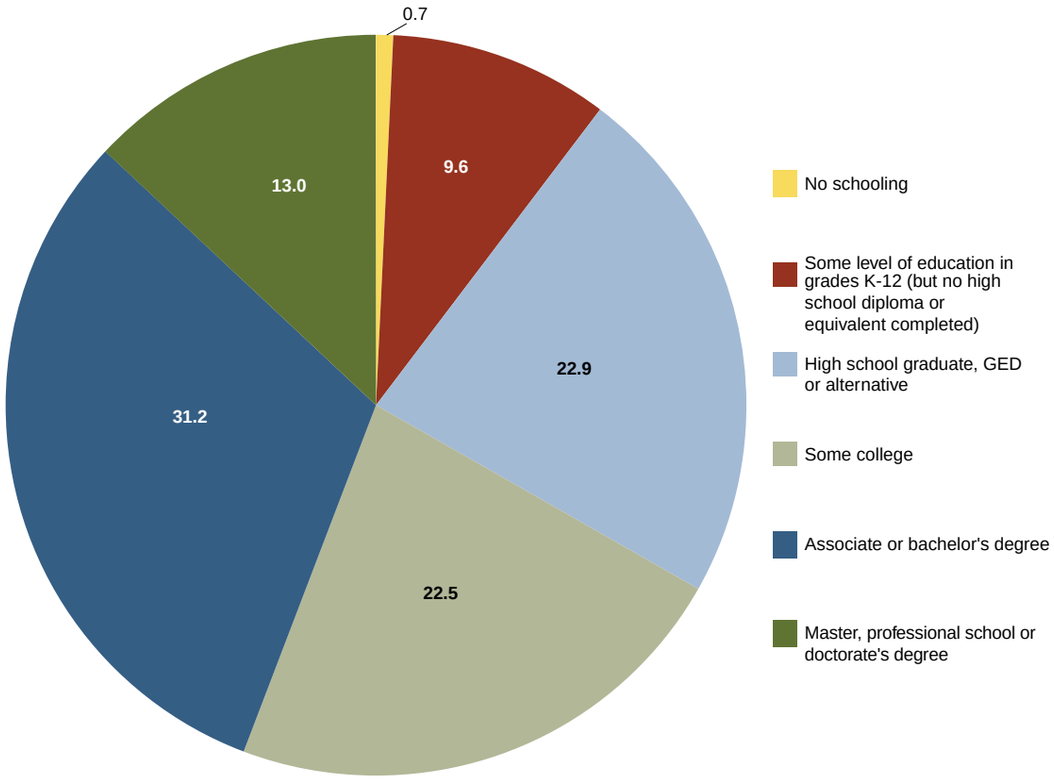
ECONOMIC OPPORTUNITY SUCH AS A GOOD EDUCATION, ADEQUATE EMPLOYMENT AND ACCESS TO AFFORDABLE, SAFE AND STABLE HOUSING IS FOUNDATIONAL FOR SHORT- AND LONG-TERM WELL-BEING. THESE BASIC FACTORS ENABLE PEOPLE TO MAKE HEALTHY DECISIONS AND ULTIMATELY IMPACT THE ABILITY TO PAY FOR ITEMS SUCH AS FRESH FOOD AND HEALTH CARE.

Education

Education is a staple of a healthy, thriving community. It leads to greater employment opportunity, increased income, a more skilled workforce, less crime and less reliance on public services. It also is linked to reduced illness, increased longevity and improved health and educational opportunity for future generations.[1, 2, 3, 4]

Two-thirds (66.7%) of Coloradan adults 25 years or older have at least some college education and 44% have attained a postsecondary† degree. One in 10 Coloradans, however, do not have a high school diploma or the equivalent (Figure 8).

Figure 8. Educational attainment among Coloradans age 25 years and older, 2007-2011 combined.



Source: U.S. Census Bureau American Community Survey.

While college completion rates are an important measure of educational opportunity, being read to regularly at an early age and receipt of quality early education can improve school readiness and long-term success. In Colorado, 63.7% of children age three to five years are enrolled in nursery school or kindergarten, a value that has remained essentially consistent since 1995.[5] Nearly 6 in 10 (57.6% of) children age one to five years are read to daily.[6]

Among Colorado public school students in grades 3-10, large proportions do not meet grade level proficiency standards in reading or math: 30.7% for reading and 44.2% for math. Economically disadvantaged students, English language learners and children of migrant workers have lower reading and math proficiency compared to other students.[7] Racial/ethnic disparities in reading and math proficiency are large, with as much as a two-fold difference between groups in some cases (Figure 9).

Literacy is a Critical Foundation

"Literacy is arguably the most important skill students acquire in preschool through twelfth grade education because it makes all other forms of higher-order learning, critical thinking, and communication possible." - Colorado Academic Standards in Reading, Writing, and Communicating[8]

For more information about the steps Colorado is taking to improve the state's literacy rates, see The Colorado Department of Education Strategic Literacy Plan.

Sources

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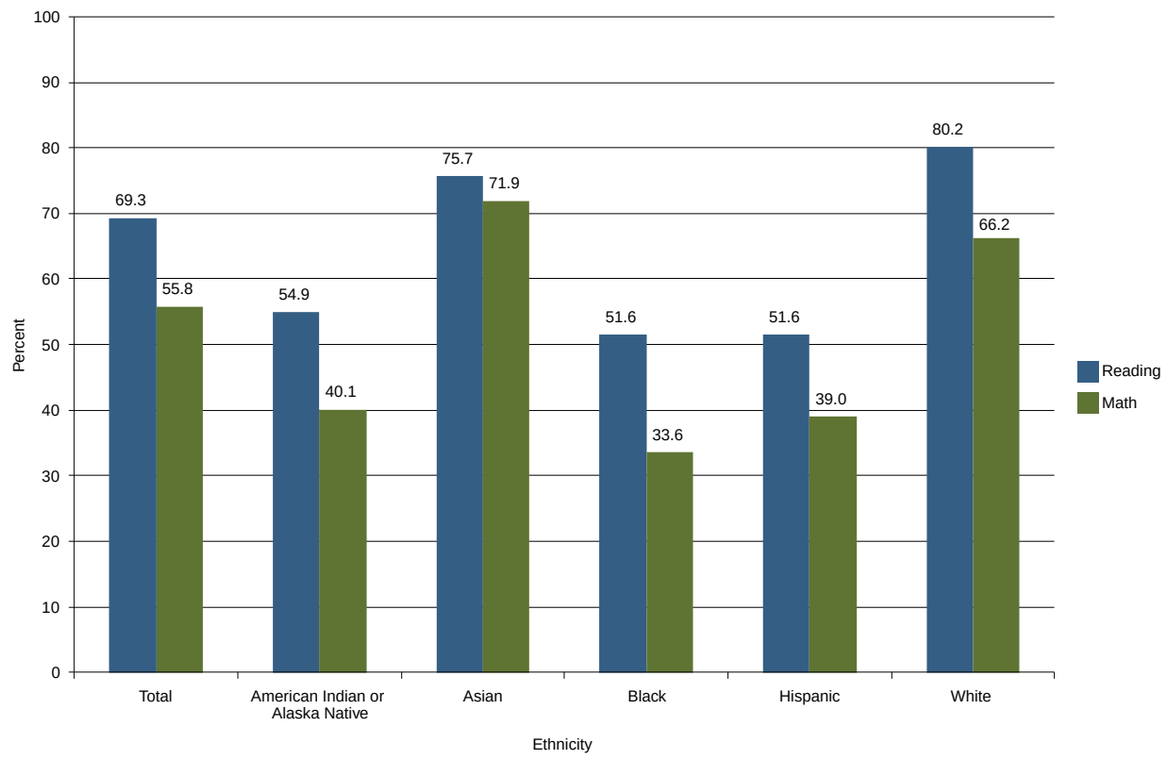
Figure 9. Reading and math proficiency among Colorado public school students in grades 3-10 by race/ethnicity, 2012.

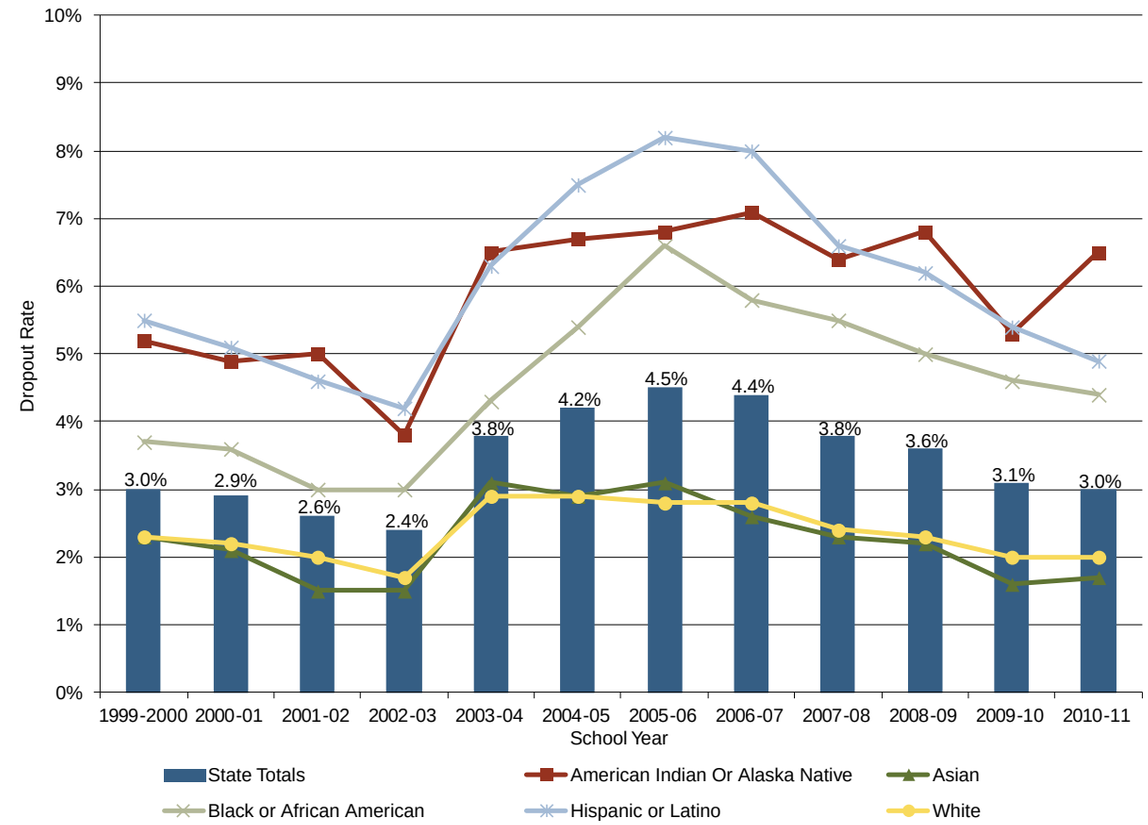


Source: Colorado Department of Education.

The types of racial/ethnic disparities in reading and math proficiency for grades three through ten also are reflected in high school dropout and completion rates. Overall high school dropout rates have declined steadily since the 2005-2006 school year. However, the dropout rates for American Indian/Alaska Native, Hispanic, and Black students have remained two to three times higher than those for white and Asian (Figure 10).

To learn about the Colorado Department of Education's programs aimed at closing achievement gaps, see *Supporting success for all students: Colorado's Education Improvement Efforts "101."*

Figure 10. Colorado high school dropout rates overall and by school year and race/ethnicity, 2000-2011.



Source: Colorado Department of Education.
Percentages shown are state totals.

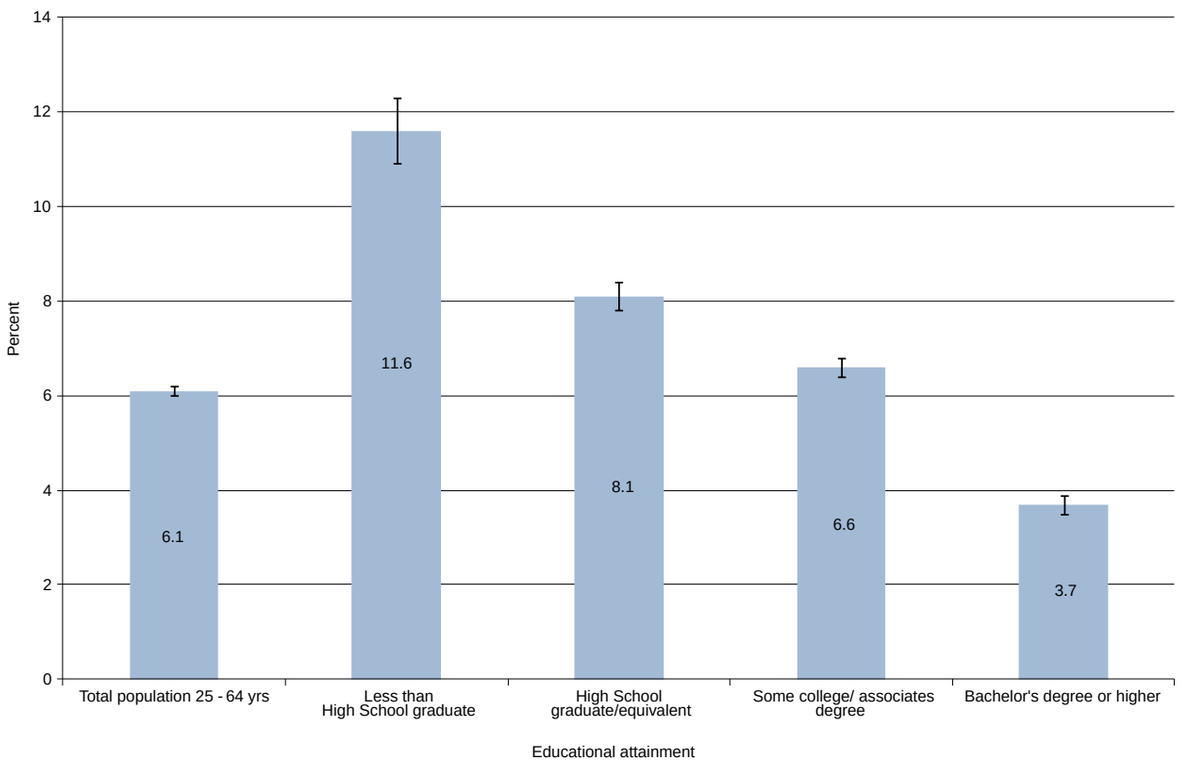
Looking Beyond High School Graduation

While high school completion is an important indicator of long-term success, there can be great variability in the level of college and career readiness among high school graduates. According to Colorado Legacy Foundation, students who master Advanced Placement (AP) coursework are three times more likely to graduate from college than those who do not take AP classes. Additionally, students enrolled in appropriately challenging coursework are more engaged in school and less likely to drop out. However, the majority of Hispanic/Latino and Black/African American students who display AP potential do not enroll in AP courses. The Colorado Legacy Foundation is working to increase AP enrollment and the number of students who pass AP exams at demographically diverse schools throughout Colorado. Similar programs have successfully increased the number and diversity of students succeeding in AP coursework. To learn more, visit http://colegacy.org/initiatives/colorado-legacy-schools/.

Employment

Employment status is closely linked to health and wellness. Not only do most Americans spend a large proportion of their time in the workplace, but employment can provide income and benefits that help enable a healthy life.[1] Job loss and unemployment are associated with stress and other adverse health effects.[2, 3] Unemployment decreases significantly as educational attainment increases (Figure 11). The unemployment rate among people who did not graduate high school is nearly three times that of those who attained a bachelor's degree or higher (11.6% versus 3.7%).

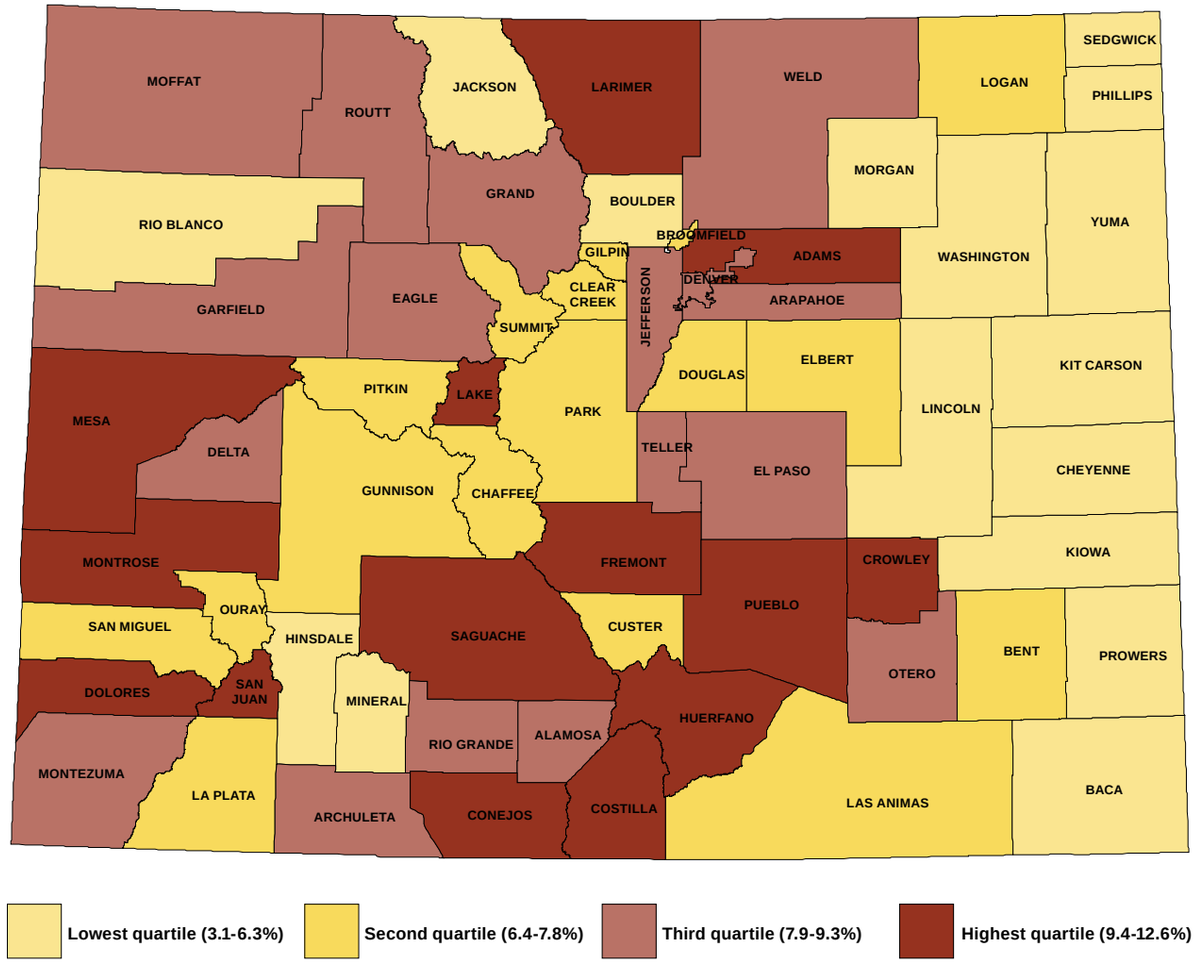
Figure 11. Unemployment rates among Coloradans age 25 to 64 years by educational attainment, 2007-2011 combined.



Error bars represent the 90% confidence interval.
Source: U.S. Census Bureau American Community Survey.
All differences in unemployment between educational level groupings are statistically significant.

Unemployment rates in Colorado have recently been declining. In 2011, 8.3% of Coloradans were unemployed and this rate ranged from 3.1% in Cheyenne County to 12.6% in Costilla County (Figure 12).

Figure 12. Colorado unemployment rates by county, 2011.



Source: U.S. Bureau of Labor Statistics.

Sources

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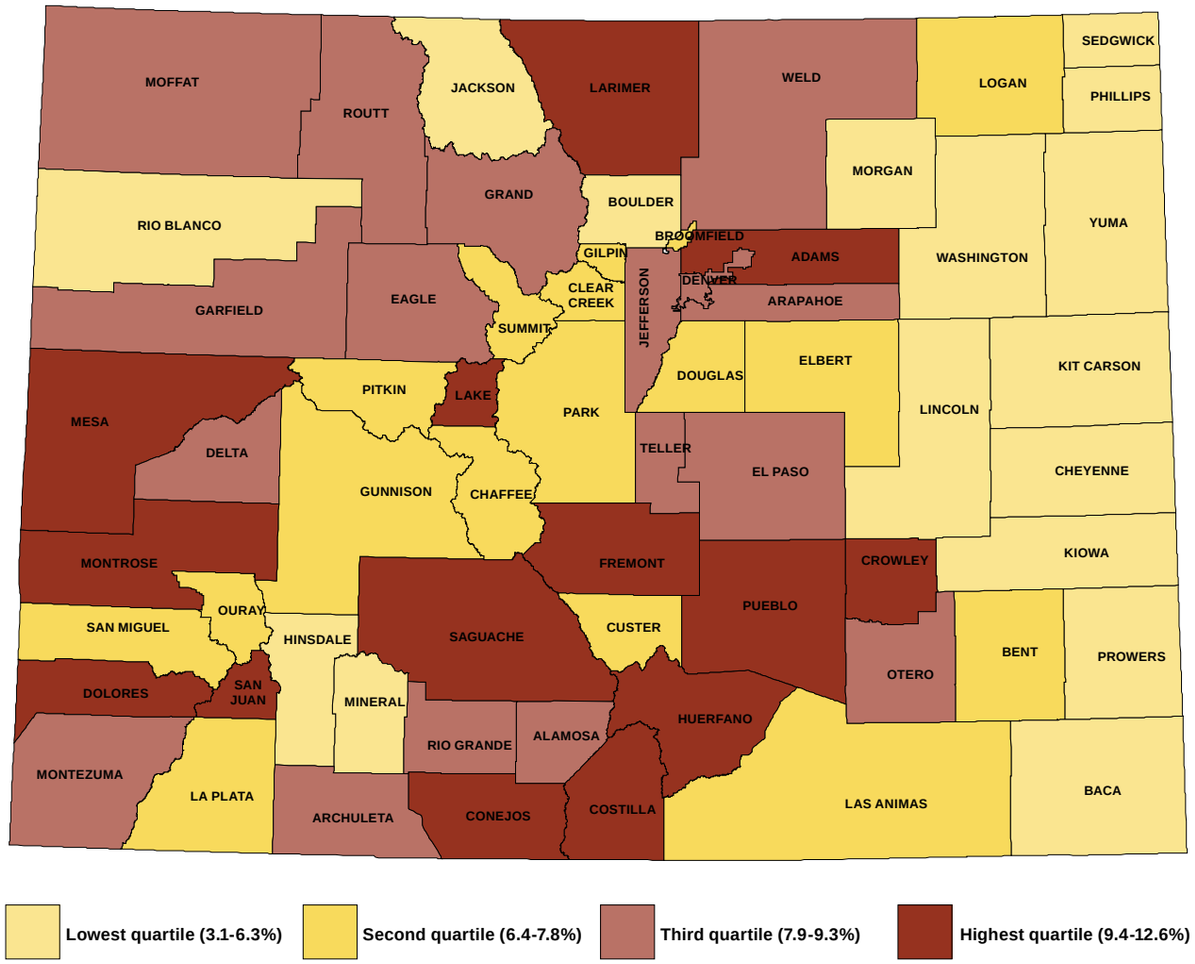
Income

Income, closely linked to both education and employment, also is associated with health and longevity.[1] Colorado has recently experienced economic challenges similar to those seen across the United States such as significant increases in poverty, especially for the child population. The percent of people living below the poverty level increased from 12.6% in 2009 to 13.4% in 2011 for all Coloradans and from 14.4% in 2008 to 17.7% in 2011 for children under 18.[2] Three in 10 (29.0% of) Coloradans live at or below 200% of the poverty level, the typical eligibility cut-off for state and federal assistance programs, and this varies across the state (Figure 13).[3]

Figure 13. Percent of Coloradans living at or below 200% of federal poverty level by county, 2007-2011 combined.



Source: U.S. Census Bureau American Community Survey.
200% of the poverty level was $46,042 for a family of four in 2011.

What is the Poverty Level?

The poverty level threshold was a yearly income of $23,021 for a family of four in 2011.[4] This calculation is historically based on food costs and does not account for place of residence or the rising costs of transportation, health care and child care.[5] According to some estimates, families need approximately twice the official poverty level to meet their basic needs.[6]

Accompanying the recent increase in the percent of Coloradans living in poverty was a decrease in median household income. The 2011 median yearly household income in Colorado was $55,530. Although this was significantly higher than the national median of $50,502, it decreased from the 2008 Colorado value of $57,184.[2]

Sources

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5. U.S. Department of Health and Human Services. Further Resources on Poverty Measurement, Poverty Lines, and Their History.
6. National Center for Children in Poverty. Measuring Poverty in the United States Fact Sheet. 2008. Retrieved from website: http://www.nccp.org/publications/pdf/text_825.pdf

Families living in poverty have an increased risk of food insecurity, which is the inability to consistently access the food needed for all household members.[1] Nearly 4 in 10 (39.7%) of Colorado parents report they often or sometimes rely on only a few kinds of low-cost foods to feed their children because they did not have money to buy food.[2] Additionally, 8.4% of pregnant women report eating less than they want due to lack of money for food.[3] Nutrition assistance programs such as free and reduced school lunch, Women, Infants and Children (WIC) and the Supplemental Nutrition Assistance Program (SNAP) help protect against food insecurity. However, in 2010 only 69% of the eligible population in Colorado participated in SNAP, which is one of the 10 lowest state participation rates.[4]

Schools are working to combat increasing household food insecurity and make sure students are fed and ready to learn. In 2011, 40.9% of public school students in grades kindergarten through 12 were eligible for free and reduced school lunch.[5] *The Breakfast After the Bell Nutrition Program*, a law passed in 2013, helps combat food insecurity by requiring more than 360 Colorado schools to offer breakfast after the first bell to all students, giving over 80,000 additional children access to a daily breakfast.

Housing

Safe, stable and affordable housing impacts health by providing a consistent community, reducing exposure to hazards such as communicable disease and toxins, reducing the stress of frequent moves and freeing up resources to pay for food and health care.[6] One-third (33.2%) of housing units are rented in Colorado.[7] Of all renter-occupied housing units in Colorado, 311,128 or 48.2% pay at least 30% of their household income to rent.[7] The impact of higher housing costs contributes to the economic factors described in this section and can impact the health outcomes described elsewhere in the report.

Connecting Families to Food Resources

In May 2013, Hunger Free Colorado launched Your Neighborhood Food Truck to connect families to resources such as the Supplemental Nutrition Assistance Program (SNAP), local food pantries, meal sites and other community options that offer access to affordable, healthy food. This mobile service helps individuals and families apply for SNAP and access other community food resources. For more information, visit http://www.hungerfreecolorado.org/your-neighborhood-food-truck.html.

Cooking Matters **works to reduce hunger and poor nutrition among children by empowering low-income families to make healthy, affordable meals. Since 1994, they have taught over 1,360 courses in nutrition, food preparation, budgeting and food shopping and have reached more than 17,200 families across Colorado. For more information, visit http://cookingmatters.org/cooking-matters-colorado/.**

A Place at the Table, **a film developed by digital media company TakePart, examines food insecurity in America and highlights Collbran, Colorado.**

Sources

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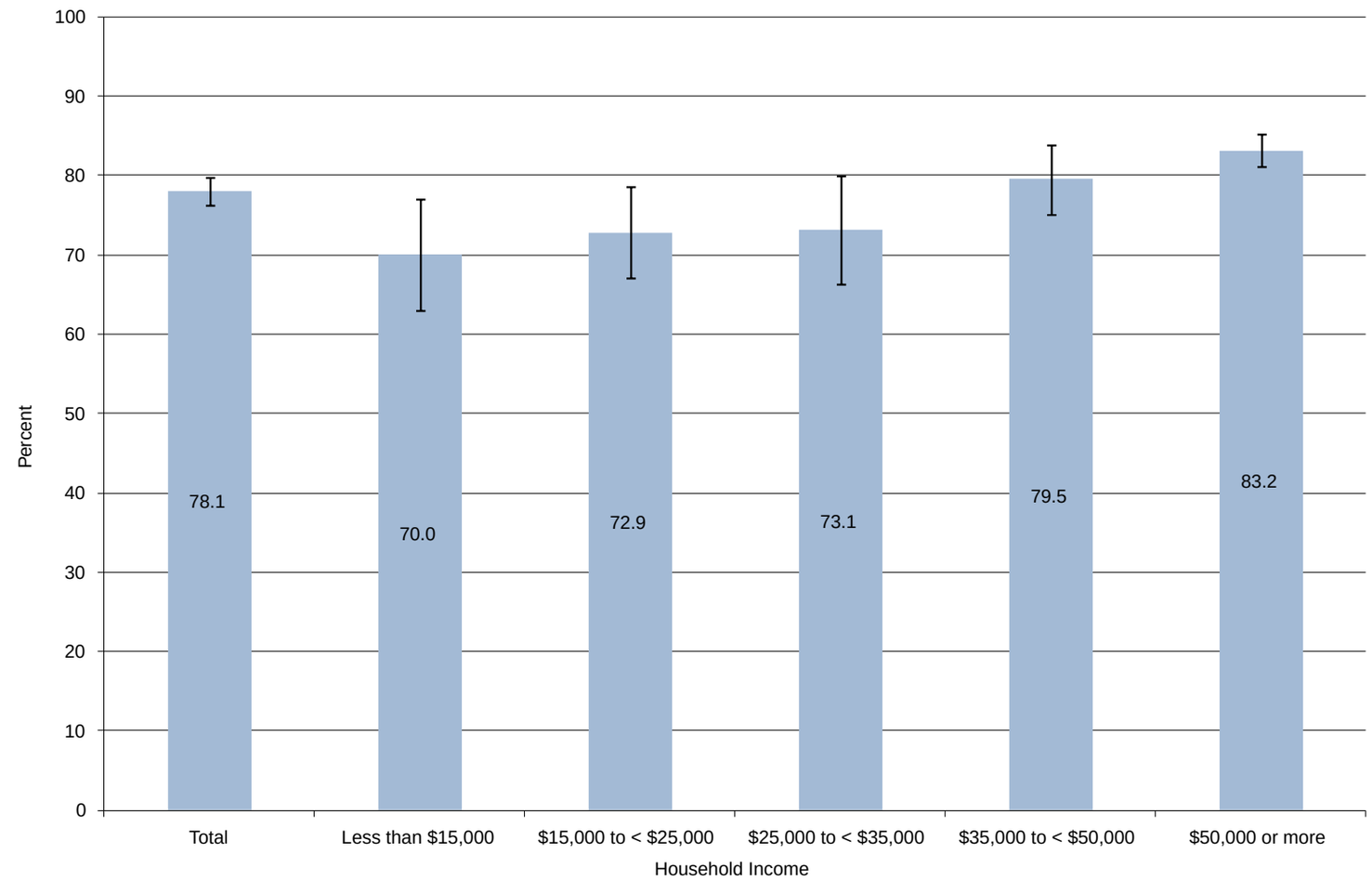
ENVIRONMENTAL SURROUNDINGS PLAY A KEY ROLE IN SHAPING THE DAILY LIVES OF INDIVIDUALS AND EVERYONE DESERVES HEALTHY PLACES TO LIVE, LEARN, WORK AND PLAY. THE PHYSICAL ENVIRONMENT INFLUENCES THE EASE AT WHICH PEOPLE CAN ACCESS AND ENGAGE IN COMPONENTS OF A HEALTHY LIFESTYLE AND THE PRESENCE OF ENVIRONMENTAL EXPOSURES. IN FACT, IT IS SUCH AN IMPORTANT DETERMINANT OF HEALTH THAT LIFE EXPECTANCY CAN VARY SUBSTANTIALLY BETWEEN ZIP CODES THAT ARE SEPARATED BY ONLY A FEW MILES.[1] Additionally, the physical environment is not independent of social determinants of health, such as economic opportunity and social factors. People with higher incomes typically have more mobility and discretion over where they live, which in turn impacts the educational and employment opportunities available. Additionally, people tend to live places in which they are culturally comfortable, thus the physical environment is often associated with social factors such as social support, safety and organizational networks.

Built Environment

The built environment is the part of the physical environment constructed by humans and includes transportation systems, urban design and land use patterns. Built environments can influence people's ability to access recreation, healthy food and necessary transportation, directly impacting their health and well-being. It also can impact environmental quality depending upon the use of safe and green building materials.

The quality of the built environment varies by neighborhood, and not all Coloradans have access to components of the built environment known to improve health. For instance, access to neighborhood exercise facilities increases with household income. Significantly more adults with yearly household incomes greater than $50,000 had access to exercise facilities in their neighborhood than adults with yearly household incomes less than $35,000 (Figure 14).

Figure 14. Percent of Colorado adults who reported having access to public exercise facilities in thier neighborhood by income, 2011.



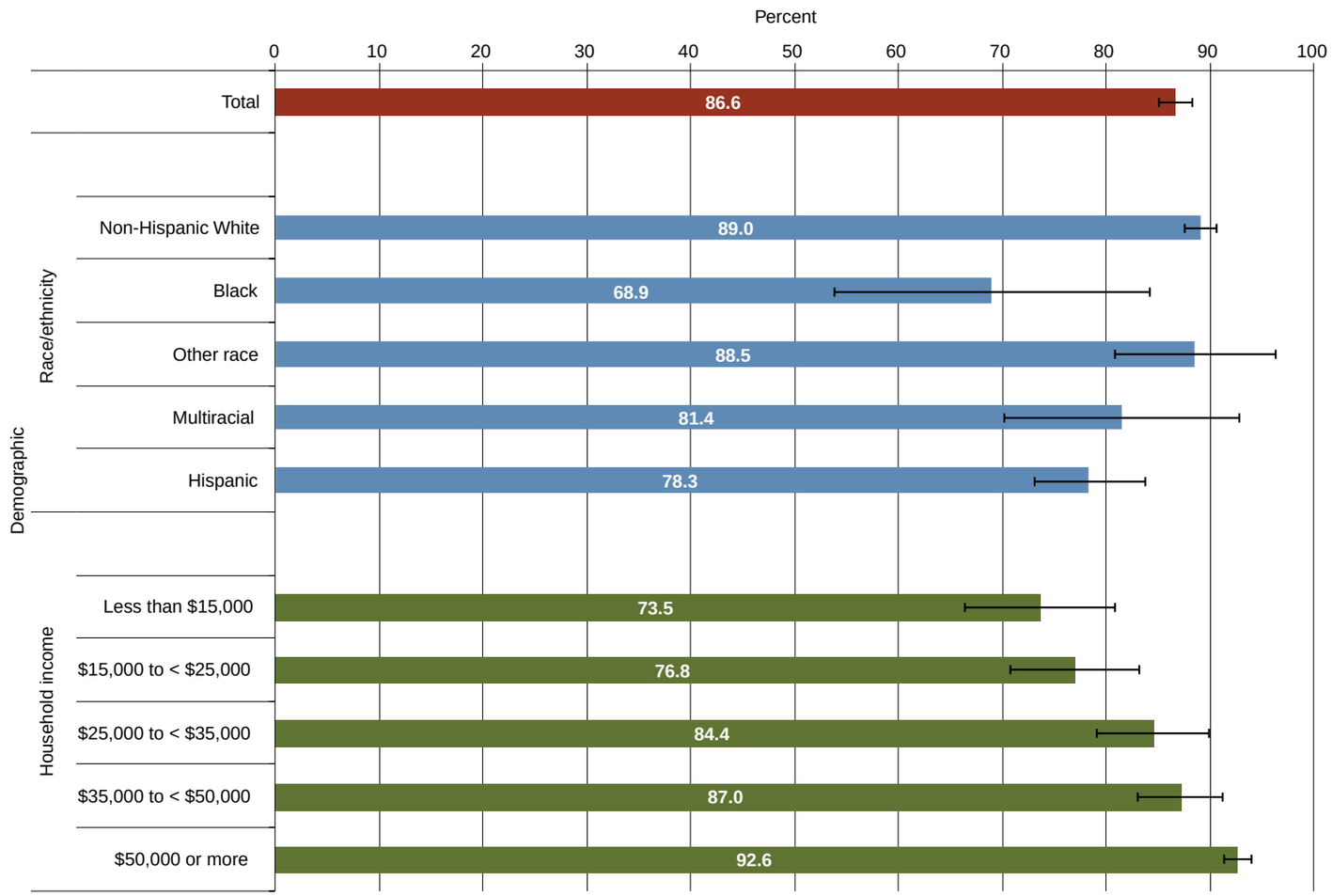
Error bars represent the 95% confidence interval.
Source: Colorado Behavioral Risk Factor Surveillance System.

Source

1. Robert Wood Johnson Foundation Commission to Build a Healthier America. City Maps. Retrieved from website: http://www.rwjf.org/en/about-rwjf/newsroom/features-and-articles/Commission/resources/city-maps.html

The built environment also influences the accessibility and variety of food in a neighborhood. In 2010, there were 7.3 fast food restaurants† and 1.1 healthy food outlets such as grocery stores, supermarkets and produce markets per 10,000 residents.[1] While 86.6% of Colorado adults say it is easy to purchase healthy foods in their neighborhood, this is not consistent for all Coloradans. Nine in 10 Non-Hispanic white adults report they can easily purchase healthy foods in their neighborhood, but this is only true for 8 in 10 Hispanic adults and 7 in 10 Black adults. Additionally, the percent of people reporting they can easily access healthy food in their neighborhood increases with income, ranging from 73.5% for those with household incomes below $15,000 to 92.6% for those with household incomes of $50,000 or more (Figure 15).

Figure 15. Percent of Colorado adults who say it is easy to purchase healthy foods* in their neighborhood overall and by race/ethnicity and household income, 2011.



** Healthy foods defined as whole grain foods, low fat options and fruits and vegetables.*
Error bars represent the 95% confidence interval.
Source: Colorado Behavioral Risk Factor Surveillance System.

Transportation systems, an integral component of the built environment, influence how people are linked to their surroundings. The mode and ease by which they access community resources, get to school or work, buy food, access medical care and participate in countless other daily activities can impact health. In 2011, 82.7% of Colorado adults reported sufficient sidewalks or shoulders in their neighborhood to safely walk, run or bike.[2] In 2013, Colorado was named the second most bicycle friendly state and Colorado exceeds Healthy People 2020 goals for bicycle commuting and meets them for walking.[3] Although Colorado adults are using alternative transportation for commuting, only 1.2% walk, 3.1% bike and 3.3% use public transportation. Additionally, Colorado falls below the Healthy People 2020 goal for commuting via public transportation (Table 2).

Table 2. Percent of Colorado workers that commute to work by biking, walking or public transportation compared to Healthy People 2020 Goals, 2007-2011 combined.

	Healthy People 2020 Target	Colorado
Biking	0.6%	1.2%
Walking	3.1%	3.1%
Public Transportation	5.5%	3.3%

Source: U.S. Census Bureau American Community Survey.

In 2009 the U.S. Department of Housing and Urban Development, the U.S. Department of Transportation, and the U.S. Environmental Protection Agency (EPA) joined together to form the Partnership for Sustainable Communities. This partnership helps communities nationwide improve access to affordable housing, increase transportation options, and lower transportation costs while protecting the environment and investing in healthy, safe and walkable neighborhoods.

Sources

† Limited-service restaurant establishments

1. United States Department of Commerce, United States Census Bureau. 2010 County Business Patterns. Washington, D.C.
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The Mariposa Healthy Living Initiative

In December of 2012 the U.S. Environmental Protection Agency (EPA) recognized Denver's Mariposa District **with the National Award for Smart Growth Achievement in the category of Equitable Development. The award is given for creative, sustainable initiatives that help protect the health and the environment of communities while strengthening local economies.**

The Mariposa Healthy Living Initiative is an effort to advance the health and quality of life of residents through redevelopment of nearly 900 new mixed-income housing units in a community called Mariposa near downtown Denver. The Denver Housing Authority created a master plan for the diverse area with extensive community input. The community is now connected to downtown via the light rail and has sidewalks, bike lanes and other features that make it easier for residents to be physically active. Affordable housing was preserved while new homes at a variety of price points were added. It also incorporates green building and infrastructure elements that will dramatically reduce energy consumption and flow of storm water into sewers. Other unique components available to residents include classes on healthy cooking and eating and job training in health-related fields.

The Mariposa District project is supported by the federal Partnership for Sustainable Communities, which fostered a partnership between the EPA, the Department of Housing and Urban Development and the Department of Transportation. To learn more, watch this video.

Collaborations Improving the Built Environment

Increased understanding of the link between health and the built environment has lead to many collaborations incorporating health into city and community development efforts. Some state-level examples include:

The Built Environment Strategic Collaborative **is a group of professionals, community members and advocates throughout the state who are committed to fostering community health through the built environment.**

The Colorado Department of Local Affairs' Main Street Program **funds communities to revitalize their historic main streets through an approach that advocates a return to community self-reliance, local empowerment, and the rebuilding of central business districts based on their traditional assets.**

The Colorado Health Foundation's Healthy Places **Initiative inspires and supports the development of healthy communities through community-led processes. The initiative aims to reduce obesity by fostering a built environment where it is easier, safer and more appealing to walk, play and engage in physically active daily activities.**

Kaiser Permanente Colorado **supports the development of safer environments that promote active transportation and enhance access to outdoor recreational facilities.**

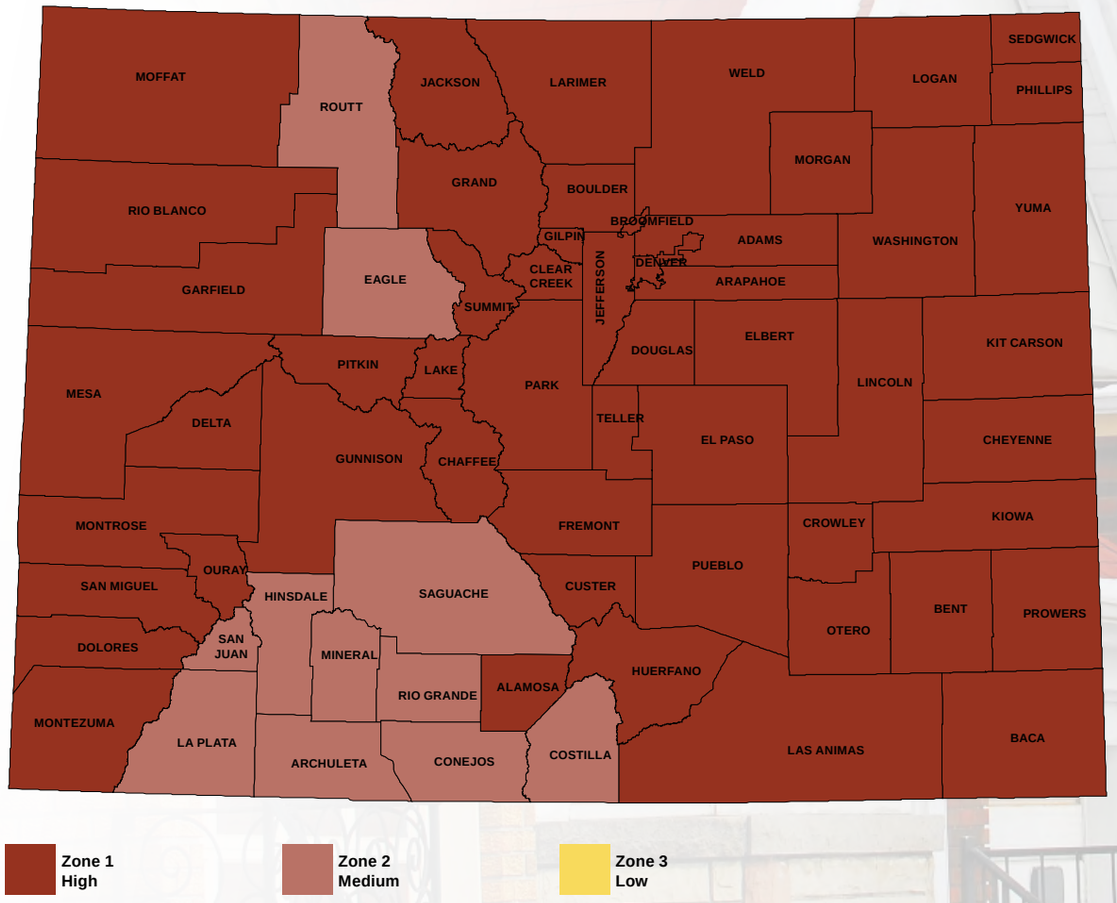
Working in partnership with obesity prevention initiatives across the state, including 24 LiveWell communities, LiveWell Colorado *focuses on policy, environmental and lifestyle changes that remove barriers and enable healthy behaviors.*

Healthy Housing

Healthy and safe housing is an essential component of the built environment, given the large amount of time people spend in their homes. Some of the harmful exposures that can occur within a home are radon, lead and tobacco smoke.

Radon is a radioactive gas naturally occurring in soil that has been linked to lung cancer. Although there are no safe levels of radon exposure, the Environmental Protection Agency has set a recommended action limit and their map of radon zones across Colorado shows the majority of Colorado has a predicted indoor radon level greater than this action limit (Figure 16). There were 80,151 household radon tests performed in Colorado from 2008-2012 and 44.6% of the test results were above the EPA recommended action limit.[1]

Figure 16. Colorado map of Environmental Protection Agency's Radon Zones.*



**Zone 1-counties have a predicted average indoor radon screening level greater than 4 pCi/L; Zone 2-counties have a predicted average indoor radon screening level between 2 and 4 pCi/L; Zone 3- counties have a predicted average indoor radon screening level less than 2 pCi/L.*
Source: U.S. Environmental Protection Agency.

Source

1. Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, Radon Program. Denver, CO.

Radon testing is an imperative first step to identification and mitigation of indoor radon, and a common trigger for testing the home for radon occurs during real estate inspections at the point of sale. In 2012, 36.5% of adults reported testing their home for the presence of radon gas. Of the adults who reported testing for radon, 14% reported having levels above the EPA recommended action limit.[1] Of the adults reporting levels above the EPA action limit, 64.4% reported installing a mitigation system and 19.1% reported taking no action.[1]

Lead exposure is toxic to humans and can result in permanent nervous system damage, delayed growth and anemia in children, as well as miscarriage, low birth weight and premature birth among pregnant women.[2] The most common source of lead exposure in the home is lead-based paint, which was used until federal law prohibited its use in the 1970s. One in five homes (20.1%) in Colorado was built before 1960, increasing the risk of the occupants' exposure to lead-based paint.[3]

Secondhand smoke includes smoke exhaled by the smoker and that coming directly from the end of the cigarette, cigar or pipe.[4] It is a known carcinogen.The Colorado Clean Indoor Air Act of 2006 requires all public indoor areas be smoke-free.[5] In 2012, however, 32.3% of adults reported breathing secondhand smoke while at an indoor public place.[1]

Nearly 10% of Coloradans are exposed to household secondhand smoke due to others smoking in their home and 32.2% are exposed to secondhand smoke drifting into their home from outside. Both types of secondhand smoke exposure are significantly more common for individuals and families living in multi-unit housing than for those living in single-family homes (Figure 17). An estimated 4.1% of children age 1-14 years live in homes where someone had smoked in the past 7 days.[6]

Reducing Lead Exposure

Although lead-based paint is the most common source of human lead exposure, individuals living in or near old mining areas can have an increased risk of lead exposure due to the lead content of mining waste. For example, mining in the Leadville area began in 1859 and generated wastes such as arsenic and lead that remained on the land surface and migrated through the environment by washing into streams and leaching contaminants into surface water and groundwater. The area was designated as a Superfund site in 1983. Following bankruptcy of the company responsible for both the pollution and clean-up, Lake County Public Health, in partnership with CDPHE and the EPA, and with extensive community input, developed a continued remediation plan tailored to the community. It included culturally and linguistically appropriate education, blood lead monitoring of children, investigation when elevated blood lead is detected and cleanup if appropriate. Although most of the cleanup has been completed and the risk of unhealthy lead exposure in the area has declined, Lake County Public Health continues to offer free blood lead testing.

Supporting the Right to Clean Indoor Air in the Home

Smoke-free housing policy adoption is on the increase due to interest by consumers and representatives of the public and private housing sectors. Benefits to the adoption of such policies include the reduction of exposure to secondhand smoke as well as lowered maintenance costs and reduced risk of fire.

As of August 2013, 31 housing authorities throughout Colorado have adopted or are in the process of phasing in no-smoking policies and mysmokefreehousing.com **allows users to search for smoke-free housing across the state. Many local efforts work to ensure safe, sound and affordable housing for individuals and families who are challenged by income, disability or special need.**

Sources

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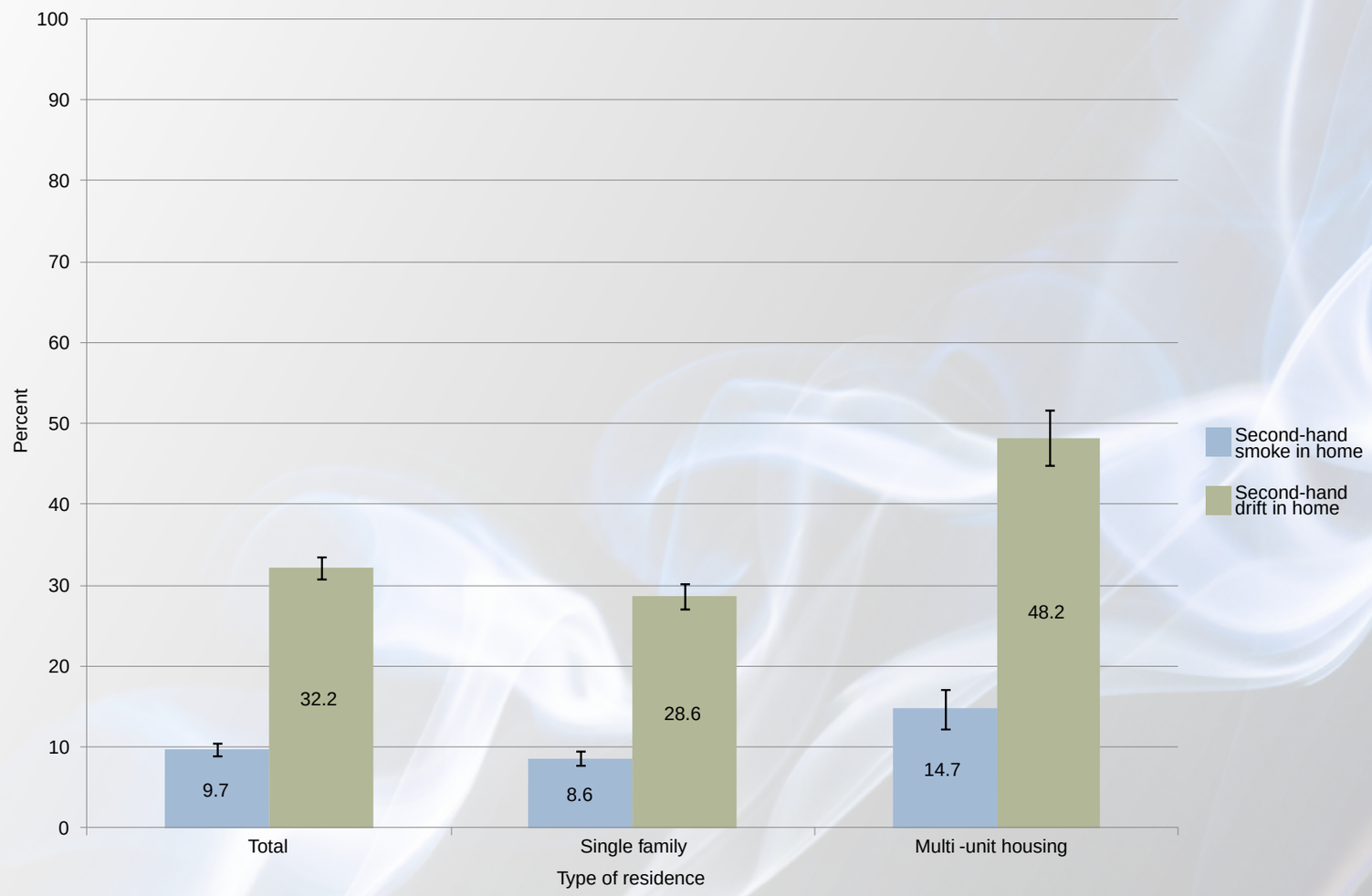
6. Colorado Department of Public Health and Environment, Health Statistics Section. Colorado Child Health Survey 2010-2012. Denver, CO.

Figure 17. Percent of Colorado adults who ever experienced secondhand smoke (SHS) in the home by type of residence, 2011-2012 combined.

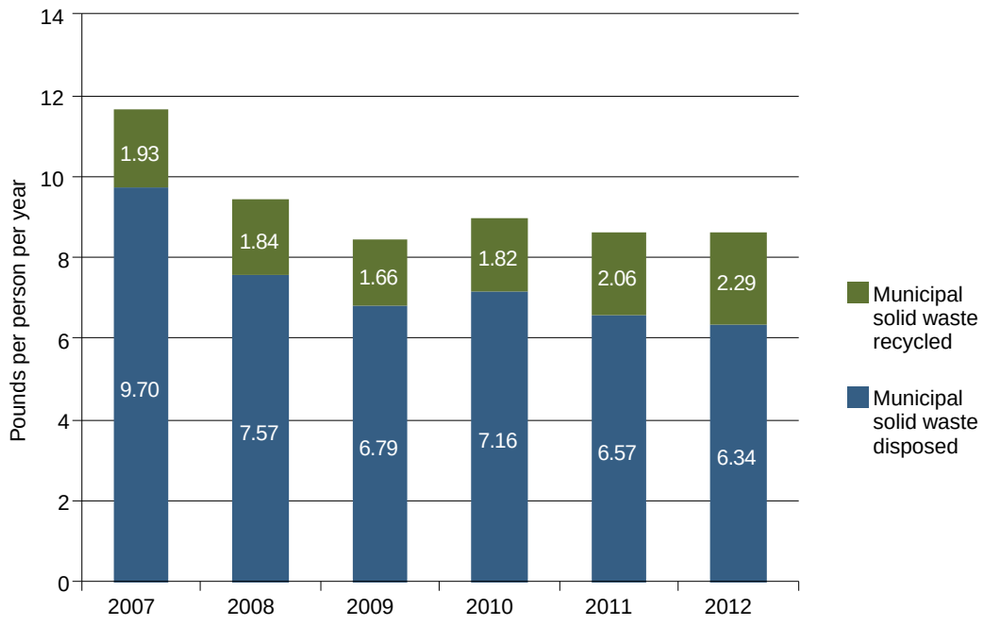


Error bars represent the 95% confidence interval.
Source: Colorado Behavioral Risk Factor Surveillance System.

Waste Management

Proper waste management helps protect the quality of the physical environment. Recycling is one way that trash is diverted from landfills and has other community benefits such as reducing pollution from the manufacturing of new materials. Solid waste and hazardous wastes are quantified and reported annually by Colorado's Solid Waste and Materials Management Program. Since 2007, there have been improvements in the daily amount of municipal solid waste generated and recycled per person in Colorado (Figure 18).

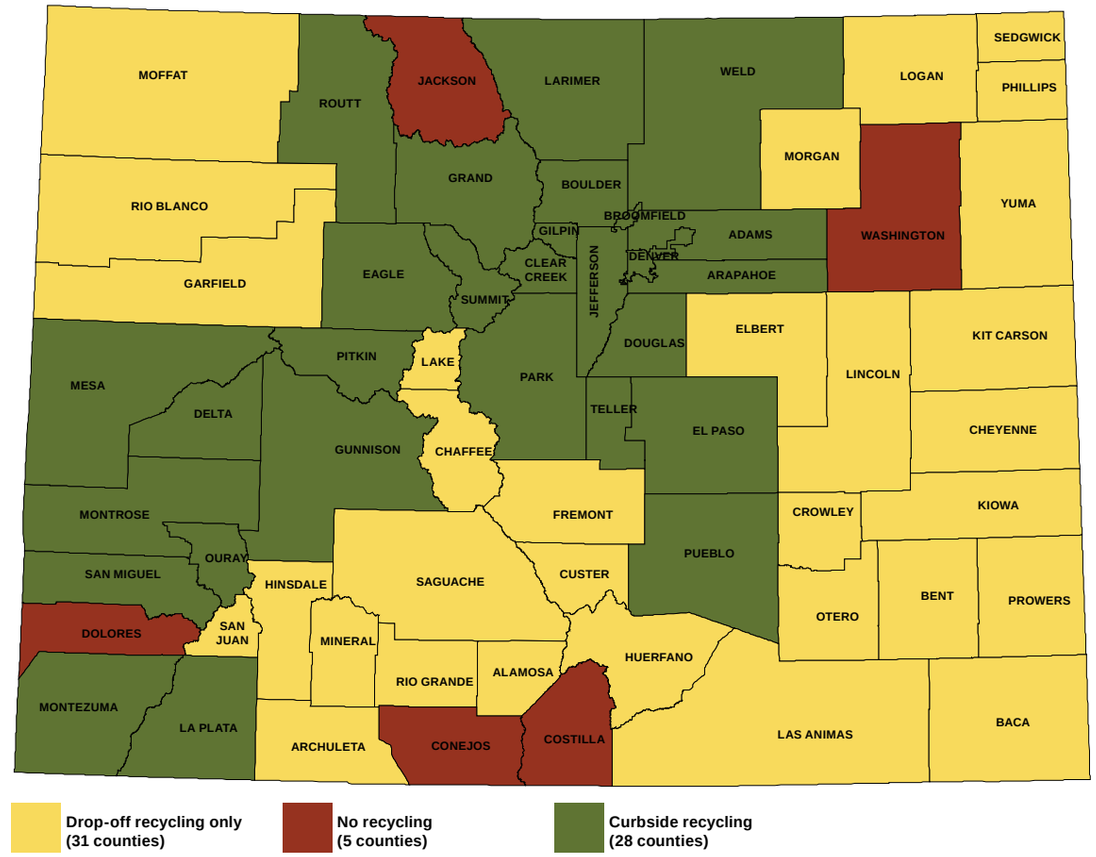
Figure 18. Colorado average daily waste generation (municipal solid waste, MSW) disposed and recycled in pounds per person by year, 2007-2012.



Source: Colorado Department of Public Health and Environment Waste and Materials Management Program.

The map in Figure 19 shows the availability of recycling within counties across the state. Among Colorado counties, 43.7% have one or more municipality that offers curbside recycling, 48.4% have drop-off recycling only and 7.8% do not have any recycling services available.

Figure 19. Recycling service availability within Colorado counties, 2011.



Source: Colorado Department of Public Health and Environment, Solid Waste and Materials Management Program.

Keeping Electronics out of Landfills

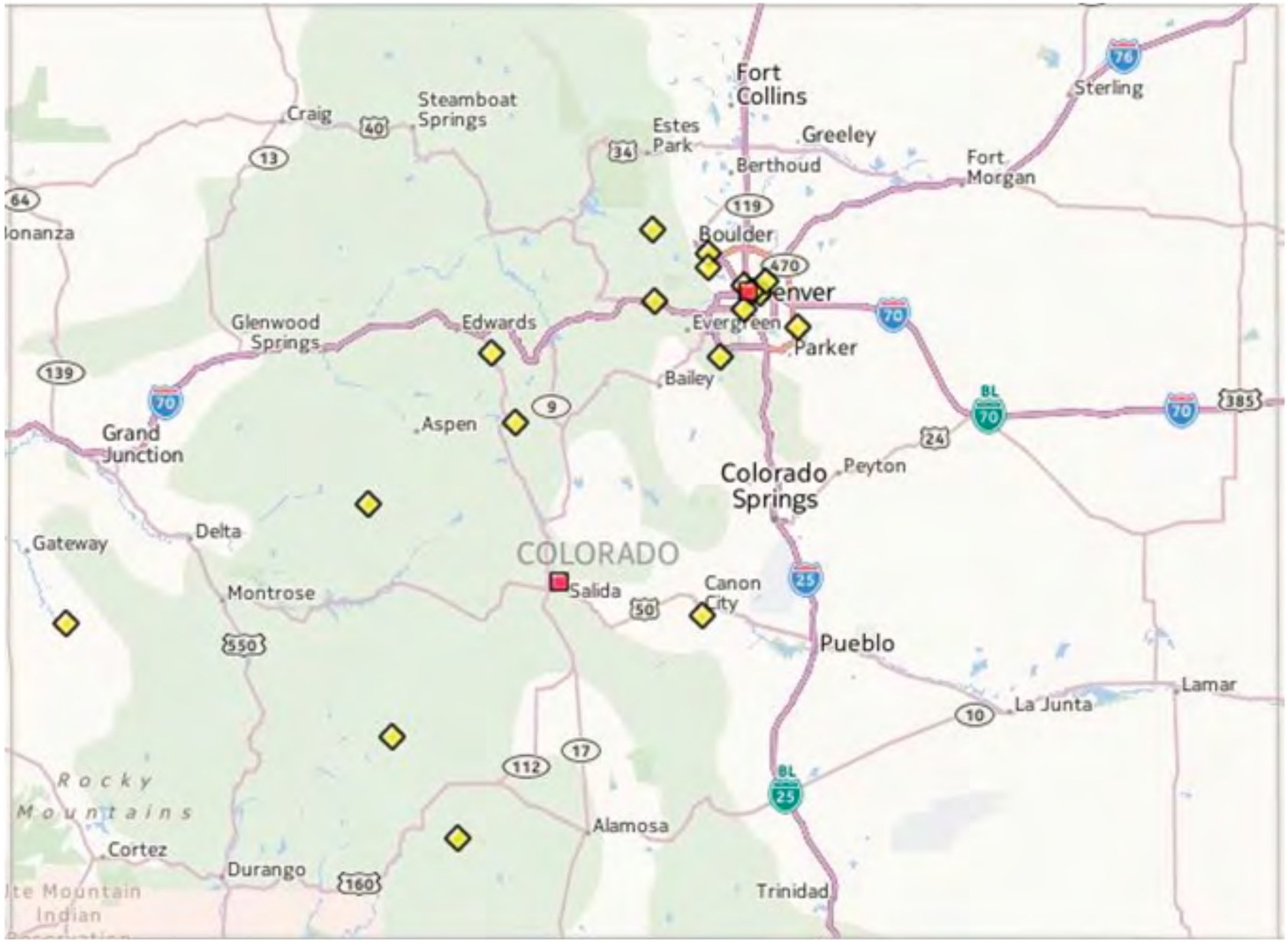
With the ubiquitous and constantly evolving nature of electronics in American culture, proper disposal of unwanted devices is a growing concern. Electronic devices take up space in landfills and can contain hazardous materials such as mercury and leaded glass. Many also have components made of valuable resources that are better recycled than disposed. Legislation passed in 2013 makes it illegal to throw out old electronics in Colorado. Electronics found in the trash are left curbside and tagged with information about how to recycle them: www.denvergov.org/ecycle **(within Denver) and** www.colorado.gov/cdphe/ewaste **(outside of Denver).**

Colorado's Unique Environmental Challenge

Colorado has abundant natural resources and industry that includes bioscience, defense, energy and natural resource development, food and agriculture, engineering and aerospace. At the same time, the state offers great natural beauty, a desirable climate and geography that yields world class hiking, camping, fishing, hunting, mountain biking, skiing and snowboarding. Colorado's long history of environmental conservation and stewardship continues to work toward effectively balancing the diverse needs of industry, tourism and recreation.

A site qualifies for the Superfund list when the U.S. Environmental Protection Agency (EPA) determines there is a release or threatened release of hazardous substances that may endanger public health, welfare or the environment. In Colorado, the lead agency for Superfund remediation may be either the EPA or the Colorado Department of Public Health and Environment. Colorado currently has 18 active sites and two proposed sites on the Superfund list (Figure 20).

Figure 20. Locations of active (yellow) and proposed (red) Superfund sites in Colorado, 2013.



Source: United States Environmental Protection Agency's National Priorities List.
For an interactive version, visit http://www.epa.gov/superfund/sites/query/queryhtm/nplmapsn.htm?862

Water

Colorado has experienced water shortages in recent history and quality water is becoming an increasingly limited resource. Protecting water quality along with the competing demands on this limited resource for current and future generations is important for human and environmental health, citizen welfare and economic productivity. Thus, water quality standards have been established to protect five water use classifications: drinking water supply, recreation, aquatic life, agriculture and wetlands.

Most of Colorado's population is served by public drinking water systems and there are over 2,000 such systems statewide. The safety of these systems is monitored by the Colorado Department of Public Health and Environment's Safe Drinking Water Program. While there are a variety of potential drinking water contaminants, high levels of uranium and radium in drinking water increase the risk for certain cancers. In 2010, there were 21,204 people served by 28 public water systems that did not meet drinking water standards for uranium or radium.[1,2]

Most people who are not served by public drinking water systems use a private well as their primary source of household water supply, which was the case for 9.8% of Coloradans in 2011. Use of private wells is significantly more common in rural locations than in urban parts of the state (20.6% versus 7.6%).

Unlike consumers on public water supplies, homeowners are responsible for assuring the safety of their water source and that of any neighboring wells which may draw from the same groundwater aquifer. The Centers for Disease Control and Prevention recommends testing wells yearly for bacteria, nitrates, total dissolved solids and pH levels and for other contaminants if they are suspected due to location, well disturbances or changes in water taste, color or odor. Of those reporting the use of private wells, 41% either did not know the last time their well water was tested by a laboratory or reported that it never has been tested.[3] Among well owners who reported testing their well in the previous five years, Table 3 shows a selected list of contaminants for which wells

Addressing Uranium and Radium in Drinking Water

Historically, over 50 water systems in Colorado struggled with naturally occurring radium and uranium in groundwater. It is a complicated challenge for affected systems, which are typically very small.

There are numerous projects throughout the state where owners of public drinking water systems with uranium and radium problems are working with subject matter experts to select an approach for water treatment or to establish an alternate source of water. One of the largest is in Sterling, CO- a system that serves 14,000 people and is building a water treatment plant that will enable the system's drinking water to meet uranium and radium standards by 2014. The state goal is that by 2016, there will be 16 systems serving about 4,000 people that still are working to meet drinking water standards for uranium and radium.

Table 3. Well owners who reported testing for and reported presence of specific contaminants, 2011.

Contanimant	Percent of private well owners who reported testing for contaminant, among those who tested their well in the prior 5 years	Percent of private well owners who reported presence of contaminant, among those who tested for it
Bacteria	94.6%	6.8%
Nitrates	86.6%	7.0%
Volatile Organic Compounds (VOCs)	77.6%	3.5%
Pesticides	70.9%	1.1%
Radionuclides (radon, radium or uranium)	56.1%	11.5%

Source: Colorado Behavioral Risk Factor Surveillance System.

Sources

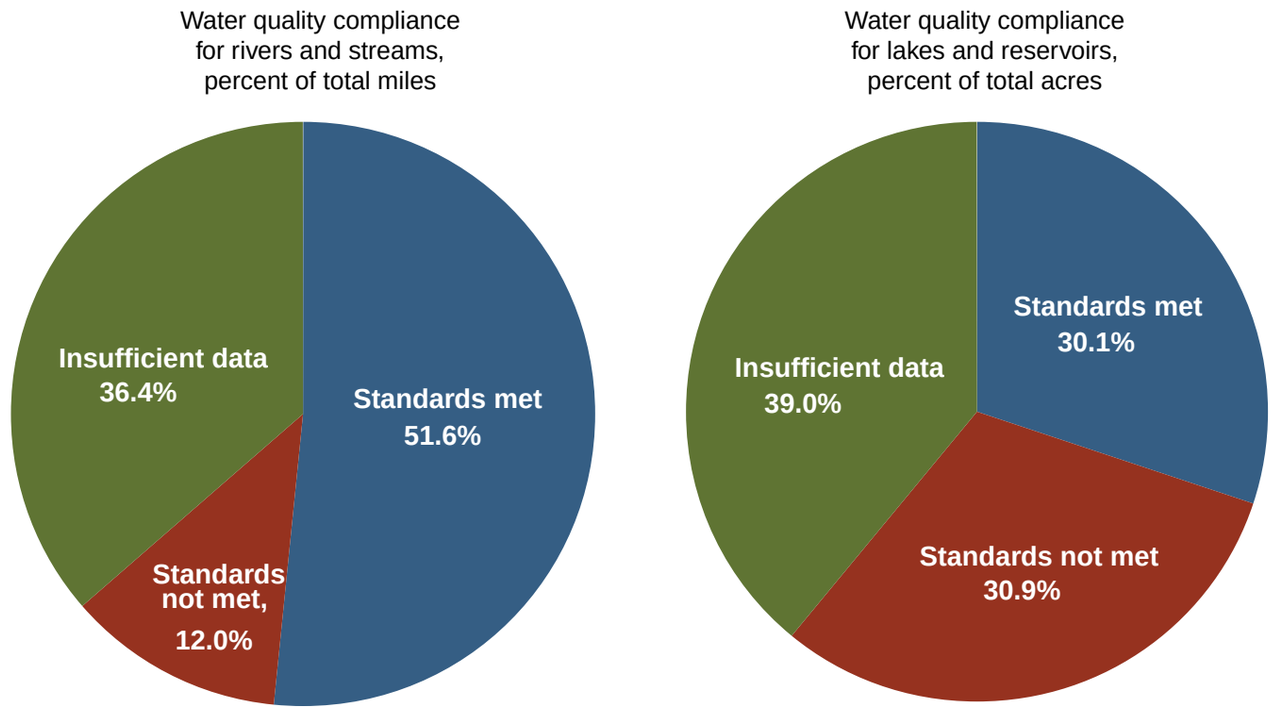
1. Colorado Department of Public Health and Environment, Water Quality Control Division. Denver, CO.
2. United States Environmental Protection Agency. Basic Information about Radon in Drinking Water. Accessed from http://water.epa.gov/lawsregs/rulesregs/sdwa/radon/basicinformation.cfm#Why%20is%20radon%20in%20drinking%20water%20a%20health%20concern?
3. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.

were tested and the reported presence of the contaminant.

During 2013, floodwaters inundated or damaged private water wells in several areas around the state with significant impacts to parts of Larimer, Boulder, Weld, Morgan, Washington, Logan and Sedgwick counties. During the cleanup and restoration of homes, businesses and facilities, associated water wells needed to be tested, decontaminated and disinfected prior to placing the wells back in service. Of the wells tested for bacteria in the first month following the flooding, 50-80% of the wells were contaminated with bacteria as reported by local labs conducting the testing.

Part of the effort to advance water quality is to improve the quality of water bodies, surface water and ground water that contains hazardous contaminants by treating the contaminated water. Figure 21 shows the percent of water bodies in Colorado that were in compliance with water quality standards in 2010. The goal of the water treatment is to remove contamination and restore the water quality to state standards so treatment no longer is necessary.

Figure 21. Percent of Colorado water bodies in compliance with water quality standards, 2010.



Source: Colorado 2010 Clean Water 305b Report.
Insufficient data is due in part to Colorado's dry climate (many stream courses rarely have flowing water) and new technology that can identify very small water bodies not previously detectable (and for which water quality testing has not yet been performed, is not possible due to their location or is inconsequential due to their size).

Improving Drinking Water Quality in Two Rural Communities

With Supplemental Environmental Project* funding and collaboration between the Water Quality Control Division, Division of Environmental Health and Sustainability, and Prowers County Public Health and Environment, projects have been undertaken to help two rural communities on the eastern plains address naturally occurring uranium and radium in their drinking water wells above the drinking water standard.

The May Valley Water Association in Prowers County installed a self-service water machine that dispenses treated drinking water and will provide a clean source of drinking water for 1,500 May Valley residents until a planned new source of water is brought to the Arkansas Valley in the next decade.

A nonprofit water company formed the first water district in Kiowa County and gave residents of the Sheridan Lake area access to grants and loans for water infrastructure funding. They plan to use these funds to purchase water rights to an aquifer that does not contain uranium.

A Supplemental Environmental Project is an environmentally beneficial project in which a violator voluntarily agrees to perform as part of a settlement of an enforcement action* **(United States Environmental Protection Agency: http://www.epa.gov/region2/p2/sep.htm**).**

Protecting Public Safety

Emergency preparedness systems help protect community safety in the event of a public emergency. Project Public Health Ready (PPHR) is a competency-based training and recognition program that assesses preparedness and assists local public health agencies (LPHAs), or groups of LPHAs working collaboratively as a region, to respond to emergencies. Each of the three PPHR project goals—all-hazards preparedness planning, workforce capacity development, and demonstration of readiness through exercises or real events—has a comprehensive list of national standards that must be met in order to achieve PPHR recognition. All local jurisdictions within Colorado as well as the state have been awarded this recognition.

This has helped Colorado respond to environmental emergencies in the last few years, including:

- **Six wildfires burning a total of nearly 250,000 acres in 2012 and 2013;**
- **Unprecedented flooding in 2013 that affected 15 counties, damaged over 19,000 homes, and destroyed 30 state highway bridges.**

Helping Keep Pharmaceuticals out of Water

Pharmaceuticals are increasingly contaminating both water bodies and drinking water. The Colorado Medication Take-Back Project **has collected over 14 tons of unwanted household medications between eight metro-area and three mountain community collection sites since its inception in December 2009. By keeping the drugs out of Colorado's water and out of the hands of those who might abuse them, this project helps protect both public health and the environment. The program is poised to make an even greater impact in the future. Although federal regulations do not currently allow this program to accept controlled substances, the National Drug Enforcement Agency is working on modifications that will change this.**

Protecting Water Destined for Consumption

There are many success stories in which local watershed groups identify threats and develop a plan to protect source water in their community. Although the state provides funding for this, it is the local involvement and knowledge that is most influential in affecting change.

The Colorado Source Water Assessment and Protection **program provides information about drinking water and helps communities get involved in protecting the quality of drinking water. The program encourages community-based protection and preventive management strategies to ensure public drinking water resources are kept safe from future contamination.**

Air

Air pollution comes from activities such as driving cars and trucks, burning fossil fuels, manufacturing and everyday activities such as dry cleaning, filling a car with gas, degreasing and painting. The gases and particles that enter the air through these activities are hazardous to both environmental and human health. They contribute to adverse health effects such as respiratory illness, cardiovascular disease and premature birth and can also negatively affect outdoor recreation, tourism and quality of life.[1]

Following the Clean Air Act of 1970, the U.S. Environmental Protection Agency (EPA) established national ambient air quality standards for certain common and widespread pollutants: particulate matter, ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide and lead. Colorado has successfully and drastically reduced the amount of each of these contaminants since 1970 (see the 2011 Air Quality Data Report for detailed information about these trends). Colorado's Air Quality Control Commission continues to provide real-time air quality information on many of these pollutants online.

Nitrogen oxides are a group of compounds that can react with other chemicals to form smog, acid rain and harmful ground-level ozone. Nitrogen dioxide is a one type of nitrogen oxide that is used as the indicator pollutant for nitrogen oxides overall. Nitrogen dioxide is naturally occurring, but human activities such as agriculture, fossil fuel combustion, industrial processes and wastewater management increase its presence in the atmosphere. The major sources of nitrogen dioxide include automobiles, industrial engines and power plants. Total annual nitrogen dioxide emissions decreased in Colorado by approximately 10% from 2007 to 2010 (Figure 22). Emissions from all major sources declined during this period with highway vehicle emissions decreasing 33%, non-road emissions decreasing about 9%, oil and gas point sources decreasing 8% and other point sources decreasing nearly 8%.[2]

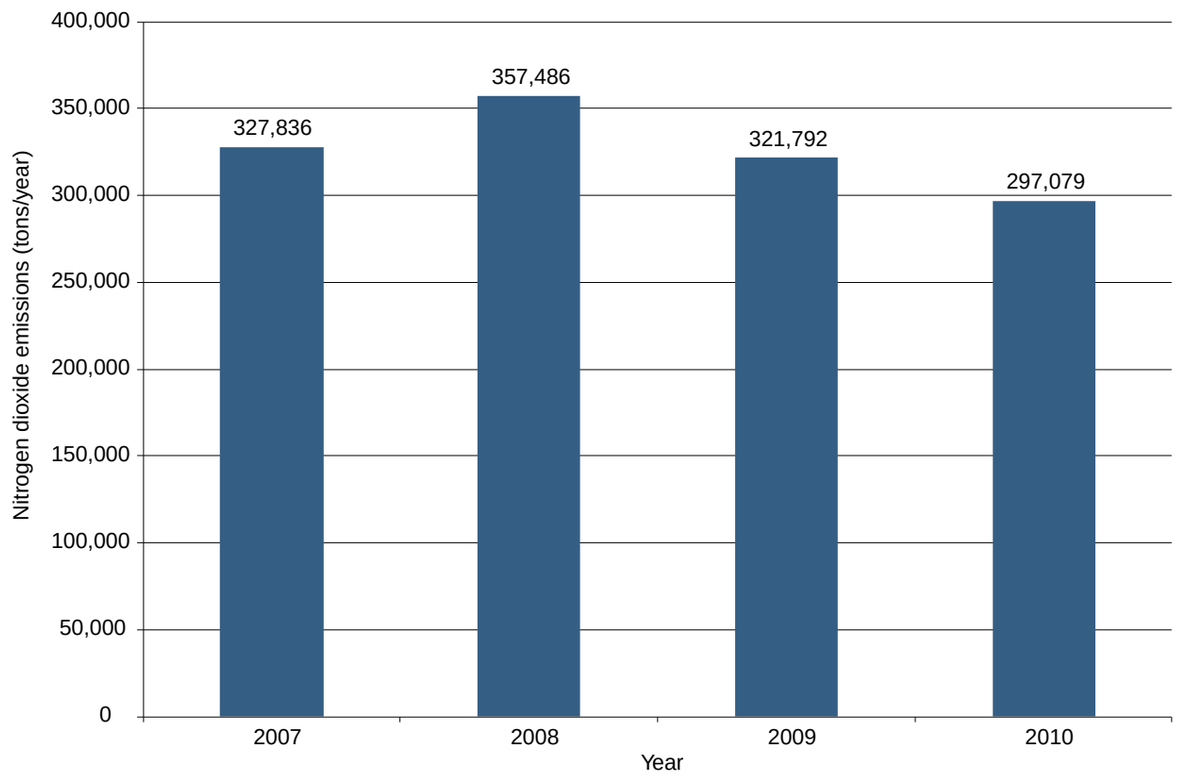
Improving Air Quality in Colorado

At one time, Colorado had more than a dozen areas out of compliance with health-based National Ambient Air Quality Standards that were brought back into attainment through pollution reduction strategies targeting sectors like heavy industry, motor vehicles and coal-fired power plants. In the mid-1980s, Colorado pioneered the use of oxygenated fuels in automobiles and implemented the nation's first urban visibility standard in Denver.

Colorado also works to identify areas currently meeting air quality standards that are at risk of falling out of compliance. During the past decade, Colorado has worked closely with New Mexico and others on the Four Corners Air Quality Task Force, a non-regulatory collaborative. The group consists of diverse stakeholders in the Four Corners region, an area at risk of falling out of compliance, especially if the standards are lowered again.

The Air Pollution Control Division forecasts air quality daily for six regions of the state and maintains a robust network of air quality monitors that report pollutant concentrations hourly on the division's website**. The use of social media helps engage and inform the public on important topics such as the impact of smoke on regional air quality during wildfire season.**

Figure 22. Annual emissions of nitrogen dioxide statewide by year, 2007-2010.



Source: Colorado Department of Public Health and Environment Air Pollution Control Division.

Sources

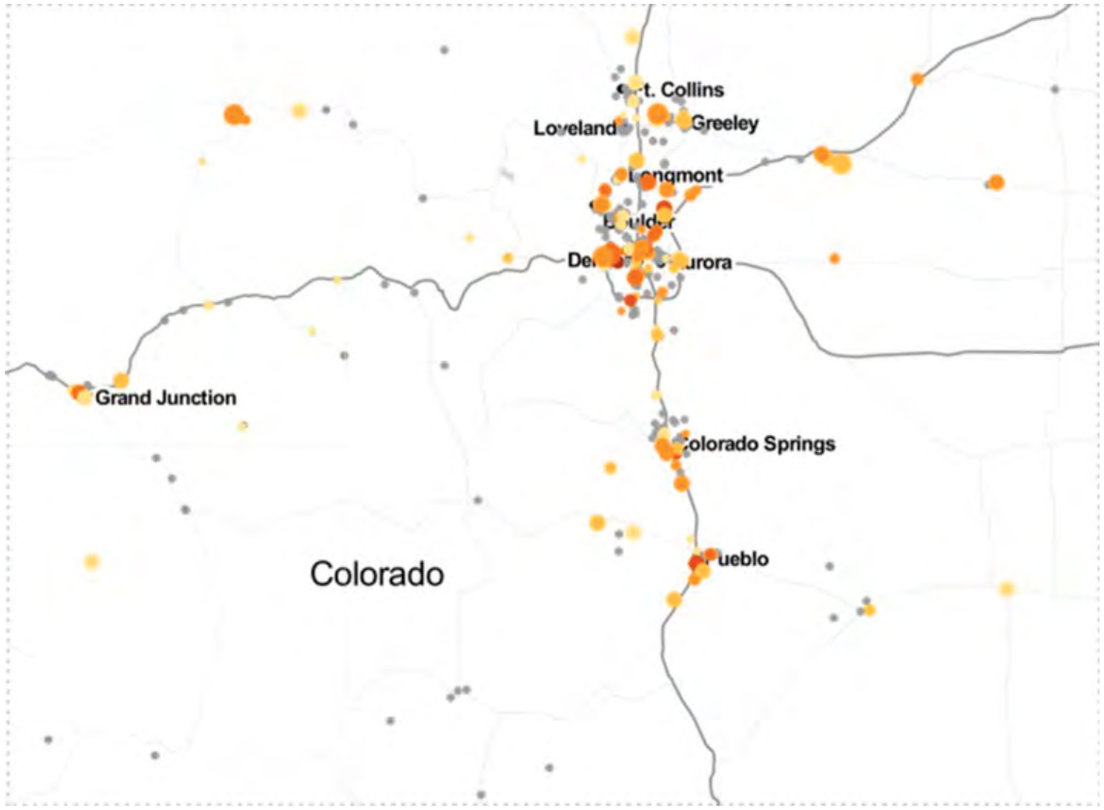
1. National Resources Defense Council. (2011). Gasping for Air: Toxic Pollutants Continue to Make Millions Sick and Shorten Lives. Retrieved from website: http://www.nrdc.org/health/files/airpollutionhealthimpacts.pdf
2. Colorado Department of Public Health and Environment, Air Pollution Control Division. Denver, CO.

The EPA has created a Toxic Release Inventory (TRI) database,† which started in 1987 and includes information on toxic chemicals‡ released into air, water or land as reported by industry partners. The EPA requires TRI reporting when a facility manufactures or processes more than 25,000 pounds of a TRI-listed chemical or otherwise uses more than 10,000 pounds of a listed chemical in a given year. In Colorado, the total on-site toxic air emissions as reported in the TRI decreased 47% between 2001 and 2011. During this same time period, the total on- and off-site§ disposal or other releases decreased 56%. Between 2007 and 2011, the total air emissions decreased 22% (from 2,908,690 to 2,375,238 pounds), but total on- and off-site disposal and other releases increased by 7% (from 24,512,872 to 26,331,316 pounds).[1]

Using a screening-level tool termed Risk-Screening Environmental Indicators (RSEI)§§ combined with TRI data, Colorado has the 34th highest total risk of toxic chemical releases out of 56 states and territories. Arapahoe County has the highest total risk for toxic chemical releases from stack or fugitive§§§ air emissions, followed by Jefferson and Weld counties.[1] Figure 23 shows the Toxic Release Inventory industrial facility locations, air pollution amounts and relative risk to human health.

Air quality varies geographically for a variety of reasons such as population density, location of emission sources and weather patterns. Air pollution levels impact the type and level of activity appropriate for individuals. Two pollutants directly monitored for their impact on daily human activity are ground level ozone and particulate matter 2.5 microns or less in diameter, designated as PM2.5.§§§§ As defined by National Ambient Air Quality Standards, unhealthy days for

Figure 23. Air pollution amounts and relative risk to human health* among industrial facility locations participating in the Toxic Release Inventory, 2010.



Source: Toxic Release Inventory information displayed in a map designed at the Huxley Spatial Institute at Western Washington University in Bellingham, Washington.
** Circle size is relative to pounds released; smaller circles indicate fewer pounds released; larger circles indicate more pounds released. Circle color is relative human risk according to EPA's Risk Screening Environmental Indicators (RSEI) model: lighter circles represent polluters with less risk to human health and darker circles represent polluters posing more risk. Gray circles represent facilities that did not report any air releases that year. For more information and for an interactive version of this map, visit http://toxictrends.org/*

Sources

† TRI data are limited in their interpretation because they reflect releases and other waste management activities of chemicals but not whether or the degree to which the public has been exposed to the chemicals. Release estimates alone are not sufficient to determine exposure or to calculate potential adverse effects on human health and the environment. TRI data, in conjunction with other information, can be used as a starting point in evaluating exposures that may result from releases and other waste management activities that involve toxic chemicals. The determination of potential risk depends upon many factors, including the toxicity of the chemical, the fate of the chemical, and the amount and duration of human or other exposure to the chemical after it is released.

‡ The TRI Program covers 682 chemicals and chemical categories (http://www2.epa.gov/toxics-release-inventory-tri-program/tri-listed-chemicals). In general the TRI chemicals cause one or more of the following: (1) Cancer or other chronic human health effects, (2) Significant adverse acute human health effects, (3) Significant adverse environmental effects.

§ Off-site disposal or other releases show only net off-site disposal or other releases. Off-site disposal or other releases transferred to other TRI facilities reporting such transfers as on-site disposal or other releases are not included to avoid double counting.

§§ RSEI is a screening model, not a risk assessment that allows one to make a direct link a facility's chemical release to harm being caused to a specific population or location. As with any model, a number of simplifying assumptions are made.

§§§ In TRI, Stack Air Releases means releases to air that occur through confined air streams, such as stacks, vents, ducts or pipes. They are sometimes called releases from a point source. Fugitive Air Releases are releases to air that do not occur through a confined air stream, including equipment leaks, evaporative losses from surface impoundments and spills, and releases from building ventilation systems. They are sometimes called releases from nonpoint sources.

§§§§ An unhealthy day for PM2.5 occurs when levels exceed the 24 hour average NAAQS of 35 μg/m3.1. Colorado Department of Public Health and Environment, Air Pollution Control Division. Denver, CO.

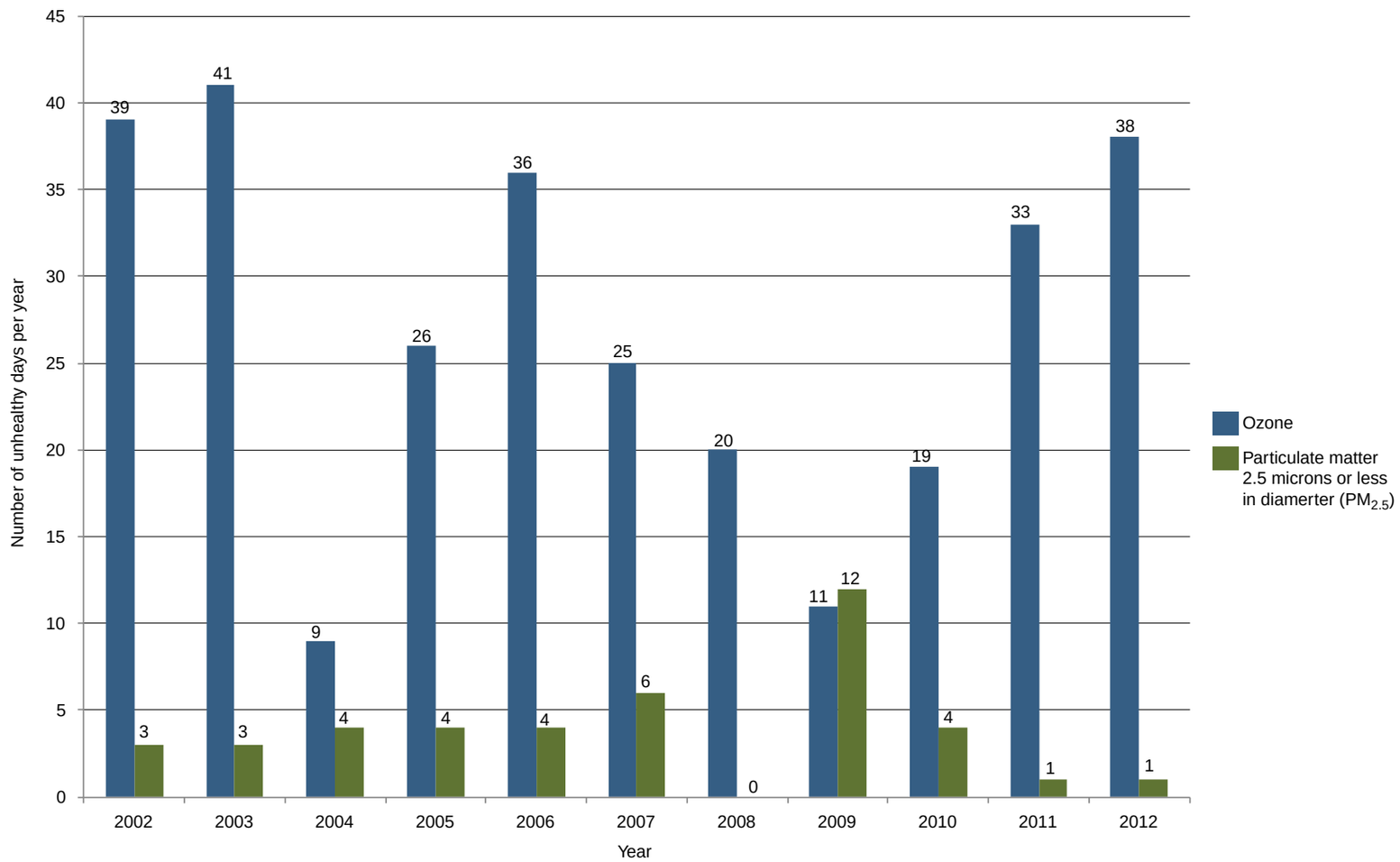
1. Colorado Department of Public Health and Environment, Air Pollution Control Division, Denver, CO.

ozone are when levels exceed the daily eight-hour average maximum of 0.075 parts per million, and unhealthy days for PM2.5 are when levels exceed a 24-hour average of 35 µg/m3. Figure 24 shows the number of unhealthy air quality days in Colorado for these pollutants from 2002 to 2012. Figure 25 shows the unhealthy ozone days in Colorado by region. As expected due to population density and industry locations, the Denver Metro Area/North Front Range air quality planning region has more unhealthy ozone days than the other regions.[1]

Another contributor to air pollution is source-level mercury emissions. Mercury emissions eventually settle into water or land where they can be washed into water and then consumed by organisms and fish, then humans. Mercury consumption can have adverse neurological effects, especially for developing fetuses. Primary air mercury sources are power plants, cement kilns and steel mills. The Colorado Air Quality Control Commission requires coal-fired power plants to monitor emissions as part of the 2007 Colorado Electric Utility Mercury Reduction Rule, requiring 90% mercury reduction by 2018. Currently, there are seven electrical generating units at five power plants in Colorado that use continuous emission monitors to measure their mercury emissions.[1] Since 2009, mercury emissions from Colorado facilities have decreased by 41.4% (Figure 26). Also monitored is mercury presence in fish. In 2012, there were 21 Colorado water bodies that required fish consumption advisories for mercury.[2]

Currently, there are seven electrical generating units at five power plants in Colorado that use continuous emission monitors to measure their mercury emissions. Since 2009, mercury emissions from Colorado facilities have decreased by 41.4%.

Figure 24. Number of unhealthy air quality days per year in Colorado, 2002-2012.



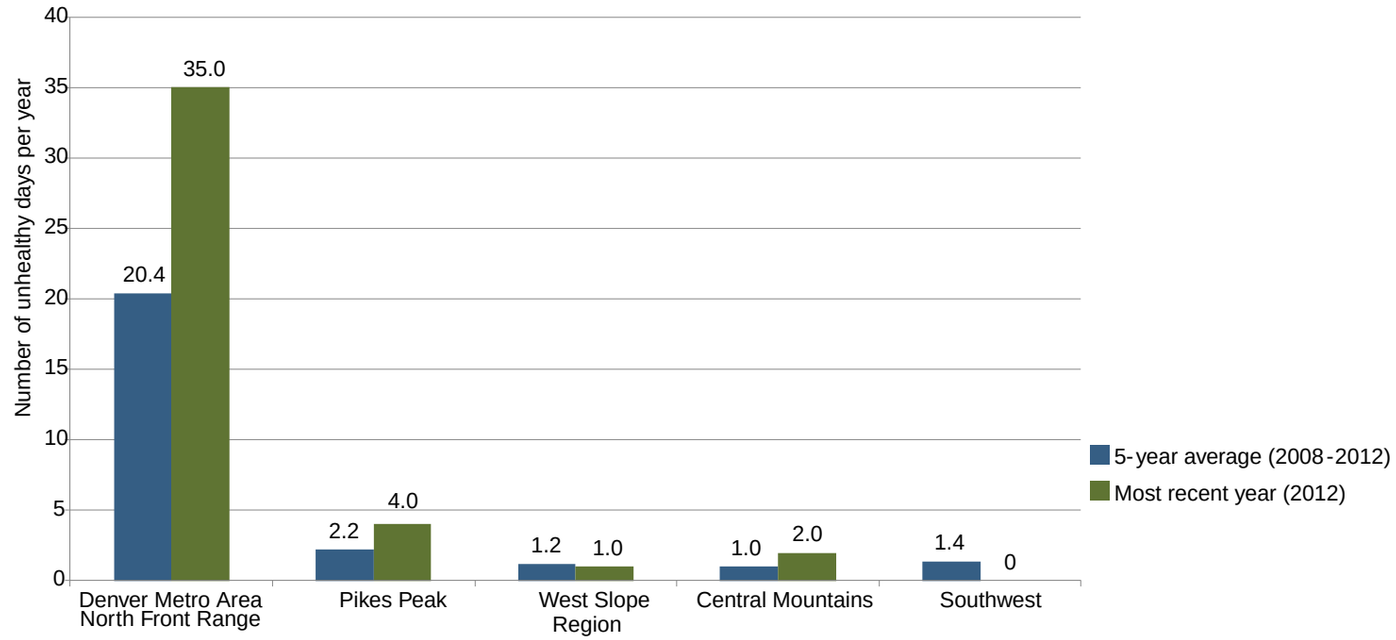
Source: Colorado Department of Public Health & Environment Air Pollution Control Division.

Created in January of 2012, The Western Colorado Regional Air Quality Collaboration **is a voluntary program for communities that are at-risk for air quality problems west of the Continental Divide. They have fostered projects to address air quality issues such as fine particulate matter ($PM_{2.5}$), windblown dust, wood smoke, industrial pollution and odors, and rely on collaboration between state and local jurisdictions. The Collaboration has grown from four counties when it started to 22 counties and two cities as of July 2013.**

Sources

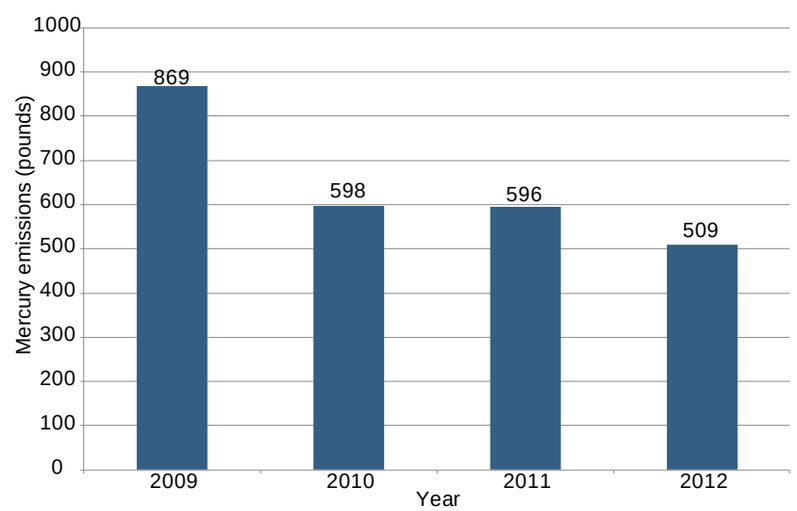
1. Colorado Department of Public Health and Environment, Air Pollution Control Division. Denver, CO.
2. Colorado Department of Public Health and Environment, Water Quality Control Division. Denver, CO.

Figure 25. Number of unhealthy^ ozone days in Colorado by region† for 5-year average (2008-2012) and most recent year (2012).



^ Unhealthy days for an air quality planning region are not necessarily representative of an entire area because monitors may be representing a geographic region without being located throughout that entire region.
† Air Quality Planning Regions:
Denver Metro Area/North Front Range Counties: *Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, Weld.*
Pikes Peak Counties: *El Paso, Teller.*
Western Slope Counties: *Delta, Dolores, Garfield, Mesa, Moffat, Montrose, Ouray, Rio Blanco, San Miguel.*
Central Mountains Counties: *Chaffee, Clear Creek, Eagle, Fremont, Gilpin, Grand, Gunnison, Hinsdale, Jackson, Lake, Mineral, Park, Pitkin, Routt, Summit.*
Southwestern Counties: *Archuleta, La Plata, Montezuma, San Juan.*
San Luis Valley, South Central and Eastern High Plains Air Quality Planning Regions did not have ozone monitors and are therefore not reported for this data.
Source: Colorado Department of Public Health & Environment Air Pollution Control Division.

Figure 26. Estimated yearly souce-level mercury emissions* in Colorado, 2009-2012.



Source: Colorado Department of Public Health & Environment Air Pollution Control Division.
**Data are from large air pollution sources, including coal-fired power plants, steel mills, cement kilns and inorganic chemical manufacturing facilities.*

SOCIAL FACTORS ARE COMPONENTS OF THE SOCIETY IN WHICH PEOPLE LIVE THAT AFFECT LIFESTYLE, CULTURE, ATTITUDES AND BEHAVIOR. EXAMPLES INCLUDE COMMUNITY SUPPORT, ORGANIZATIONAL NETWORKS, LEADERSHIP, POLITICAL INFLUENCE, VIOLENCE AND RACISM. BECAUSE SOCIAL FACTORS ARE EMBEDDED IN HUMAN LIFE, THEY PLAY A KEY ROLE IN SHAPING HEALTH AND WELL-BEING. This section focuses on social support, leadership and politics, and community safety and violence. Additional social factors are discussed throughout this report.

Social Support

Community support can help improve quality of life and decrease emotional distress, but it varies by race/ethnicity and income. Over 8 in 10 (83.3% of) white adults report getting the emotional or social support they need, but this is true for significantly fewer Hispanic adults, Black adults and adults in other racial/ethnic groups (74.1%, 73.8% and 78.3%, respectively).[1] Adults with an annual household income less than $15,000 were significantly less likely to get the emotional support they needed compared to adults of all other household incomes.[1] Conversely, adults in households with annual incomes of $50,000 or more were significantly more likely to report getting the social support they needed compared to all others.[1]

The infrastructure of family units also plays a large role in community health outcomes. Family units with single parents or with children responsible for the care of aging parents face unique challenges and may experience increased risk for negative health outcomes. Twenty-two percent (22%) of Colorado family households are headed by a single adult and may lack needed support systems, which is significantly less than the national estimate of 26%.[2]

As life expectancy increases, the elderly population and the demand for caretakers grows. Providing eldercare can increase emo

Meeting the Needs of a Growing Older Adult Population

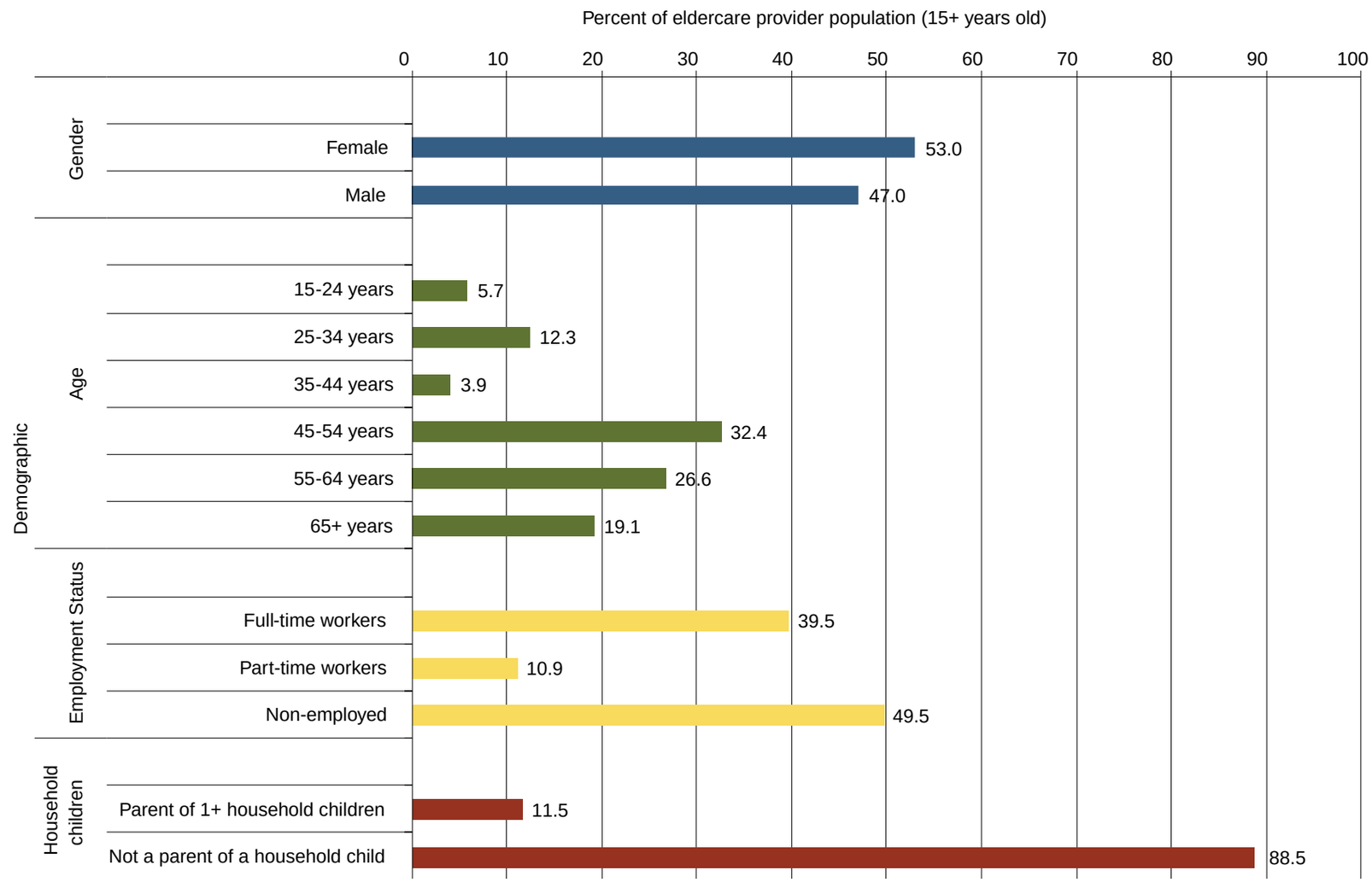
Colorado's 2011-2015 State Plan on Aging, **based upon multi-agency collaboration and public input from over 600 older adults, reflects Colorado's plan to respond effectively and efficiently to the needs of Colorado's older adults. Its primary focus is to increase efficiencies that will enable expansion of services already provided. Colorado's State Unit on Aging plans to demonstrate accountability and raise capacity by building systems, focusing on outcomes and strengths, accentuating measurable standards, and using knowledge gained through planning and implementation.**

Sources

1. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.
2. United States Department of Commerce, United States Census Bureau. 2007-2011 American Community Survey. Washington, D.C.

tional stress, physical strain and financial or employment-related hardships.[1] Additionally, caregivers who themselves are vulnerable due to their own health or financial status often face additional consequences due to their caretaking responsibilities.[2] Thus, eldercare responsibilities contribute to health and economic disparities. In 2011, 12.6% of the Colorado population 15 years old or older were eldercare providers, meaning that within the prior four months they cared for someone age 65 years or older with a condition related to aging.[3] Eldercare providers in Colorado are more likely to be female than male and 45-64 years old than other age groups. Four in 10 (39.3% of) eldercare providers work full time in addition to caretaking and 11.5% care for additional family members in the home (Figure 27).

Figure 27. Demographic characteristics of the eldercare povider population in Colorado, 2011.



Source: U.S. Department of Labor American Time Use Survey.

Sources

1. National Alliance of Caregiving and The American Associate of Retired persons. (2009). Caregiving in the U.S. Retrieved from website: http://www.caregiving.org/data/Caregiving_in_the_US_2009_full_report.pdf
2. Navaie-Waliser M, Feldmen PH, Gould DA, Levine C, Kuerbis AN, Donelan K. When the Caregiver Needs Care: The Plight of Vulnerable Caregivers. American Journal of Public Health; 2002: 92(3).
3. United States Department of Labor, Bureau of Labor Statistics. 2011 American Time Use Survey. Washington, D.C.

Leadership and Politics

Diversity in business and political leadership helps empower communities and ensures a variety of perspectives are represented in leadership decisions. In 2007, 29.2% of businesses in Colorado were owned by women.[1] In that same year, the largest percent of minority-owned businesses were Hispanic-owned (6.2% of all businesses) followed by Asian-owned (2.3%), Black-owned (1.7%), American Indian/Alaska Native-owned (0.8%) and Native Hawaiian/Other Pacific Islander-owned (0.1%).[1]

Policy at the federal, state and local level impacts public and environmental health. The Colorado House of Representatives has 65 members and the Senate has 35; both are currently controlled by the Democratic Party. Colorado's governor for the 2011-2015 term is Democrat John Hickenlooper. Colorado's 2.4 million residents who voted in the 2012 presidential election displayed a Democratic preference at the state-level, following the same trend as in 2008.[2] However, political preferences vary geographically, with mostly Republican counties on the eastern and western sides of the state and mostly Democratic counties down the urban center.[2]

Building Family Advocates

Family and other caregivers are typically the primary and most important support system for vulnerable populations such as children and older adults. As such, they are best equipped to know about and advocate for the needs of the people for whom they care. The Family Leadership Training Institute **is an innovative public-private partnership that works with local communities to provide parents, caregivers and other interested adults to:**

- **Help participants become the leaders they would like to be for children and families**
- **Expand the capacity of participants as change agents**
- **Develop communities within regions of the state that will support one another in skills development and successful action for children**
- **Facilitate systems change for family involvement with increased engagement of parents/caregivers in policy and process decisions**
- **Increase parent-child interactions and improve child outcomes through parent/caregiver involvement**

Sources

1. United States Department of Commerce, United States Census Bureau. Colorado State & County Quickfacts. Washington, D.C.
2. http://www.politico.com/2012-election/results/president/colorado/

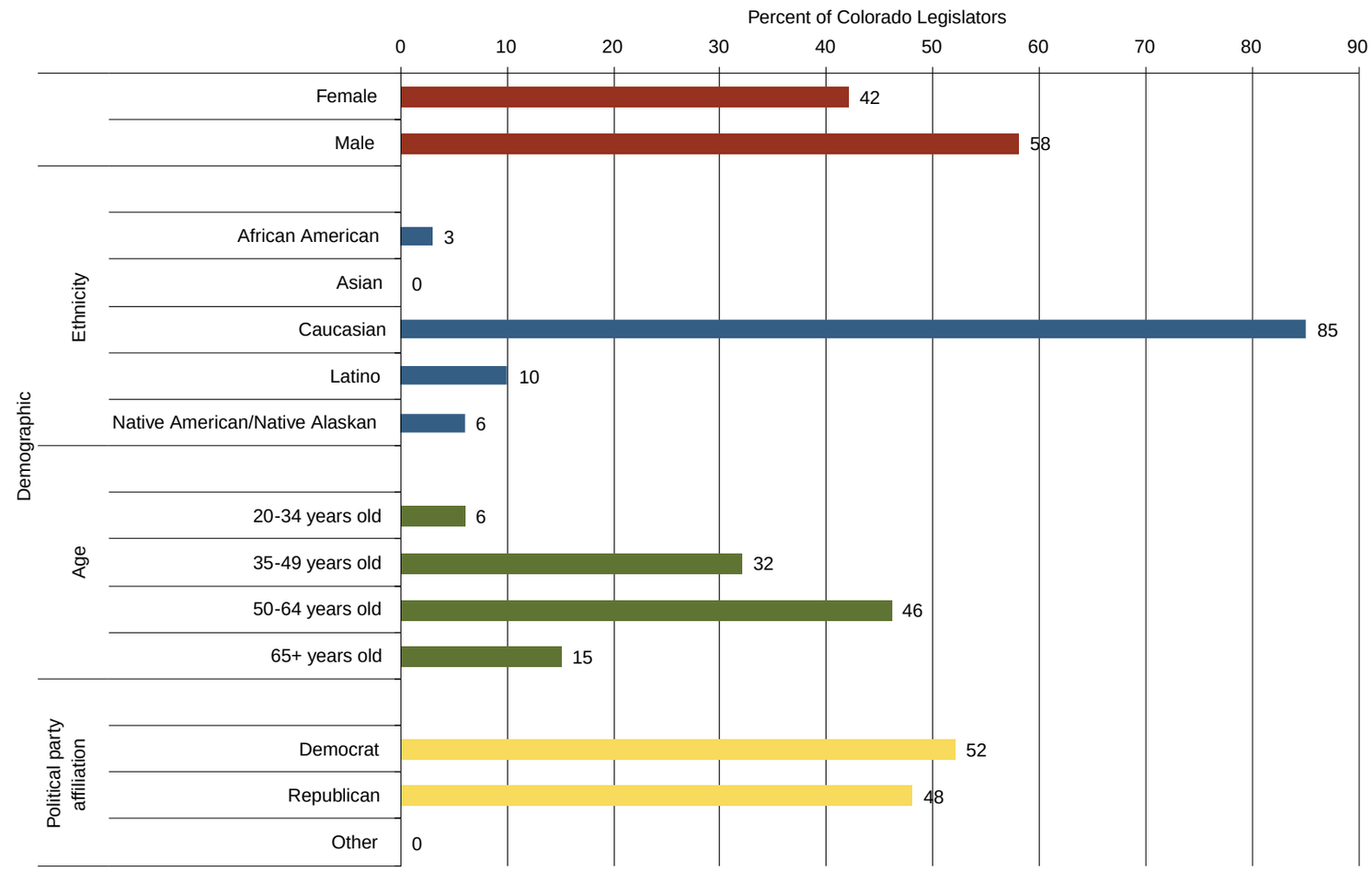
Colorado has the highest proportion of female state legislators in the country.[1] There are 28 females in the Colorado House of Representatives and 14 in the Colorado Senate, representing 43.1% and 40% of the legislators, respectively. At the local government level, there are 52 female (24%) county commissioners and city council members.[2] Figure 28 displays the 2013 legislative makeup for Colorado.

An active voting community is integral to a healthy democracy and voting increases community involvement and sense of self-efficacy for individuals. In 2011, 65.1% of the Colorado population was registered to vote, 61.5% of whom actively voted.[3]

Community Safety and Violence

Community safety has a direct impact on public health with regard to injury and death resulting from violence and crime. It also impacts the level of social support, exercise and stress levels for residents. Safety and violence vary across neighborhoods in Colorado and often is associated with socioeconomic factors in the area. For example, perceived neighborhood safety increases with income. Compared to children living above 200% of the poverty level,† significantly fewer children living at or below 200% of the poverty level are perceived by their parent to be usually or always safe in their neighborhood or community (90.1% versus 97.6%).[4]

Figure 28. Percent of Colorado Legislators by gender, ethnicity, age and political party affiliation, 2013.



Source: National Conference of State Legislatures.

Youth Influencing Politics

Founded in 2006, New Era Colorado Foundation **engages young people in politics around the state. The foundation helps increase voter registration, supports forward-thinking policies and trains the next generation of campaign managers, candidates and community leaders through an intensive leadership program. New Era's programs have been featured in publications such as the New York Times, Time Magazine and CBS News.**

Sources

† In 2010, twice the poverty level was an annual income of $36,620 for a family of 3 and $44,100 for a family of 4 in the 48 contiguous states and the District of Columbia. For further information about the federal poverty guidelines, visit http://aspe.hhs.gov/poverty/10poverty.shtml

1. National Conference of State Legislatures, Women's Legislative Network of NCSL. Women in State Legislatures: 2013 Legislative Session. Washington, D.C. Accessed from http://www.ncsl.org/legislatures-elections/wln/women-in-state-legislatures-for-2013.aspx

2. Colorado Counties, Inc. Denver, CO. http://ccionline.org/

3. Colorado Secretary of State. 2011 Voter Registration Statistics. Accessed from http://www.sos.state.co.us/pubs/elections/VoterRegNumbers/2011VoterRegNumbers.html

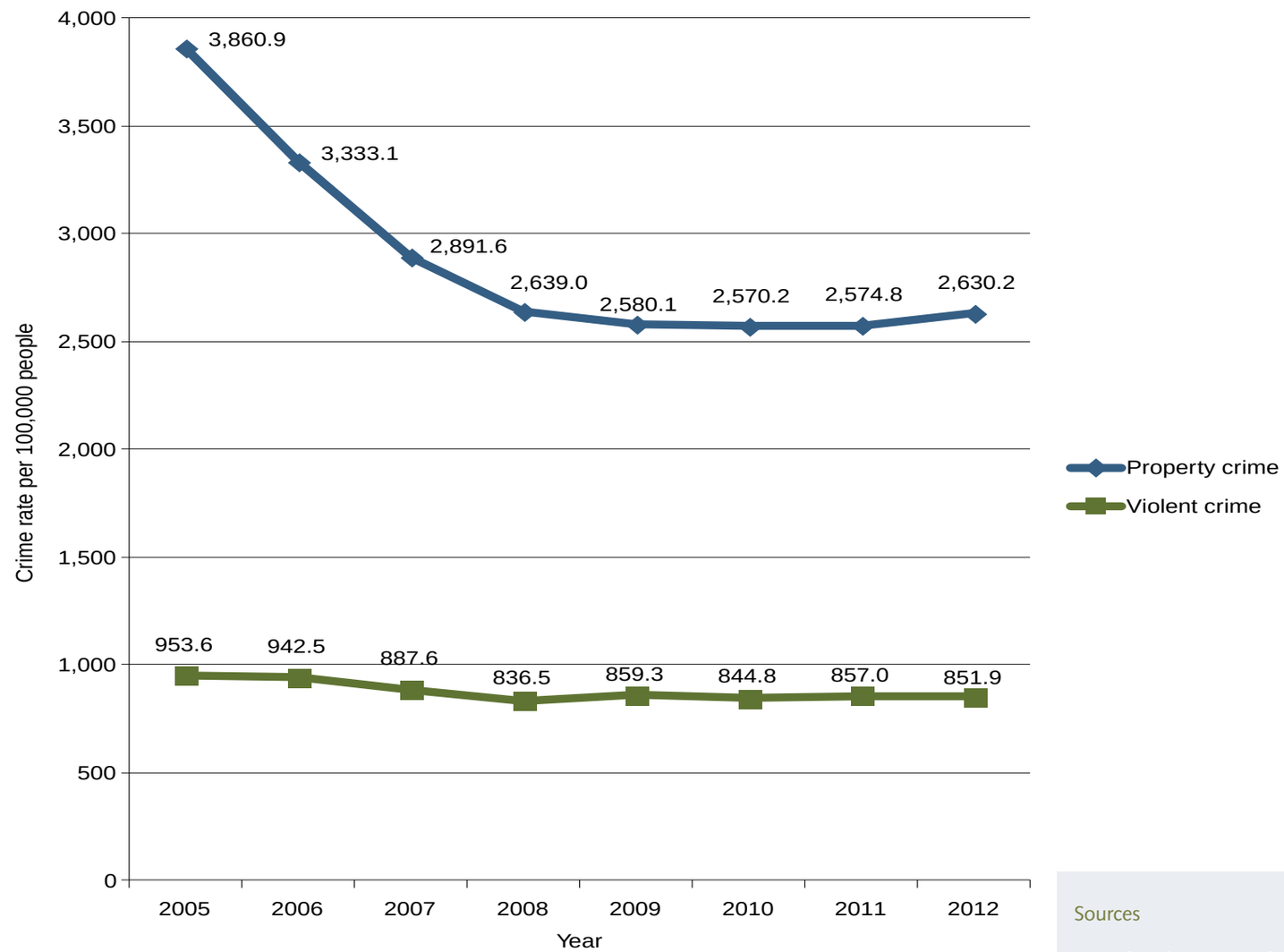
4. Colorado Department of Public Health and Environment, Health Statistics Section. 2010 Colorado Child Health Survey. Denver, CO.

With regard to violent crime such as murder, non-negligent With With regard to violent crime such as murder, non-negligent manslaughter, forcible rape, robbery and aggravated assault, rates are higher among adults age 18 years and older than juveniles age 10-17 years (144.0 versus 115.0 per 100,000 population). However, for property crimes such as such as burglary, larceny theft, motor vehicle theft and arson, rates are higher among juveniles than among adults at 1,544.3 and 820.2 per 100,000 population, respectively.[1] Figure 29 shows the statewide totals for violent crime and property crime between 2005 and 2012.

The homicide rate in Colorado is 3.5 deaths per 100,000 population. Populations that have significantly higher homicide rates than the statewide total include males, black and Hispanic populations, infants under 1 year old and people between the ages of 15 and 34 years (Figure 30).

Children and elderly populations are examples of other vulnerable populations that may experience increased violence. The 2010 statewide child maltreatment rate was 857.5 per 100,000 children under 18 years old.[2] The elder abuse rate was 599.5 per 100,000 population age 65 years or older in 2012.[3]

Figure 29. Colorado violent and property crime rates, 2005-2012.



Source: Colorado Bureau of Investigation.
Violent crime includes homicide, forcible rape, robbery and assault.
Property crime includes burglary, larceny and auto theft.

Sources

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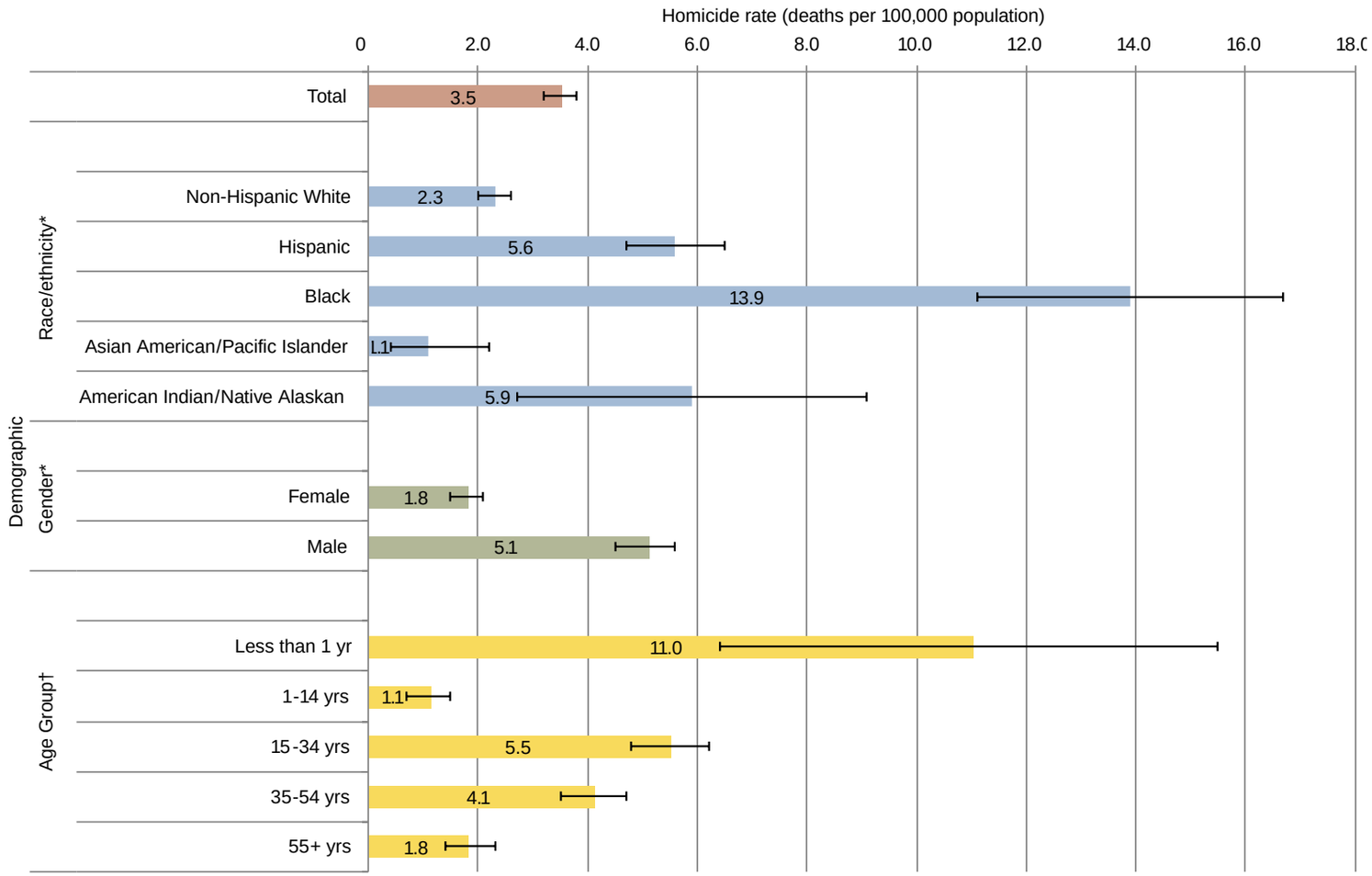
Working Toward Violence Prevention in Colorado

The VIPrevention Network: Colorado's Violence and Injury Prevention Network Partner Collaboration **website offers a variety of resources, information and technical assistance for groups working toward Violence and Injury Prevention in Colorado.**

The University of Colorado's Center for the Study and Prevention of Violence **provides information to inform violence-related policies, programs and practices, and facilitates the building of bridges between the research community, practitioners and policy makers.**

To learn more about the status and prevention of youth violence in Colorado, see Bold Steps Toward Child and Adolescent Health: A Plan for Youth Violence Prevention in Colorado **and the** Colorado Teen Dating Violence Prevention Final Report**.**

Figure 30. Age-adjusted* and age-specific homicide rates in Colorado by selected demographic characteristics, 2009-2011 combined.



Error bars represent the 95% confidence interval.
Source: Colorado Violent Death Reporting System.

MUCH OF HEALTH IS SHAPED BY BEHAVIORS SUCH AS DIET, PHYSICAL ACTIVITY, TOBACCO USE AND SEXUAL ACTIVITY. POSITIVE HEALTH BEHAVIORS SUCH AS NOT SMOKING, EATING A HEALTHY DIET AND ENGAGING IN REGULAR PHYSICAL ACTIVITY SIGNIFICANTLY REDUCE THE RISK OF PREMATURE MORTALITY.[1]

Nutrition and Physical Activity

Healthy eating and active living increase health and longevity for everyone, regardless of weight status. Thus, good nutrition is emphasized as early as pregnancy and infancy. Infants breastfed until at least six months of age have a decreased risk of many adverse health outcomes, including obesity.[2] In 2011, 56.2% of infants in Colorado were breastfed until at least six months of age, which is just short of the Healthy People 2020 target of 60.6%.[3]

Fruits and vegetables contain important nutrients that can help with weight management and lower the risk of many chronic diseases.[4] However, only 11.0% of children age 1-14, 24.4% of high school aged adolescents and 10.2% of adults eat at least two fruits and three vegetables daily (Table 4). Although sugar-sweetened beverages contribute to obesity and typically have little to no nutritional value, 21.9% of Colorado children age 1-14 years drink one or more sugar-sweetened beverage a day. This is twice the number that eat at least two fruits and three vegetables a day.[3]

A physically active lifestyle decreases the risk of many adverse health outcomes. Benefits are seen with even modest levels of activity. The United States Department of Health & Human Services provides evidence-based physical activity guidelines for people age six years and up.[5] In Colorado, 61.8% of adults get recommended levels of physical activity, although only half (48.9%) of children age 5-14 years and less than one-third (29.2%) of adolescents meet recommended levels (Table 4).

Improving Breastfeeding in Hospitals

Colorado Can Do 5! **is a collaborative initiative led by CDPHE in partnership with the Colorado Perinatal Care Council and the Colorado Breastfeeding Coalition. It promotes five breastfeeding supportive practices that improve breastfeeding prevalence:**

1. **Infants are breastfed in the first hour after birth**
2. **Infants stay in the same room as their mothers**
3. **Infants are fed only breast milk and receive no supplementation**
4. **No pacifier is used**
5. **Staff gives mothers a telephone number to call for help with breastfeeding**

CDPHE and partners have provided information, training and technical assistance to all Colorado hospitals, and have awarded 41 of 53 hospitals in Colorado for institutionalizing all five practices. Since the inception of the program in 2008, all five supportive practices across the state have steadily increased and hospital-issued formula in the discharge pack has decreased by nearly 30 percentage points. The *Colorado Can Do 5!* **Initiative has been adopted by states and cities around the nation.**

Table 4. Fruit and vegetable consumption and pysical activity by age, 2011.

Age group	Eat at least two fruits and three vegetables daily	Get nationally recommended* levels of physical activity
Children under 14 years	11.0% (age 1-14 years)	48.9% (age 5-14 years)
High school age adolescents	24.4%	29.2%
Adults age 18 years and over	10.2%	61.8%

Sources: Colorado Child Health Survey; Colorado Youth Risk Behavior Survey (2009); Colorado Behavioral Risk Factor Surveillance System.
**Recommended levels for children and adolescents were defined as 60 min/day for 7 days/week.[2] Recommendations for adults were defined as 150 min of moderate (or 75 min of vigorous) exercise per week.[2]*

Sources

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Too much screen time – such as the use of TV, movies, video and computer games among children and adolescents – is associated with decreased physical activity, behavioral problems, irregular sleep and obesity. The American Academy of Pediatrics recommends that screen time for children over two years old and teens not exceed two hours a day.[1] In 2011, 86.0% of Colorado children age 1-14 years had less then two hours of screen time on weekdays and 48.7% had less then two hours of screen time on weekends.[2]

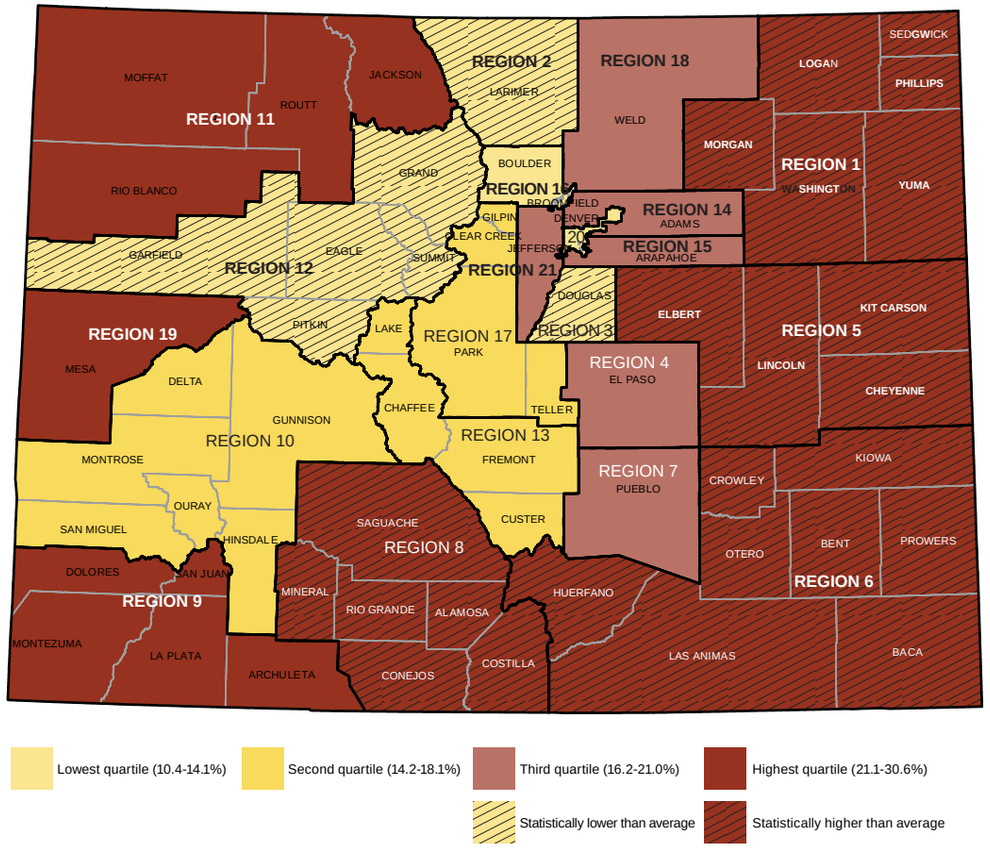
Although many Colorado adults engage in at least 150 minutes of moderate or 75 minutes of vigorous activity per week, 16.5% of adults do not get any physical activity outside of work.[3] Figure 31 shows the prevalence of leisure time physical inactivity (no physical activity outside of work) by geography across the state. Adults in the eastern and southern regions of the state reported higher levels of leisure time physical inactivity while northwestern regions had a lower prevalence of physical inactivity.

The following bills, passed by the Colorado Legislature in 2008, support healthy eating environments for Coloradans:

The Colorado Food Systems Advisory Council **will be continued indefinitely to foster a healthy food supply available to all Colorado residents while enhancing the state's agricultural and natural resources, encouraging economic growth, expanding the viability of agriculture, and improving the health of Colorado communities and residents.**

The Colorado Farm to School Task Force **will be continued indefinitely to study, develop, and recommend policies and methods to best implement a Farm to School food supply program.**

Figure 31. Prevalence of leisure time physical inactivity by Health Statistics Region, 2011.



Sources: Colorado Behavioral Risk Factor Surveillance System.

Watch Dr. Mike Evans' *23 and a Half Hours: The Single Best Thing We Can Do for Our Health*, **a video highlighting the benefit of modest levels of physical activity.**

Sources

1. American Academy of Pediatrics. Media and Children. Retrieved from http://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Pages/Media-and-Children.aspx
2. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Child Health Survey. Denver, CO.
3. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.

Tobacco Use

Cigarette smoking is a leading contributor to chronic disease and preventable death. Statewide expenditures attributable to smoking were estimated to be over $1.3 billion in 2004 and Colorado employers lose approximately $1 billion each year from smoking-related decreases in productivity.[1] Despite recent progress in reducing tobacco use, 18.3% of Colorado adults report they current smoke cigarettes, which does not meet the Healthy People 2020 target of 12.0%. The adolescent smoking rate is slightly better at 15.7%, which is just under the target of 16.0% (Table 5).

Increasing the price of tobacco products is an effective strategy for preventing the initiation of tobacco use, particularly among youth. Colorado's cigarette excise tax has not increased since 2005 and is currently 84 cents per pack, which ranks the state 34th for tobacco prices and below the national median of $1.34.[1]

Babies born to women who smoke during pregnancy have a higher risk of prematurity, low birth weight and some birth defects.[2] In Colorado, 7.8% of pregnant women smoked during the last trimester and this was significantly more common among pregnant women age 20-24 years old (14.6%).[3]

Table 5. Tobacco use among Colorado adolescents and adults in Colorado compared to Healthy People 2020 targets, 2011.

	Healthy People 2020 target	Colorado
High school-aged adolescents who smoked cigarettes in past 30 days	16.0%	15.7%
High school-aged adolescents who used chewing tobacco, snuff, or dip in past 30 days	6.9%	7.0%
Adults age 18 and over who are current cigarette smokers	12.0%	18.3%

Sources: Colorado Youth Risk Behavior Survey; Colorado Behavioral Risk Factor Surveillance System.
Note that although Healthy People 2020 uses data from the National Health Interview Survey to monitor progress on this measure at the national level, sample size in that survey is too small to obtain state-level estimates. Thus, data from the BRFSS is presented here.

Restricting Youth Access to Tobacco

Five Colorado communities - Golden, Fountain, Manitou Springs, Pueblo and Steamboat Springs – recently passed ordinances requiring tobacco retailers to obtain a license to sell non-cigarette tobacco products. These less regulated products, often mild and sweet flavored (such as flavored cigars, chewing tobacco, snuff, etc.) have strong youth appeal and can serve as the entry to trying more potent products. While federal law places limits on local and state governments' abilities to regulate cigarette marketing, non-cigarette tobacco products may be regulated at the point of sale. Licensing retailers of non-cigarette tobacco products offers opportunities for education and relationship-building with business sector partners. In addition, retailers in these communities who sell to minors now risk losing their license following multiple violations.

An Evidence-based Pathway to Becoming Tobacco-free

The Colorado QuitLine (www.coquitline.org**) is a population-based proactive counseling service, designed to assist people who want to quit using tobacco products. This evidence-based program increases cessation attempts by providing customized telephone and online cessation services, as well as nicotine replacement therapy to Colorado residents, with an emphasis on vulnerable populations such as the uninsured, Medicaid/Medicare recipients and pregnant women. CDPHE's State Tobacco Education and Prevention Partnership launched the Colorado QuitLine in 2002, and the service is operated by National Jewish Health. It soon became one of the most used quitlines in the country, with a cessation rate of 34 percent at six to seven months post-program enrollment. Since the program's inception, the Colorado QuitLine has served more than 266,000 Colorado residents.**

Sources

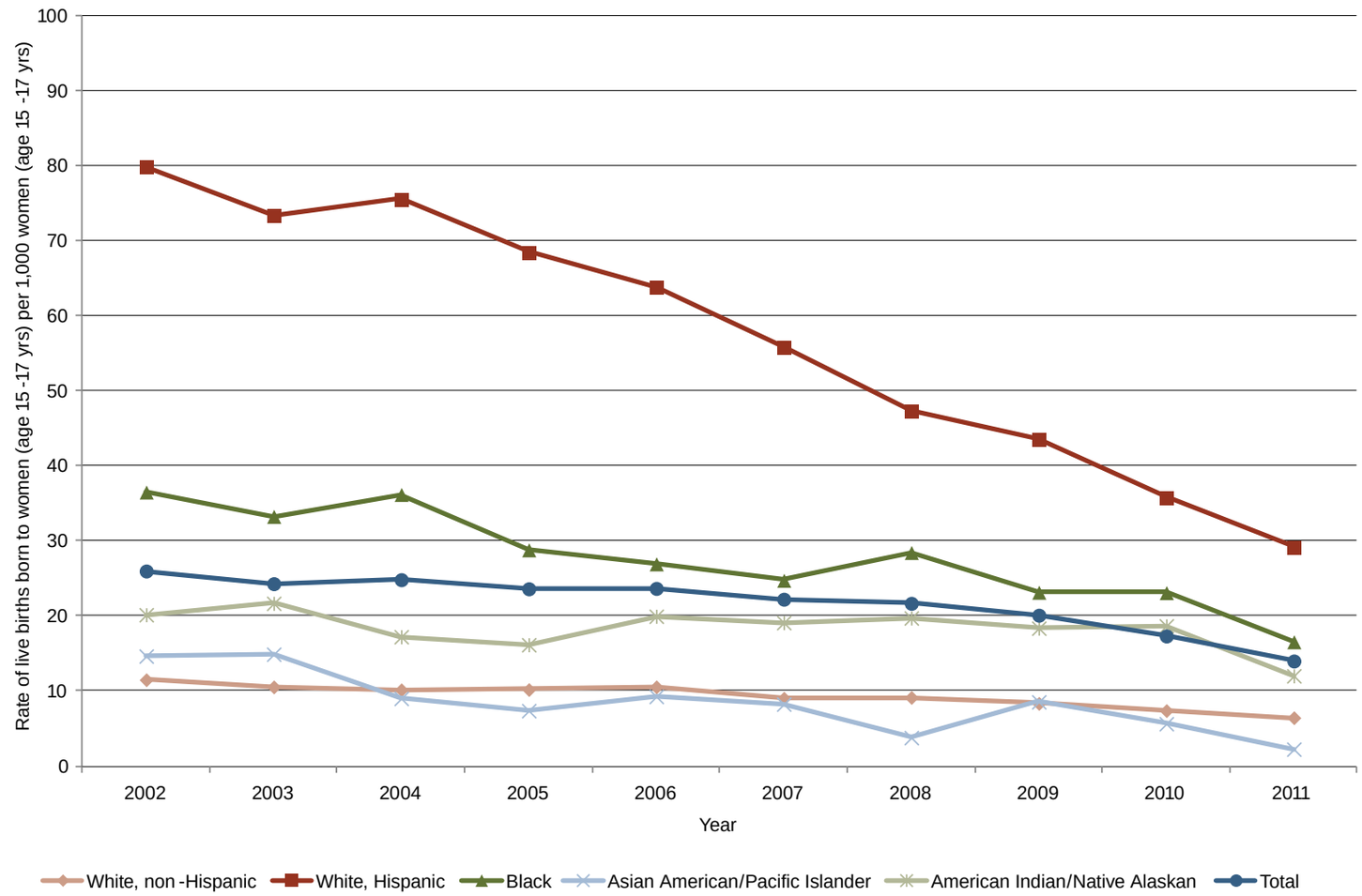
1. The Centers for Disease Control and Prevention. State Tobacco Activities Tracking and Evaluation (STATE) System. Retrieved from website: http://apps.nccd.cdc.gov/statesystem/HighlightReport/HighlightReport.aspx?FromHomePage=Y&StateName=Colorado&StateId=CO#ReportDetail
2. The Centers for Disease Control and Prevention. Tobacco use and pregnancy. (2012). Retrieved from http://www.cdc.gov/reproductivehealth/TobaccoUsePregnancy/
3. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Pregnancy Risk Assessment Monitoring System. Denver, CO.

Unintended Pregnancy

Unintended pregnancy (pregnancy that is mistimed, unplanned or unwanted at the time of conception) is linked to delayed prenatal care, birth defects, low birth weight, elective abortions, maternal depression, reduced breastfeeding and increased risk of physical violence during pregnancy.[1] Children born as a result of an unintended pregnancy are more likely to experience child abuse, poor mental and physical health, lower educational attainment and behavioral problems.[1] Related costs to Colorado Medicaid total more than $160 million annually.[2] In 2011, 35.9% of pregnancies resulting in live births were unintended in Colorado.[3]

In the United States, more than 4 out of 5 births to teen mothers are unintended.[4] Births rates among Colorado adolescents have decreased over the past decade overall and particularly among Hispanic white and Black teens (Figure 32). However, significant differences in birth rates by race and ethnicity persist. In 2011, Hispanic white teenage females had a significantly higher birth rate (29.2 live births per 1,000 females aged 15-17 years old) compared to all other races. In the same year, white non-Hispanic (6.5) and Asian American/Pacific Islander (2.3) teenagers were significantly lower compared to the total (14.0). There were no statistical differences for Black (16.6) and American Indian/Native Alaskan (12.0) teens compared to the total. In 2011, 82.2% of sexually active high school students in Colorado reported using one or more effective method to prevent pregnancy.[5]

Figure 32. Birth rates of Colorado teens age 15-17 years by race/ethnicity and year, 2002-2011.



Source: Colorado Health Statistics and Vital Records.
Rates shown are for the statewide total.

Sources

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Engaging Youth as Partners

Youth Sexual Health in Colorado: A Call to Action **provides evidence-based strategies and approaches to improving youth sexual health that are tailored to the resources, skills and knowledge available to various Colorado communities. It is part of Colorado's effort to address youth sexual health as a holistic issue in young people's lives beyond preventing unintended pregnancy and sexually transmitted infections. A positive youth development approach, which includes engaging youth as partners, is central to this work and Colorado is often looked to as an expert in this area.**

In November 2012, two Youth Advisors were hired to help guide, inform and create activities related to Colorado 9to25**, Colorado's youth-system building effort, and implementation of CDPHE's action plan for improving youth sexual health. The Youth Advisors are instrumental in providing a youth perspective within CDPHE and in designing and tailoring engagement, outreach and other activities to be relevant, appropriate and appealing for youth across Colorado.**

Beforeplay.org**, part of a public-private partnership between the Colorado Department of Public Health and Environment and the Colorado Initiative to Reduce Unintended Pregnancy, is a statewide effort to reduce unintended pregnancy and help normalize conversation around sexual health and well being. It provides resources in English and Spanish focused on family planning, sexual health and well being such as reliable information, conversation starters and a health center finder.**

Mental Health Status

MENTAL HEALTH IS AN INTEGRAL ASPECT OF OVERALL HEALTH AND DIRECTLY IMPACTS QUALITY OF LIFE. IT IS LINKED WITH HEALTH BEHAVIORS SUCH AS SUBSTANCE USE AND PHYSICAL INACTIVITY, AND CAN INCREASE THE RISK AND SEVERITY OF CHRONIC DISEASE SUCH AS HYPERTENSION, CARDIOVASCULAR DISEASE AND DIABETES.[1] Mental health status has varying and cumulative effects across the stages of life, from the pre-natal period to older adulthood.

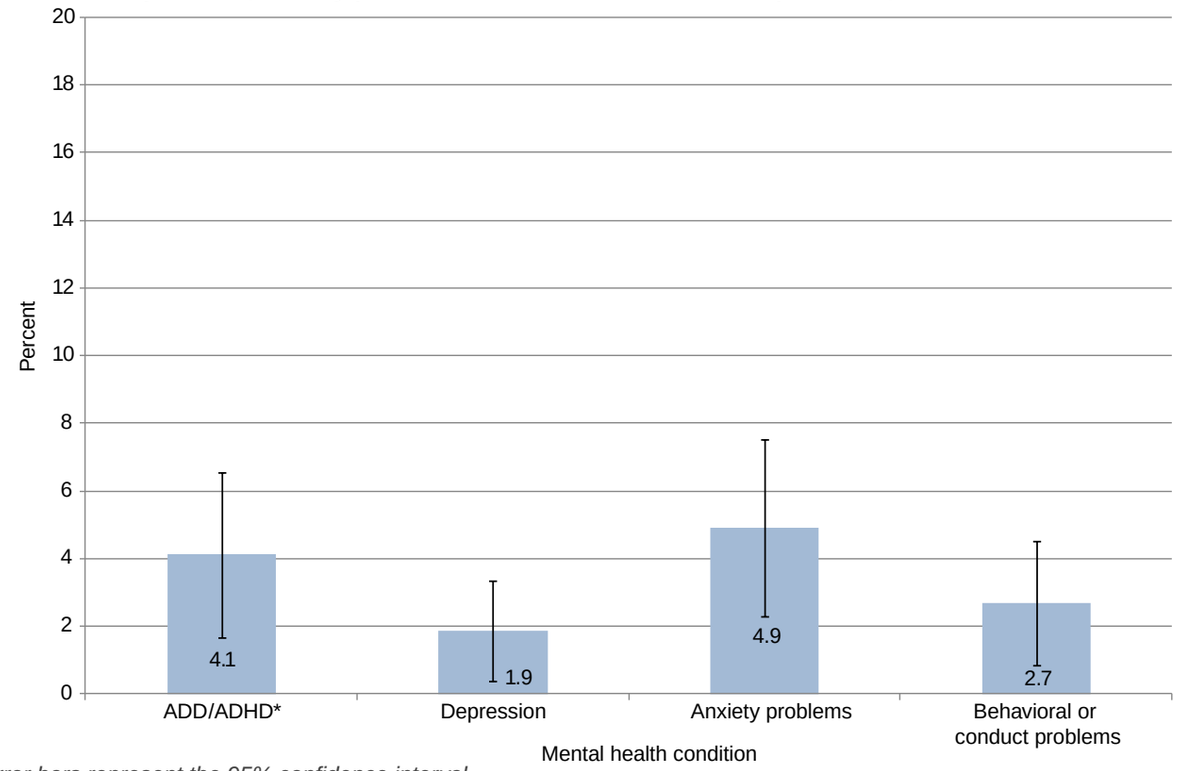
In 2011, the age-adjusted rate of emergency department visits in Colorado for mental health diagnosis was 5,990.3 per 100,000 population and from 2009-2011 the age-adjusted rate of hospitalizations with a mental health diagnosis was 2,912.2 per 100,000 population.[2,3] The prevalence and indicators of depression and mental health vary across life stages:

- **Mothers and infants**: In 2008, 13.3% of Colorado mothers reported often or always feeling down, depressed, sad or hopeless since their baby was born in the 2-4 months prior to being surveyed.[4] Such postpartum depression can adversely affect early parent-child interactions, feeding practices and infant safety.[5]

- **Children:** In 2012, 20.3% of children age 1-14 had parent-reported difficulty with their emotions, concentration, behavior or ability to get along with others.[6] Figure 33 shows the percent of children whose parents have been told by a doctor or health care provider that the child has attention deficit disorder or attention deficit hyperactivity disorder (ADD or ADHD), depression, anxiety problems or behavioral or conduct problems. Such emotional, behavioral or mental problems can adversely affect relationships, activity participation, school engagement and performance, and overall well-being.

- **Adolescents**: In 2011, 21.9% of high school students reported that during the past year they felt sad or hopeless almost every day for two or more weeks in a row and stopped doing some of their usual activities.[7] In that same year, 14.8% of

Figure 33. Percent of children age 1-14 years whose parents have been told by a provider that they have ADD/ADHD,* depression, anxiety problems or behavioral or conduct problems, 2012.



Error bars represent the 95% confidence interval.
Source: Colorado Child Health Survey.
**Attention deficit disorder/attention deficit hyperactivity disorder.*

Sources

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high school students reported seriously contemplating attempting suicide, which was slightly more common among Hispanic students than among white, non-Hispanic students (17.6% versus 13.9%).[1] Six-point-one percent (6.1%) of high school students reported attempting suicide.[1]

- Adults: In 2008, 7.4% of Coloradan adults reported being depressed at the time they were surveyed.[2] In 2011, Colorado adults reported experiencing an average of 3.5 days per month when their mental health was not good.[3] From 2011-2012, 16.2% of females and 11.7% of males reported having eight or more days in the prior month when their mental health was not good.[4] Most adults (95.7%) report being satisfied with their lives in general.[4] Significantly fewer adults making less than $15,000 (84.8%) and significantly more adults with household incomes $50,000 or above (97.6%) were satisfied with their lives in general compared to other household incomes.[4]

Substance Abuse

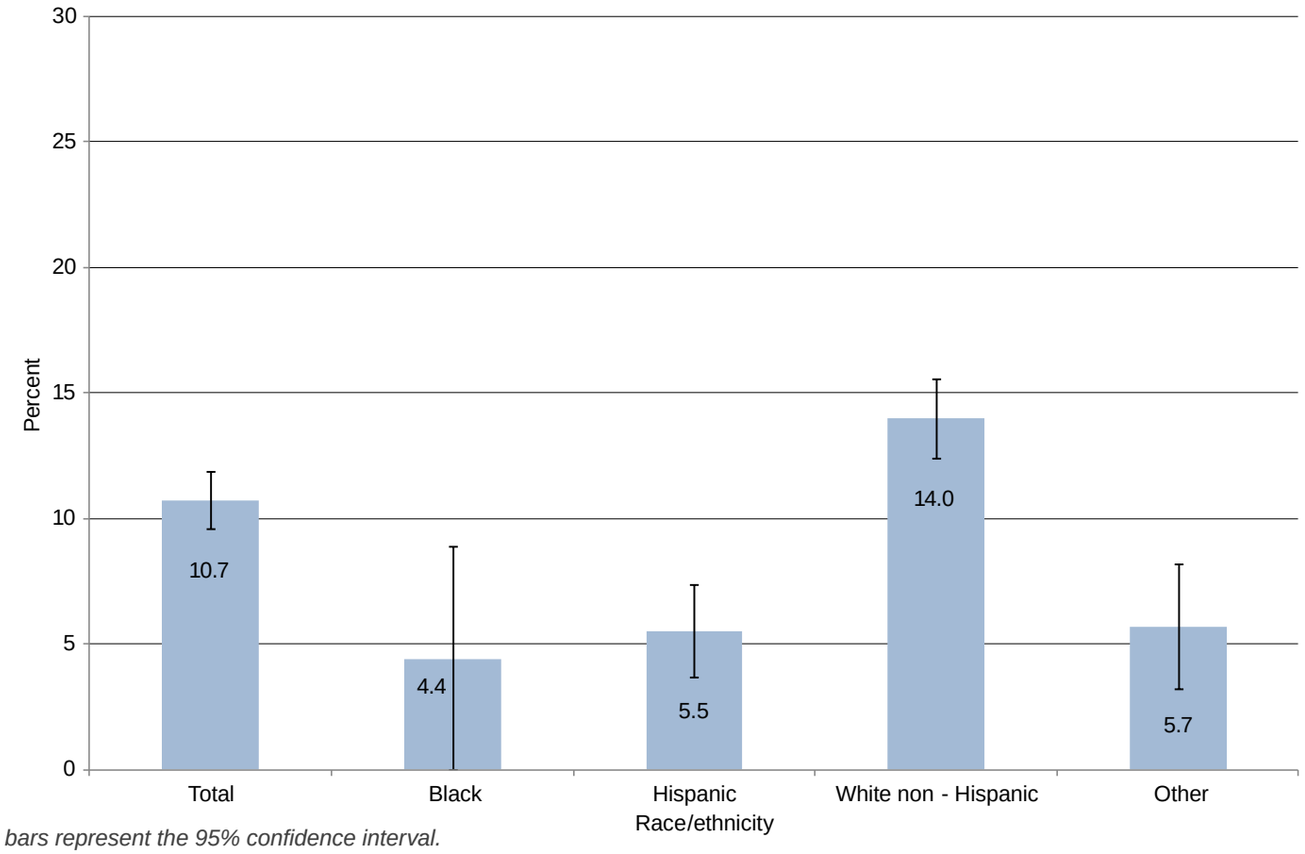
Substance abuse refers to excessive alcohol consumption and the use of illicit drugs. It is a preventable health issue that has been linked to increased rates of sexually transmitted infections, domestic violence and child abuse, car crashes, crime and suicide.[5]

Alcohol Use and Abuse

- **Pregnant women:** Drinking during pregnancy can cause a number of adverse birth outcomes. One in 10 (10.7% of) pregnant women in Colorado reported drinking any alcohol during the third trimester. Fourteen percent of white, non-Hispanic women report doing so, which is significantly more than any other racial/ethnic group (Figure 34).

- **Adolescents:** Youth who drink alcohol are more likely to become pregnant, have poor or failing grades in school, or be physically or sexually assaulted.[6] In 2011, 22.3% of Colorado high school students report binge drinking on at least one occasion in the past month, which is nearly three times the Healthy People 2020 goal of 8.6%.[7]

Figure 34. Percent of women in Colorado who drank alcohol in the last trimester of pregnancy by race/ethnicity, 2009-2011 combined.



Error bars represent the 95% confidence interval.
Source: Colorado Pregnancy Risk Assessment Monitoring System.

Sources

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In the same year, 5.8% of high school students reported driving a car or other vehicle when they had been drinking alcohol at least once during the past month.[1] The 2011 arrest rate for driving under the influence among juveniles age 12-17 years was 66 arrests per 100,000 population.[2]

- **Adults:** 20.1% of adults report binge drinking in the past month, which is below the Healthy People 2020 target of 24.3%.[3] In 2011, there were 142 fatalities among adults age 21 years and older in Colorado that involved a driver or motorcycle operator with a blood alcohol concentration above the legal limit of 0.08 blood alcohol concentration.[4] The 2011 arrest rate for driving under the influence among adults age 18 years and over was 664 arrests per 100,000 population.[5]

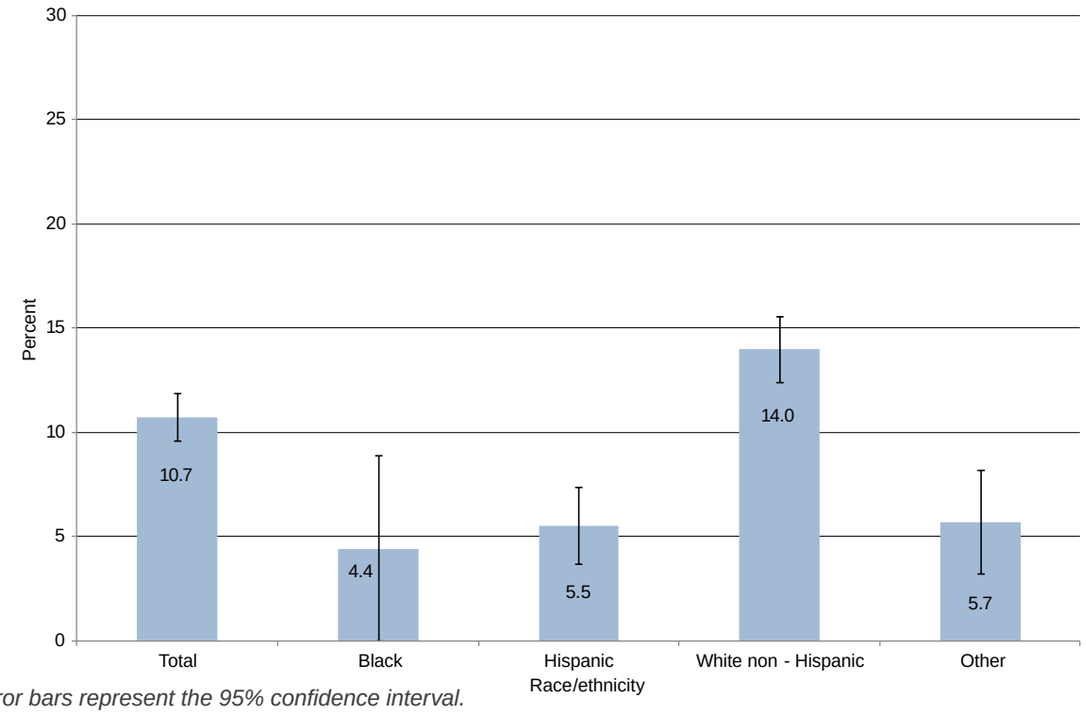
Drug Use and Abuse

Colorado decriminalized marijuana use for medicinal purposes in 2000 and is one of the first two states to decriminalize marijuana use for non-medicinal purposes among adults. In 2011, 22% of high school students used marijuana at least once during the prior month, which is nearly four times the Healthy People 2020 goal of 6.0%.[1] Figure 35 shows that marijuana use within the past year in Colorado was significantly higher for all age groups compared to the United States, with the highest use among 18-25 year olds.

Colorado has the 2nd highest prescription drug abuse rate in the country and over 255,000 Coloradans over the age of 12 misuse prescription pain killers.

Nonmedical use of pain relievers is a growing public health concern and is more common than illicit drug use, such as cocaine, heroin, hallucinogens, inhalants or prescription-type psychotherapeutics used for non-medical purposes. Colorado has the 2nd highest prescription drug abuse rate in country and over 255,000 Coloradans over the age of 12 misuse prescription pain killers.[6] Deaths related to the abuse of prescription opioids such as oxycodone, hydrocodone and fentanyl nearly doubled from 180 in 2000 to 343 in 2010.[7] As shown in Figure 36, drug use is most common among 18 to 25 year-olds.

Figure 35. Percent of population who used marijuana in the past year by age, 2010-2011 combined.



Error bars represent the 95% confidence interval.
Source: National Survey on Drug Use and Health.

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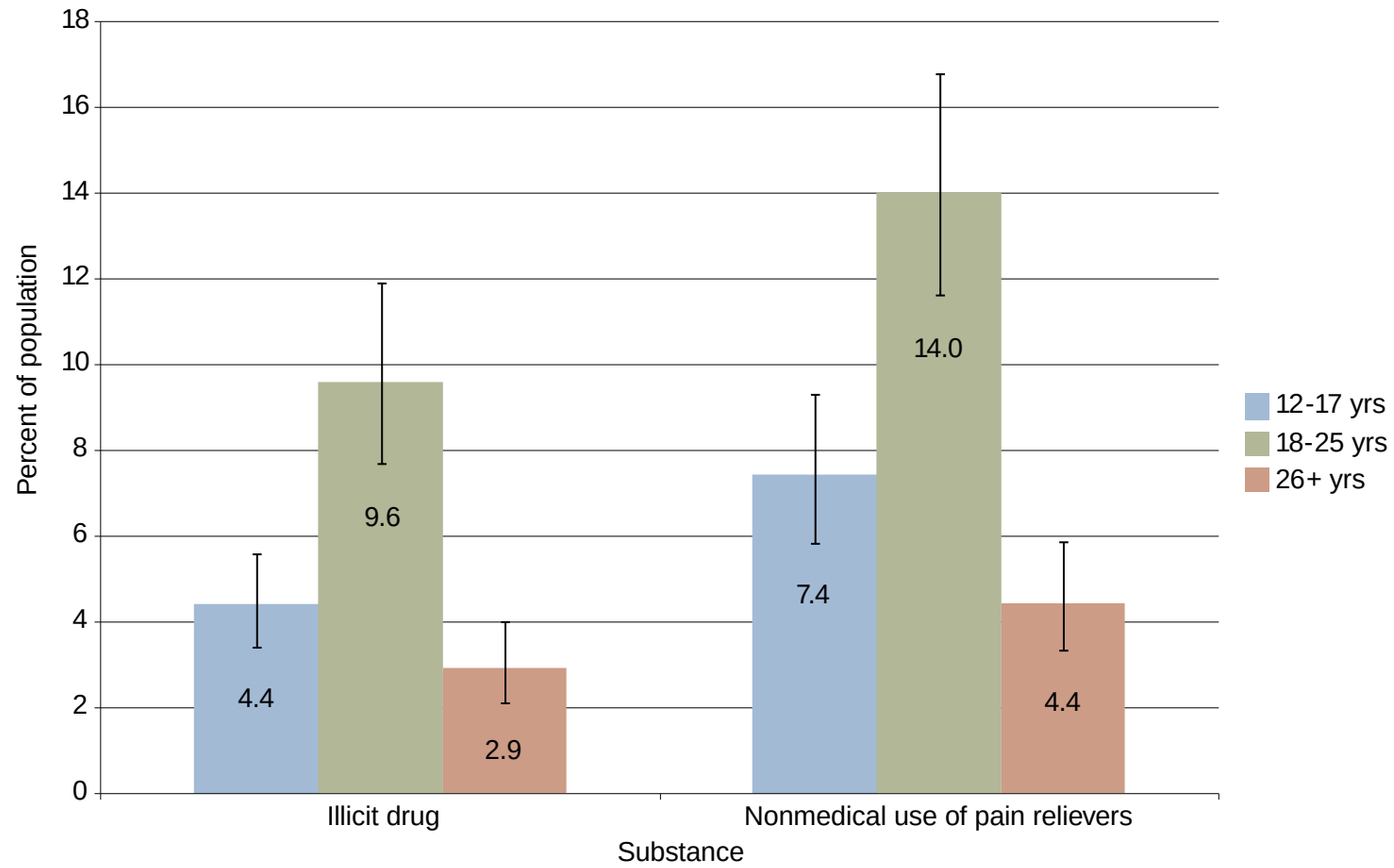
Figure 36. Percent of Colorado population using illicit drugs or pain relievers for nonmedical purposes in the past month by age, 2010-2011 combined.



Illicit drug defined as cocaine, heroin, hallucinogens, inhalants or prescription-type psychotherapeutics used for nonmedical purposes.
Error bars represent the 95% confidence interval.
Source: National Survey on Drug Use and Health.

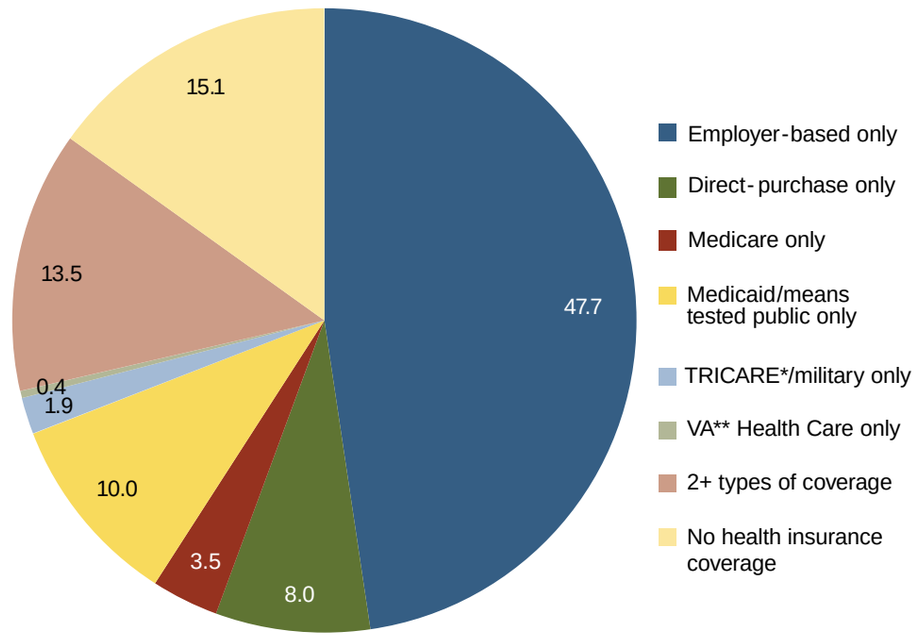
ACCESS TO HEALTH CARE IS VITAL FOR RECEIPT OF PREVENTIVE CARE, SCREENING SERVICES AND EARLY IDENTIFICATION AND APPROPRIATE TREATMENT OF HEALTH PROBLEMS. MANY COLORADANS, LIKE OTHERS ACROSS AMERICA, FACE CHALLENGES OR BARRIERS TO ACCESSING NEEDED PHYSICAL, MENTAL AND ORAL HEALTH SERVICES. This is in part because access to health care is complex and dependent upon a variety of factors including health insurance, provider availability, cost of care and type of care needed. Additionally, access to care does not guarantee receipt of high quality care, which also is important for patient satisfaction, proper management of health issues, quality of life and health outcomes. All of these factors are influenced by both national and state-level policy and are priorities within the context of health reform.

Health Insurance Coverage

Health insurance is an important and typically necessary first step in having access to care. Children and adults who are uninsured are less likely to receive adequate preventive care, have early detection and effective management of health problems and are more likely to experience negative outcomes of their health conditions.[1] Evidence also suggests low levels of insurance in a community is associated with poorer access to care and lower satisfaction with care, even among the insured.[1] Nearly half (47.7%) of Coloradans acquire health insurance coverage through an employer and 13.5% acquire it through Medicaid or Medicare (Figure 37).

Children and adults who are uninsured are less likely to receive adequate preventive care, have early detection and effective management of health problems and are more likely to experience negative outcomes of their health conditions.

Figure 37. Percent of Colorado population by type of health insurance coverage, 2007-2011 combined.



** TRICARE is the Department of Defense health care program.*
*** VA is the Veterans Health Administration program.*
Source: U.S. Census Bureau American Community Survey.

According to focus groups conducted by The Colorado Trust as part of a 2012 Environmental Scan of Health Equity in Access to Health, **'the most significant and persistent health equity challenges in Colorado are related to insurance coverage and access to care for all Coloradans.[2]**

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1. Institute of Medicine. (2009). America's Uninsured Crisis: Consequences for Health and Health Care. Retrieved from website: http://www.iom.edu/~/media/Files/Report%20Files/2009/Americas-Uninsured-Crisis-Consequences-for-Health-and-Health-Care/Americas%20Uninsured%20Crisis%202009%20Report%20Brief.pdf

2. The Colorado Trust. (2013). Access to Health, Health Equity: Findings from The Colorado Trust's Environmental Scan. Retrieved from website: http://www.coloradotrust.org/attachments/0002/0034/CT_EnviScanReport_vF-3.pdf

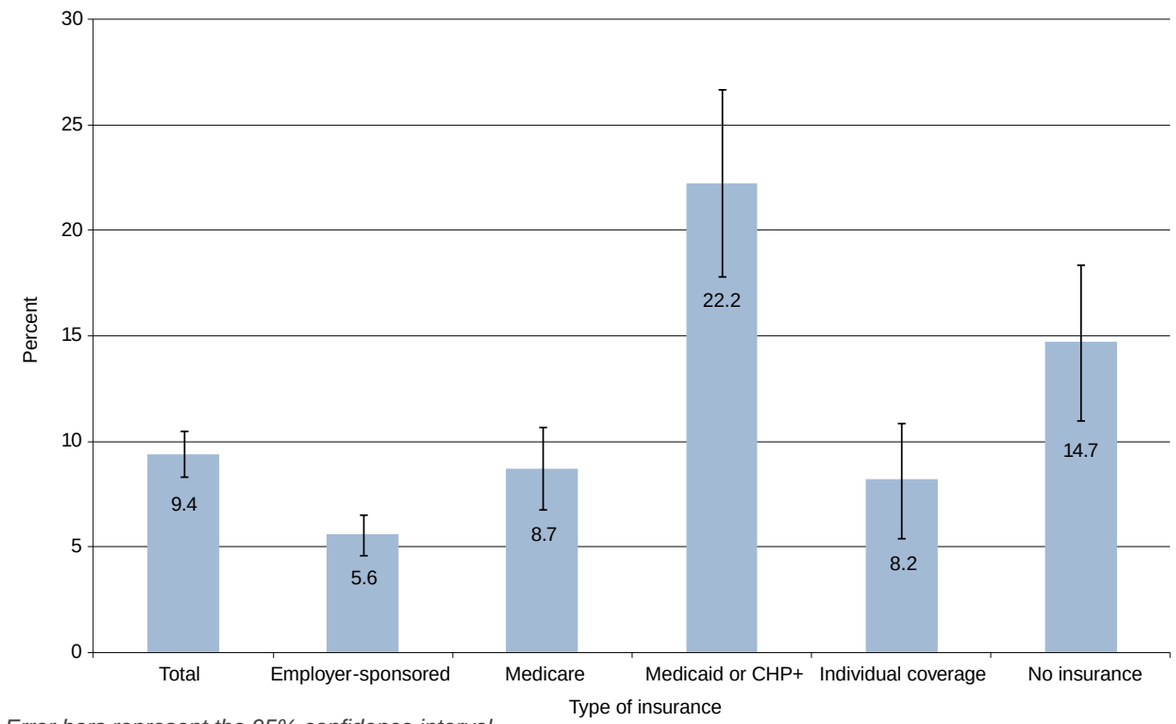
In Colorado, over 15% of Coloradans have no health insurance coverage and 39.9% lack any type of dental insurance.[1] This means one in five (20.1% of) adults age 19 to 64 years and one in 10 (10.3% of) children under 19 years old are medically uninsured.[2]

Additionally, many eligible Coloradans are not enrolled in the available public health insurance. Nearly 90,000 (18.8% of those eligible) Colorado children are eligible but not enrolled in Medicaid or Colorado Child Health Plan Plus (CHP+).[3] Another 25,000 (24.8% of those eligible) Colorado working age adults age 19 to 64 years are eligible but not enrolled in Medicaid.[4] Close to 60% of children who are eligible but not enrolled in public health insurance are Hispanic even though they are only about 30% of the child population.[5]

Underinsurance (having insurance that does not adequately protect from high medical expenses) also is a national concern. More than one in 10 Coloradans (12.8%) are underinsured, meaning they have health insurance but spend 10% or more of their family income on out-of-pocket medical expenses if living at or above 200% of the federal poverty level or 5% or more if living under 200% of the federal poverty level.[1]

Health insurance coverage does not guarantee access to care and one reason for this is that many medical practices do not accept all types of health insurance. One in five Coloradans with Medicaid or CHP+ did not receive care because their insurance was not accepted by a doctor, which is significantly more than those with any other type of insurance (Figure 38).

Figure 38. Percent of Coloradans who were denied care because of the type of insurance coverage, 2011.



Error bars represent the 95% confidence interval.
Source: Colorado Health Institute.

Sources

1. Colorado Health Institute. 2011 Colorado Health Access Survey. Indicators for Health Statistics Regions from the 2011 Colorado Health Access Survey. Accessed from http://www.coloradohealthinstitute.org/data-repository/detail/colorado-health-access-survey-chas-selected-indicators-2011

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3. Colorado Health Institute. 2011 CHI analysis of the American Community Survey. Children Eligible but Not Enrolled in Medicaid & CHP+. Accessed from http://www.coloradohealthinstitute.org/data-repository/detail/children-eligible-but-not-enrolled-ebne-in-medicaid-chp

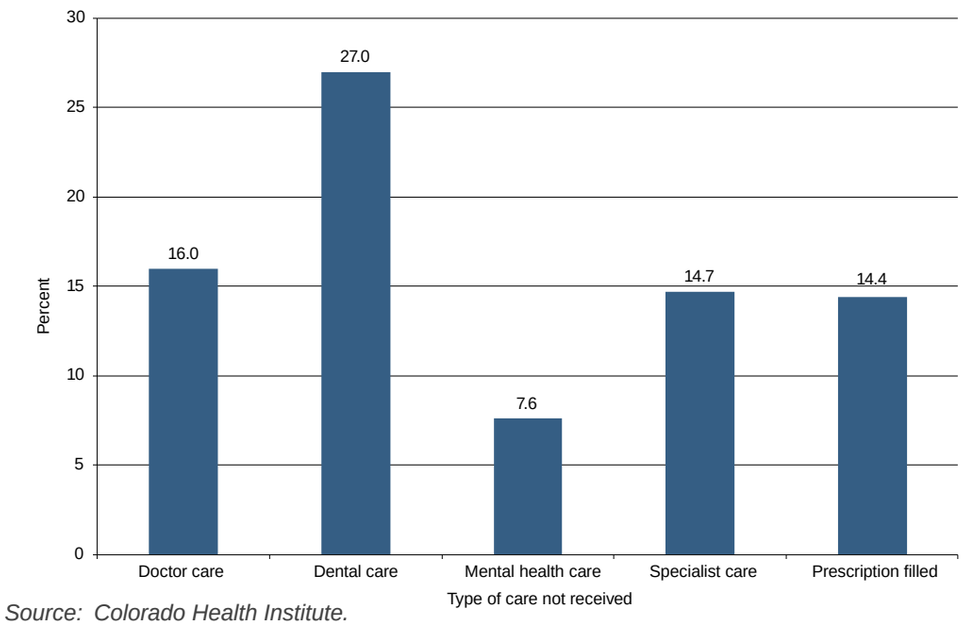
4. Colorado Health Institute. 2010 CHI analysis of the American Community Survey. Adults Eligible but Not Enrolled (EBNE) in Medicaid. Accessed from http://www.coloradohealthinstitute.org/data-repository/detail/adults-eligible-but-not-enrolled-in-medicaid-ebne

5. Colorado Health Institute analysis of the American Community Survey. Retrieved from website: http://www.coloradohealthinstitute.org/insights/insight/how-many-ebne-children-are-hispanic

Cost as a Barrier to Care

Health care must be affordable to be accessible and the United States is known internationally for having high health care costs. These costs are incurred by the medical system, the health insurance system, communities and the consumer. Figure 39 shows the percent of Colorado adults who did not get necessary care because of cost during the past year by type of care. More adults forgo dental care (27%) because of cost than other type of care. It is important to note that those who did not forgo care may still have experienced financial burden in obtaining needed care.

Figure 39. Percent of Colorado adults who did not receive various types of care because of cost in the past year, 2011.



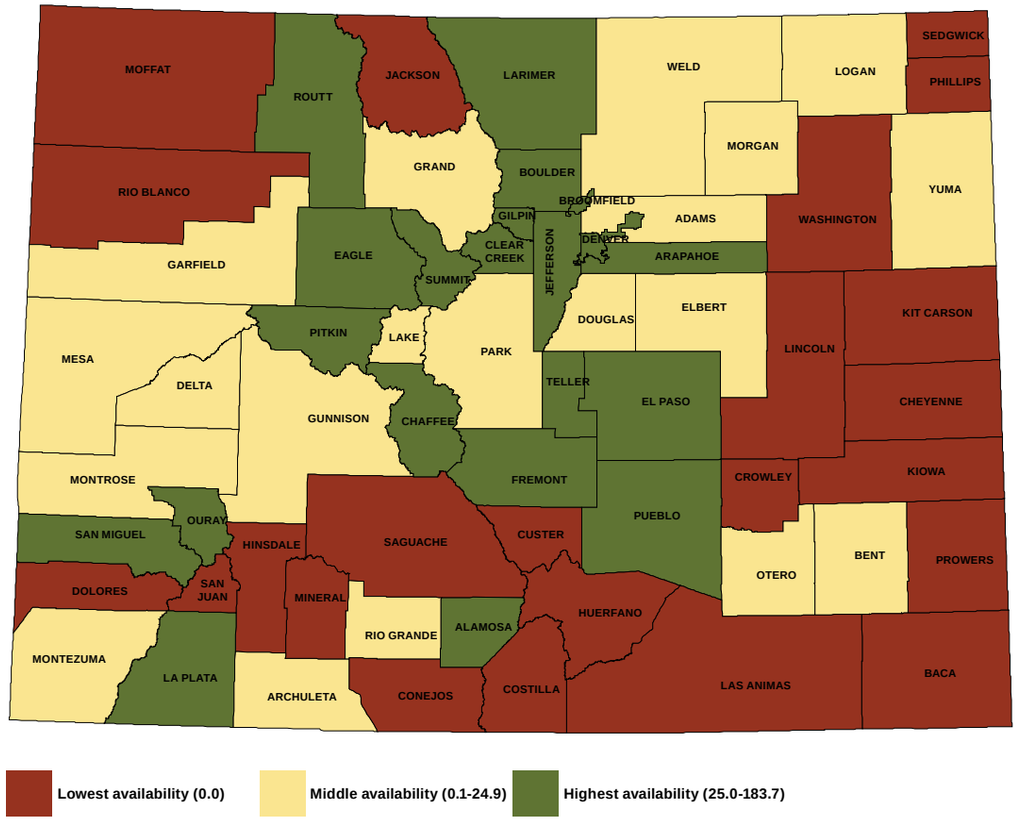
Source: Colorado Health Institute.

Provider Availability

Availability of health care providers is another integral piece of access to care and can be a particular concern for specialty care and in areas with provider shortages. Approximately one million Colorado residents live in a community with less than half of the primary care physicians needed to optimally deliver care.[1] Table 6 shows the health-related workforce population in Colorado.

Metropolitan areas have better availability of providers while some rural and frontier communities have no providers available within the community for certain types of care. Mental health providers, such as psychologists, are one type of provider for which there are regional disparities in availability, as shown in Figure 40. One-third of Colorado counties do not have any psychologists available. See a map for each type of provider workforce at http://www.coephtmaps.dphe.state.co.us/cdphe_maps/workforce_population/

Figure 40. Number of active licensed psychologists per 100,000 population by county, 2011.



Source: Colorado Health Institute.

Table 6. Number of active licensed health professionals in Colorado per 100,000 population, 2011.

Type of Provider Workforce	Number of active licensed health professionals per 100,000 people
Clinical social workers	74.2
Dentists	69.8
Nurse practitioners	51.9
Physician assistants	38.0
Physicians	270.3
Practicing physicians	222.0
Practicing primary care physicians	63.7
Psychologists	42.3
Registered nurses	1,047.7
Social workers	8.9

Source: Colorado Health Institute.

Source

1. Colorado Department of Public Health and Environment, Primary Care Office. Denver, CO.

Pueblo StepUp **is a nonprofit organization with a mission to positively impact the health, well-being and access to health care and wellness services for Pueblo's underserved. They help over 4,000 people per year, including struggling children, pregnant women, families, seniors and disabled individuals, enroll in, understand or manage their Medicaid, CHP+, Longterm Care, and Adult Medicaid benefits.**

Addressing Health Provider Shortages through Educational Loan Repayment

The Colorado Health Service Corps is a state, federal and private partnership that seeks to improve access to health care professionals by repaying the educational loans of providers who agree to practice in areas with a health professional shortage. The program emphasizes long-term retention of health professionals in underserved communities and seeks to increase health equity through its efforts. Since 2009, the Colorado Health Service Corps has granted nearly $14 million in awards to over 200 providers practicing in shortage areas.

Expanding Health Coverage, Access and Capacity

Several policies and programs have been implemented in recent years to improve access to care for Coloradans, including but not limited to:

- **Recent legislative actions in Colorado to increase various components of eligibility and benefits for Medicaid and/or Child Health Plan Plus (House Bill 1293 of 2009 and Senate Bills 008, 200 and 242 of 2013)**
- **In May 2011,** The Colorado Accountable Care Collaborative **began enrolling Medicaid clients. The program transitions Medicaid enrollees from a fee-for-service system to a more efficient and integrated, person-centered and outcome-focused system of care to yield improved health outcomes and cost savings.**
- **Launched in 2013,** Connect for Health Colorado **became the nation's first bipartisan-supported state-based health insurance exchange.**

Preventive Care across Life Stages

Health insurance coverage, affordable care and provider availability all play a role in promoting receipt of quality preventive care throughout life, thereby improving community health. The type of care needed varies by age and in many cases, large proportions of the population are not receiving recommended preventive services.

Prenatal

Some of the most critical and necessary care occurs during the prenatal and early childhood stages. Events and behaviors during these time periods impact maternal health, birth outcomes and long-term health outcomes for the baby.[1] In Colorado:

- Six out of 10 mothers (61.4%) received adequate prenatal care from 2009-2011.[2]
- 76.6% of mothers in Colorado had a provider speak with them about what to do if they experienced postpartum depressive symptoms during pregnancy or after delivery.[3]

Early Childhood & Childhood

Two important health care quality indicators for the child population are receipt of standardized health screenings and provision of medical care that meets medical home criteria. Regular developmental and behavioral screening of infants and young children helps enable early identification of health concerns, which is important for following up with appropriate care, referrals and promoting healthy development. As such, standardized developmental and behavioral screening is recommended in the pediatric primary care setting by the American Academy of Pediatrics.[4] Most validated screening instruments are parent-reported and can lead to referrals for early intervention opportunities. However, in 2011, only 39.8% of children age 1-5 years old had a health care provider who asked their parent to fill out a questionnaire about the child's development, communication or social behavior.[5]

The medical home is considered one of the most promising approaches to delivering high-quality and cost-effective health care.

Improving Outcomes for Mothers and Children

The Nurse-Family Partnership **of Colorado is an evidence-based, community health program that connects vulnerable first-time parents with maternal and child health nurses. This program allows nurses to deliver the support first-time mothers need to have a healthy pregnancy and become knowledgeable and responsible parents. The program serves 52 counties in Colorado and has demonstrated positive effects on child immunization rates, domestic violence, breastfeeding, partner relations, academic performance, teen substance abuse and repeat pregnancies.**

The Colorado's Medical Home Initiative

The Colorado Medical Home Initiative**, a joint entity between the Colorado Department of Public Health & Environment and the Colorado Department of Healthcare Policy & Financing reinforces the medical home concept. Created in 2001 and emphasizing broad stakeholder and community engagement, this initiative is known nationally as a leader in medical home implementation efforts. Strategies include:**

- **Mobilizing partnerships to support the coordination of state and local medical home projects and initiatives,**
- **Developing and implementing a medical home policy agenda,**
- **Developing and implementing a plan for a statewide network of consumer voice training opportunities, and**
- **Supporting local medical home planning and implementation efforts.**

Several local public health agencies have chosen medical home implementation as a priority within their Maternal & Child Health program. In Weld County, local public health partners are focusing medical home efforts on resource-challenged families including refugees, homeless and near homeless. As part of these efforts, they have convened a new group of community agencies to discuss and address issues specific to these populations.

Sources

1. Kuh D, Ben-Shlomo Y, Eds. A Life Course Approach to Chronic Disease Epidemiology, 2nd Edition. Oxford: Oxford University Press, 2004.
2. Colorado Department of Public Health and Environment, Health Statistics Section. 2009-2011 Colorado Vital Records. Denver, CO.
3. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Pregnancy Risk Assessment Monitoring System. Denver, CO.
4. Council on Children With Disabilities, Section on Developmental Behavioral Pediatrics, Bright Futures Steering Committee and Medical Home Initiatives for Children With Special Needs Project Advisory Committee. Identifying Infants and Young Children with Developmental Disorders in the Medical Home: An Algorithm for Developmental Surveillance and Screening. Pediatrics 2006; 118(1):405-420 (doi:10.1542/peds.2006-1231).
5. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Child Health Survey. Denver, CO.

It is a philosophy of healthcare that is patient- or family-centered, comprehensive, coordinated, accessible, continuous and culturally effective. In 2011, 63% of children age 1-14 years old in Colorado received care that met medical home criteria.[1]

Adults & Older Adults

While the principles of a medical home also are relevant and important for adults, adult medical home measurement at the population level has yet to be defined or formally implemented. Having a regular source of care is one component of the medical home that helps improve consistency and quality of care. In 2011, 76% of adults had one or more regular health care providers.[2]

As the first step to early identification and effective treatment of health problems, screening is another important preventive measure. Substantial proportions of adults do not receive the screening services recommended for their age and gender and Colorado falls short of each relevant Healthy People 2020 target (Table 7).

Inadequate access to primary health care and lack of appropriate preventive care increases usage of the emergency department for acute and chronic conditions. Costly repeat emergency department visits and hospital admissions for conditions that can be treated by primary care providers often indicate poor access to and/or quality of primary care. In 2011, 5.1% of the population reported over four visits to the emergency department over the course of 12 months.[3] From 2009-2011 the age-adjusted rate of inpatient hospitalizations for ambulatory care-sensitive conditions† was 1,071.5 per 100,000 population.[4]

Improving Access to Care among the Lesbian, Gay, Bisexual and Transgender Population

Disparities in health care access, utilization and quality by race, ethnicity, income, education, language and place of residence are well known and documented. Another population that often faces unique health challenges and increased barriers to care is the lesbian, gay, bisexual and transgender (LGBT) community. Many LGBT individuals report barriers to care and gaps in care quality such as health insurers that do not recognize same-sex families or cover transgender care, and a lack of providers trained in providing culturally-competent care to non-heterosexual or transgender people.

In 2011 and 2012, Colorado conducted a strategic planning process for addressing the health needs of Colorado's LGBT population. Collecting demographic sexual orientation data is a first step to understanding and addressing the needs of this population. While there are challenges in accurately assessing sexual orientation and gender identity, filling this data void is a priority at the national and state level. As steps towards this goal, Colorado is one of the few states that collects this information on the Behavioral and Risk Factor Surveillance Survey. One Colorado Education Fund conducted a needs assessment of more than 4,600 LGBT Coloradans in 2010 and Boulder County collects data on LGBT youth through its Youth Risk Behavior Survey. To learn more, see CDPHE's Colorado LGBT Strategic Health Plan **and One Colorado Education Fund's** 2010 Needs Assessment **and** Invisible: The State of LGBT Health in Colorado.

Table 7. Percent of Colorado adult population^ who received selected types of preventive care compared to Healthy People 2020 targets, 2011.

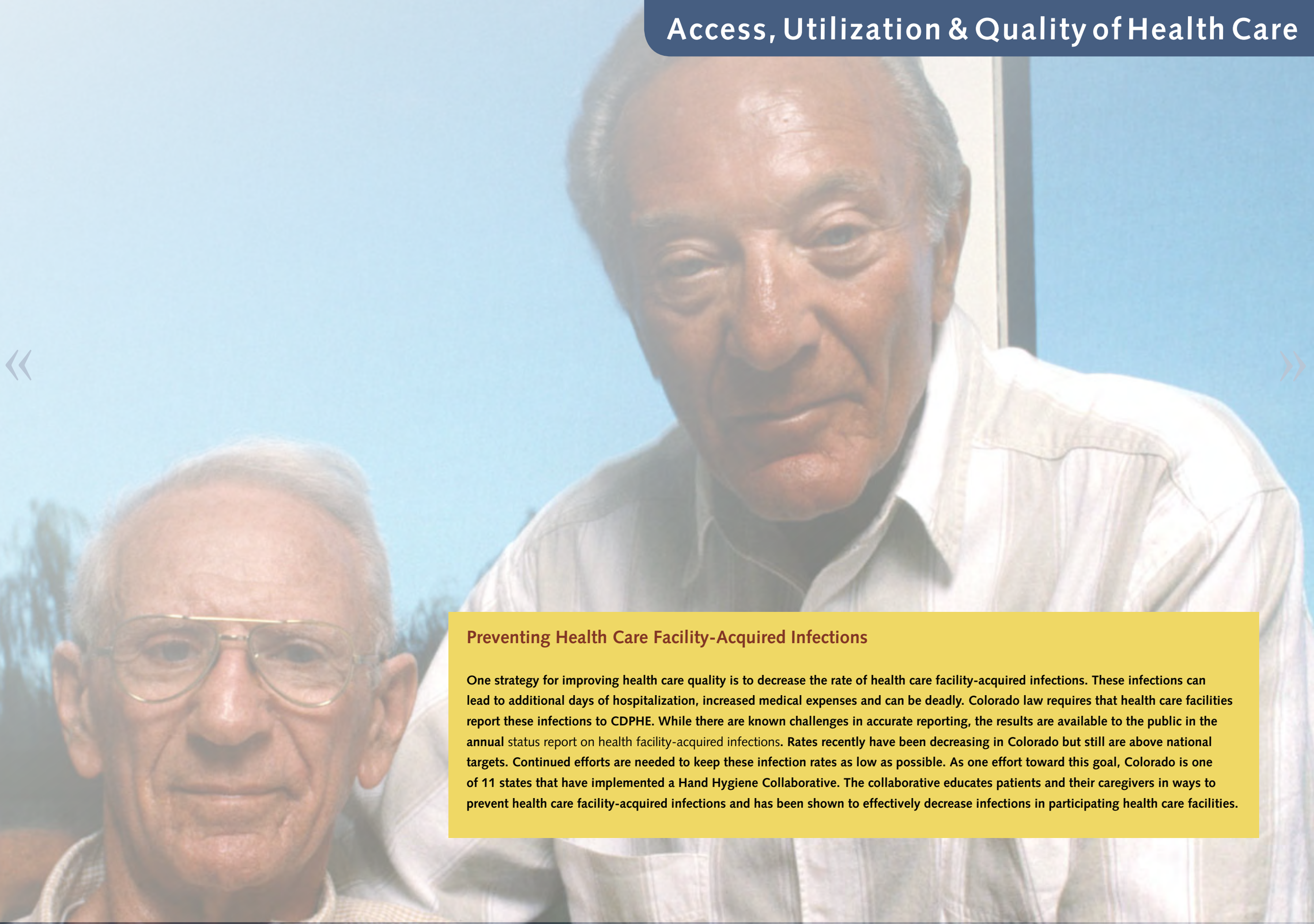
	Healthy People 2020 target	Colorado
Adults age 18 years and over who received cholesterol screening in past five years	82.1%	74.7%
Females age 18 years and over who had a pap smear in past three years	93.0%	79.8%
Females age 40 years and over who had a mammogram in past two years	No matching target*	70.3%
Adults age 50 years and over who had a colonoscopy in past 10 years, sigmoidoscopy in past five years or fecal occult blood test in past year	70.5%	63.5%

^ the denominator for each type of preventive care practice was limited to the recommended ages.
Source: Colorado Behavioral Risk Factor Surveillance System.

Sources

† Ambulatory care-sensitive conditions were defined by the following diagnoses: diabetes short-term complication, diabetes long-term complication, chronic obstructive pulmonary disease or asthma, hypertension, heart failure, dehydration, bacterial pneumonia, urinary tract infection, angina (without procedure), uncontrolled diabetes, asthma in younger adults, rate of lower-extremity amputation among patients with diabetes.[5]

1. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Child Health Survey. Denver, CO.
2. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.
3. Colorado Health Institute. 2011 Colorado Health Access Survey. Denver, CO.
4. Colorado Hospital Association. 2009-2011 Hospital Discharge Dataset. Data prepared by Colorado Department of Public Health and Environment.
5. United States Department of Health & Human Services, Agency for Healthcare Research and Quality. Prevention Quality Indicators Overview. Accessed from http://qualityindicators.ahrq.gov/modules/pqi_overview.aspx Environment, Health Statistics Section. Denver, CO.



Preventing Health Care Facility-Acquired Infections

One strategy for improving health care quality is to decrease the rate of health care facility-acquired infections. These infections can lead to additional days of hospitalization, increased medical expenses and can be deadly. Colorado law requires that health care facilities report these infections to CDPHE. While there are known challenges in accurate reporting, the results are available to the public in the annual status report on health facility-acquired infections**. Rates recently have been decreasing in Colorado but still are above national targets. Continued efforts are needed to keep these infection rates as low as possible. As one effort toward this goal, Colorado is one of 11 states that have implemented a Hand Hygiene Collaborative. The collaborative educates patients and their caregivers in ways to prevent health care facility-acquired infections and has been shown to effectively decrease infections in participating health care facilities.**

Oral Health

Oral health is central to overall health and well-being. Poor oral health has been linked to diabetes, heart disease, stroke and respiratory diseases. Table 8 outlines the importance of five major oral health prevention strategies and the percent of the Colorado population receiving each type of care.

Table 8. Receipt of preventive oral health care in Colorado.

Type of oral health care	Importance and effectiveness	Colorado performance
Water fluoridation	■ Effective public health strategy for preventing toothe decay and improving oral health. ■ For each $1 invested into fluoridating water, there is an estimated $38 to $61 in dental care savings.[1,2] ■ The Healthy People 2020 target is that 79.6% of the population be served by community water systems receives optimally fluoridated water.	72.4% of the population is served by a community water system that receives fluoridated water.[3]
Dental care during pregnancy	■ Pregnancy increases the risk of developing gum disease. ■ Oral health can affect the health of a developing baby and dental infections have been linked to preterm labor.	46.1% of mothers receive dental care during pregnancy[4]
First dental visit in the first year of life	■ Recommended by the American Academy of Pediatrics.[5] ■ Baby teeth are vulnerable to decay as soon as they emerge. ■ Important to learn proper oral care and nutrition for infants.	11.2% of children 1-3 years old had their first dental visit in the first year of life in 2011.[6]
Childhood sealants	■ Sealants are an effective strategy for preventing tooth decay.	44.9% of third graders have dental sealants on their permanent molars.[7]
Regular dental visits for adults	■ Helps maintain good oral health and allows oral health problems to be addressed.	68% of adults visited the dentist within the past year in 2010.[8]

1. *United States Department of Health and Human Services, Centers for Disease Control and Prevention. Cost Savings of Community Water Fluoridation. Accessed from website: http://www.cdc.gov/fluoridation/fact_sheets/cost.htm*
2. *O'Connell JM, Brunson D, Anselmo T, Sullivan PW. Costs and savings associated with community water fluoridation programs in Colorado. Prev Chronic Dis [serial online] 2005 Nov. Available from: URL: http://www.cdc.gov/pcd/issues/2005/nov/05_0082.htm*
3. *Colorado Department of Public Health and Environment, Prevention Services Division Oral Health Unit. Denver, CO.*
4. *Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Pregnancy Risk Assessment Monitoring System. Denver, CO.*
5. *American Academy of Pediatrics. Children's Oral Health. Accessed from website: http://www2.aap.org/oralhealth/index.html*
6. *Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Child Health Survey. Denver, CO.*
7. *Colorado Department of Public Health and Environment, Prevention Services Division Oral Health Unit. Colorado Children's Basic Screening Survey. Denver, CO.*
8. *Colorado Department of Public Health and Environment, Health Statistics Section. 2010 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.*

Expanding Pediatric Oral Health Care in and around Summit County

Summit County's Integrated Oral Health Program is a partnership between the Summit Community Care Clinic, the Summit Dental Alliance, the School-Based Health Centers Healthy Smiles Project and Cavity-Free at Three. The program provides comprehensive, age-appropriate oral health care services to children age birth through 9th grade, including oral health education, dental screenings and preventive and restorative oral health care. It also has integrated a dental risk assessment and dental screenings into primary care appointments. Without this program, many children in Summit County and the surrounding communities would go for years without dental care. There also has been a noticeable improvement in oral health literacy within the community. To learn more, watch this video **on The Colorado Health Foundation's KaleidesCOpe website.**

THE VARIETY OF ENVIRONMENTAL, SOCIAL AND HEALTH FACTORS DISCUSSED THROUGHOUT THIS REPORT INTERACT TO INFLUENCE POPULATION HEALTH OUTCOMES SUCH AS QUALITY OF LIFE, ACUTE AND CHRONIC DISEASE, MORTALITY AND LIFE EXPECTANCY. This section presents data on communicable disease followed by major indicators of quality of life, chronic disease and mortality at each life stage.

Communicable Disease

Communicable or infectious diseases are diseases that can spread – either from one person to another, or from animals and insects to a person, or through contaminated foods, needles, or other objects. Risk of specific communicable diseases varies by age, residence, environment and behavior, among other factors. However, most are easily prevented through immunizations, transmission prevention strategies and early detection.

Foodborne Illness

Each year, approximately 1 in 6 Americans get sick from eating contaminated food.[1] While most recover, some may suffer from complications such as kidney failure, miscarriage, brain and nerve damage, and death. The most common food safety problems resulting in outbreaks are food handlers who are ill along with improper hand washing, contaminated products at time of purchase and improper temperature regulation. Improving access to safe food through regulations, education and inspections – and investigating foodborne illness outbreaks – are essential public health functions. From 2007 to 2011, Colorado reported and investigated an average of 41 foodborne outbreaks per year, which is equivalent to 8.3 outbreaks per million people per year. This is one of the highest outbreak reporting rates in the United States. However, the higher rates of outbreak reporting may be more a reflection of the high capacity in Colorado for monitoring and reporting, rather than a higher incidence of outbreaks. For example, in 2011, Colorado was the first to detect and investigate a multistate Listeriosis outbreak, which became one of the deadliest foodborne outbreaks in U.S. history.

In 2011, the rate of food-related bacterial infections in Denver Metro was higher than Healthy People 2020 objectives for Campylobactor, Listeria and two types of E. coli, but lower for Salmonella (Table 9).

Influenza

Influenza is a common and highly infectious respiratory illness. The CDC estimates that in the U.S. more than 200,000 people are hospitalized each year from seasonal flu-related complications. Influenza seasons vary in severity – between 1976 and 2006, estimates of

Table 9. Number of new cases of food-related bacterial infections per 100,000 population in Denver Metro compared to FoodNet average and Healthy Peope 2020 targets, 2011.

	Healthy People 2020 target	FoodNet average**	Denver Metro*
Campylobacter	8.5	14.3	14.2
Listeria	0.2	0.3	1.0
Salmonella	11.4	16.5	9.5
E. coli (STEC) 0157	0.6	1.0	0.9
E. coli (STEC) non-0157	N/A	1.1	2.5

** Includes Adams, Arapahoe, Denver, Douglas, Jefferson, Boulder and Broomfield counties only.*
***Includes counties within or entire state for the following states: California, Colorado, Connecticut, Georgia, Maryland, Minnesota, New Mexico, New York, Oregon and Tennessee.*
Source: Foodborne Diseases Active Surveillance Network.

Collaborating to Improve Food Safety

The Center for Food Safety and the Prevention of Foodborne Disease**, managed by the Colorado Department of Public Health and Environment and The Colorado School of Public Health, aims to improve food safety and prevent foodborne disease by fostering collaboration among academia, government and industry in Colorado and the region. It is committed to improving training, research, continuing education, and outreach related to food safety and the prevention of foodborne disease.**

The Center for Disease Control and Prevention (CDC) has designated Colorado one of five Integrated Food Safety Centers of Excellence to help fulfill its role in the Food Safety Modernization Act. With CDC's leadership, these Centers will provide technical assistance and training on epidemiological, laboratory, and environmental investigations of foodborne illness outbreaks and associated analyses. Centers will identify and implement best practices in foodborne diseases surveillance and will serve as a resource for public health professionals at state, local and regional levels. To learn more, visit www.cdc.gov/foodsafety/fsma.html**.**

Source

1. Centers for Disease Control and Prevention. 2011. Making Food Safer to Eat. Retrieved from website: http://www.cdc.gov/vitalsigns/FoodSafety/

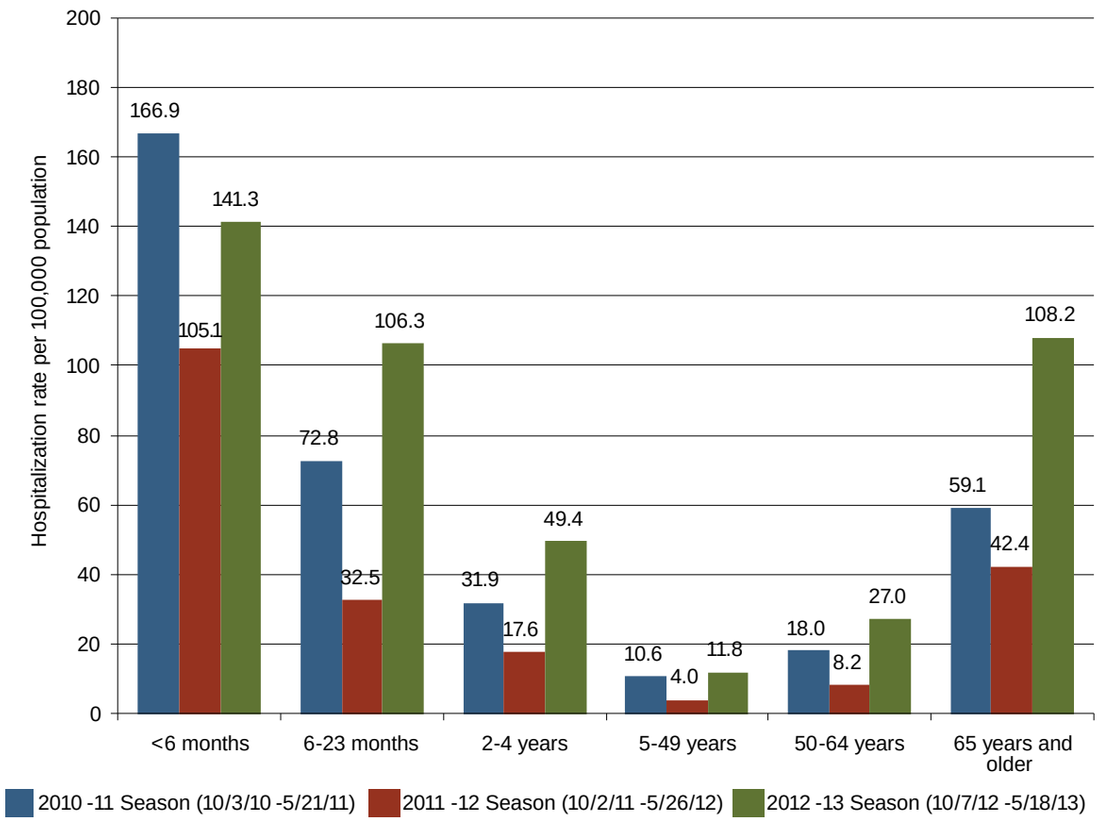
flu-associated deaths in the U.S. ranged from a low of about 3,000 to a high of about 49,000. Populations such as pregnant women, children under five, people with certain chronic medical conditions and adults 65 years and older have a higher risk of flu complications, hospitalization and death Figure 41 shows the rate of influenza-associated hospitalizations in Colorado by age for the 2010-2011, 2011-2012 and 2012-2013 influenza seasons.

Vaccination of individuals and the health care working population is important for preventing adverse outcomes associated with influenza. In 2011, 40.0% of adults age 18 or over and 65.9% of adults age 65 or over received an influenza vaccination.[1] Of the 2,020 licensed health care facilities required to report to the Colorado Department of Public Health and Environment, 43% of the facilities had at least 90% of their health care workers vaccinated for influenza.[2]

Pertussis

Pertussis, also known as whooping cough, is a highly contagious respiratory disease. It is known for uncontrollable, violent coughing which often makes it hard to breathe. People of any age can get and spread pertussis and it can result in hospitalization, seizures, long-term neurological problems or even death among infants and young children, especially those not fully vaccinated. Pertussis rates decreased following widespread use of pertussis vaccination in the 1950s, but have increased recently. For the last two years, Colorado has had epidemic levels of whooping cough. In 2012, there were 29.7 reported pertussis cases per 100,000 population in Colorado. This is 3.6 times higher than the rate in 2011 and three- to ten-fold greater than the yearly rates from 2007 to 2010 (Figure 42). From Jan. 1 through Oct. 31 2013, a total of 1,110 cases of pertussis were reported in Colorado, compared to a 2007-2011 average of 219 cases during the same calendar period.

Figure 41. Influenza-associated hospitalizations in Colorado by age group and influenza season, 2010-2013.



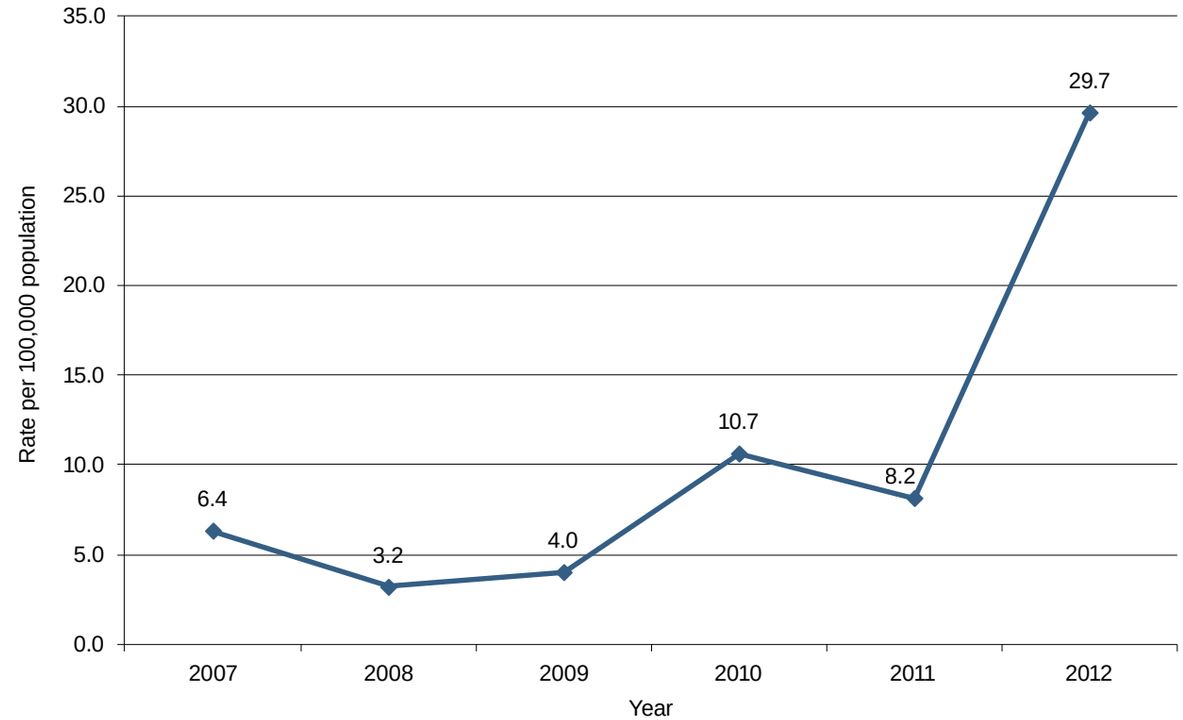
Source: Colorado Department of Public Health and Environment Communicable Disease Program http://www.colorado.gov/cs/Satellite/CDPHE-DCEED/CBON/1251607766255

Sources

1. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.
2. Colorado Department of Public Health and Environment, Disease Control and Environmental Epidemiology Division. *2012 Influenza Vaccination Coverage Report for Health Care Workers in Colorado.*

The best way to protect against pertussis is immunization. In 2012, 82.8% of Colorado children age 19-35 months had received four or more doses diphtheria, tetanus and pertussis (DTaP) vaccine, which is below the Healthy People 2020 target of 90.0%.[1] For the 2012/2013 school year, 82.9% of Colorado kindergartners met school immunization requirements[†] for DTaP vaccinations at school entry.[2] The Healthy People 2020 objective is for 95% of children to be vaccinated with four or more doses of DTaP at the time of school entry. Among Colorado adolescents age 13-17 years, 93.2% received a tetanus-diphtheria-acellular pertussis booster vaccine on or after the age of 10 years, which is higher than the national average of 84.6%.[1]

Figure 42. Yearly rate of reported pertussis cases per 100,000 population in Colorado, 2007-2012.



Source: Colorado Department of Public Health and Environment, Disease Conrol and Environmental Epidemiology Division.

In May 2013, Colorado's legislature and governor passed legislation to improve access to childhood immunizations by addressing the current challenges in vaccine delivery and financing. The newly created Act directs the Colorado Department of Public Health and Environment to convene a diverse coalition of stakeholders to take a comprehensive look at the current access, financing and delivery system, consider options, and make recommendations for a more efficient and cost-effective approach. To learn about the findings and recommendations, see Colorado's personal belief exemption policy for immunizations: stakeholder engagement process **October 2013 report.**

Sources

† Child has received five DTaP shots or four shots if the fourth is administered on or after the child's fourth birthday.

1. 2012 National Immunization Survey.

2. Colorado Department of Public Health and Environment, Colorado Immunization Program. Denver, CO.

Tuberculosis

Tuberculosis, also known as TB, is one of the world's deadliest diseases. TB is caused by bacteria that can attack any part of the body, although most typically the lungs, and can be fatal if not treated properly. While TB control efforts have been effective in reducing rates in the United States, nearly one-third of the world is infected with TB, according to the CDC. Tuberculosis rates are lower in Colorado than nationwide and are nearing the Healthy People 2020 goal of 1.0 new case per 100,000 population (Table 10). In 2012, 45 of the 64 tuberculosis cases in Colorado were among the foreign-born population. To learn more about tuberculosis, see CDPHE's 2012 Annual Tuberculosis Surveillance Report.

Table 10. Yearly rate of new tuberculosis cases per 100,000 population in Colorado and the United States, 2006-2012.

	2006	2007	2008	2009	2010	2011	2012
Colorado	2.6	2.3	2.1	1.7	1.4	1.4	1.2
United States	4.6	4.4	4.2	3.8	3.6	3.4	3.2

Source: Colorado Department of Public Health and Environment Division of Disease Control and Environmental Epidemiology and The Centers for Disease Control and Prevention Reported Tuberculosis in the United States, 2012. Atlanta, GA: U.S. Department of Health and Human Services, CDC, October 2012.
Durinig this time frame (2006-2012) there were 628 tuberculosis cases in Colorado.

Screening and Support for Refugees in Colorado

Approximately 2,600 refugees arrive each year in Colorado from all around the globe. In Colorado, newly arriving refugees are provided with medical and mental health screening, including a complete physical, screening for communicable diseases (like parasites, HIV, Hepatitis B & C and TB), immunization updates, health education, and finding a medical home. Public health also ensures disease surveillance activities among this population. These services help refugees effectively resettle in Colorado while also ensuring the health of the refugees and the broader Colorado population.

Sexually Transmitted Infections

Sexually Transmitted Infections represent a large public health burden in the United States. The Centers for Disease Control and Prevention estimates there are about 20 million new infections nationwide each year, costing the American health care system nearly $16 billion in direct medical costs alone. Table 11 shows the yearly rates of new cases of selected sexually transmitted infections.

Chlamydia rates have increased more than any other type of sexually transmitted infection and rates vary across the state (Figure 43).

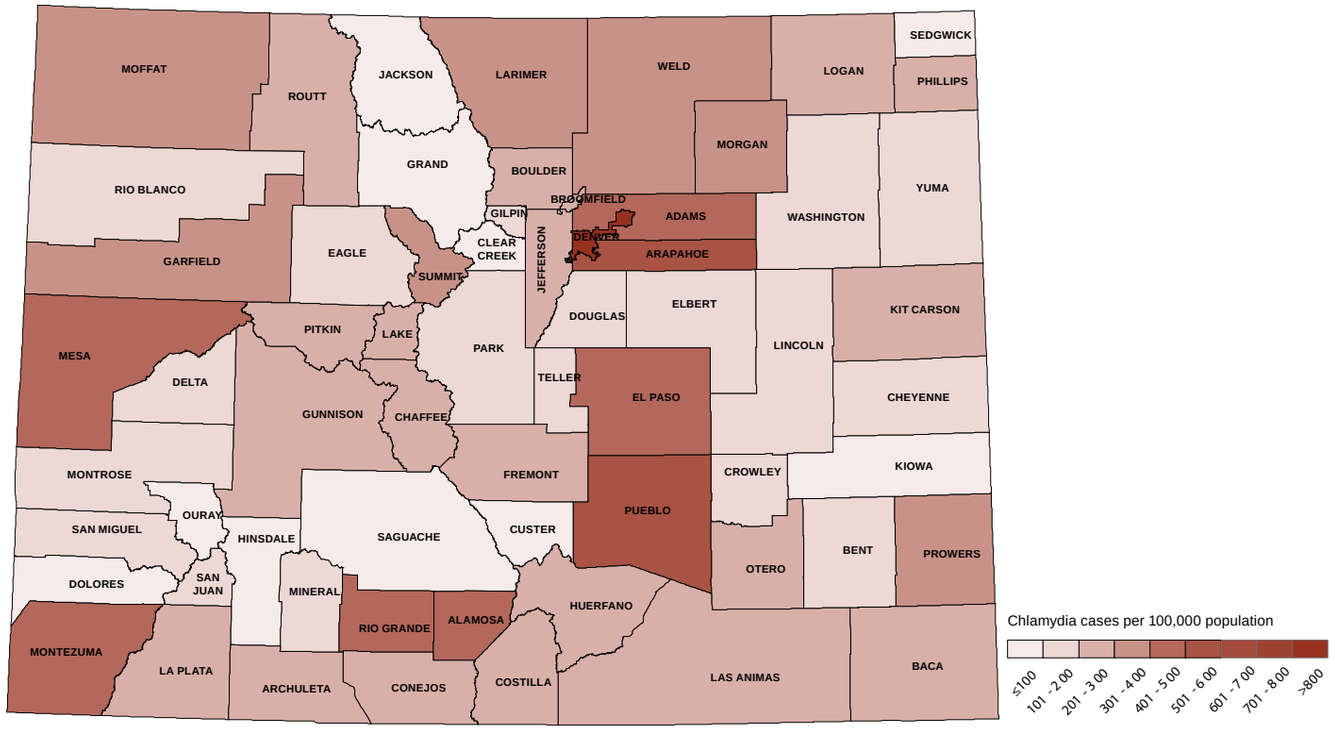
Sexually transmitted infections can have serious complications. Infection with Human Immunodeficiency Virus (HIV), without long-term treatment, can lead to a failure of the immune system and death. Pelvic inflammatory disease (PID) is another serious complication of some STI's especially chlamydia and gonorrhea. PID can damage the fallopian tubes and tissues in and near the uterus and ovaries. PID can lead to serious consequences including infertility, ectopic pregnancy (a pregnancy in the fallopian tube or elsewhere outside of the womb), abscess formation, and chronic pelvic pain. Human Papilloma Virus (HPV) also is transmitted sexually, and is the leading cause of cervical cancer.

Table 11. Yearly rates of new cases of selected sexually transmitted infections per 100,000 population in Colorado, 2007-2011.

	2007	2008	2009	2010	2011	General Trend
HIV diagnoses	-	11.6	9.4	10.2	9.6	-
AIDS (HIV stage3) diagnoses	7.9	8.1	6.9	6.9	6.1	↘
Chlamydia	353.5	388.3	398.0	386.7	433.7	↗
Gohorrhea (15-29 year-olds)†	245.3	228.8	212.6	206.7	171.2	↘
Syphilis (primary and secondary)	1.2	2.6	2.1	2.7	2.6	-

† Incidence rates are per 100,000 population age 15-29 years old.
Source: Disease Control and Environmental Epidemiology Division and Centers for Disease Control and Prevention NCHHSTP Atlas (http://gis.cdc.gov/GRASP/NCHHSTPAtlas/main.html) and Syphilis Surveillance Profiles and Annual Reports (http://www.cdc.gov/std/Syphilis/syphilis-stats-all-years.htm)

Figure 43. Chlamydia rates by county in Colorado, 2012.



Source: STI/HIV Surveillance Program, Disease Control and Environmental Epidemiology Division, Colorado Department of Public Health and Environment.

Condom Finder

Using condoms correctly greatly reduces the risk of getting or giving sexually transmitted infections. The Colorado Department of Public Health and Environment distributes free condoms to health care centers and clinics all over the state. By using the website www.condomfinder.org, or by downloading the iPhone or Android app, anyone can find nearby places to get free condoms confidentially.

Hepatitis

Hepatitis is a group of viral infections that affect the liver. Hepatitis A, B and C are the most common types.

Hepatatis A is an acute infection that is spread by contact with an infected individual or through consuption of contaminated food or beverages. The rates of hepatitis A have decreased substantially between 2000 and 2007, but have risen slightly since 2007. During 2005-2009 the average incidence per year was 0.8 cases per 100,000 persons, or an average of 41 reported cases per year in Colorado.[1]

Acute hepatitis B is a short-term illness with usually mild to moderate symptoms such as fatigue, nausea, vomiting, abdominal pain, jaundice and abnormal liver function tests. Chronic hepatitis B results when the infection remains in the body after the acute phase of illness. Over time, chronic hepatitis B can result in liver disease, cirrhosis, or cancer. Risk factors for hepatitis B include injection drug use, household or sexual contact with an infected individual and being born in an endemic country. In 2012, a total of 26 cases of acute hepatitis B and 458 cases of chronic hepatitis B were reported in Colorado.[1] The rate of new acute or chronic hepatitis B cases are highest among the Asian/Pacific Islander population, but are also elevated among the black, non-Hispanic population (Table 12).

Hepatitis C is the most common blood-borne infection in the United States today, and the deadliest. Roughly 80% of hepatitis C infections become a chronic lifelong illness. Risk factors for hepatitis C include injection drug use, household or sexual contact with an infected individual and healthcare exposures. The number of people dying from hepatitis C has increased since 2007 and has surpassed the number of deaths resulting from HIV/AIDS. It is estimated that 80,000 Coloradans are infected with the hepatitis C virus, and only about half know it.[1] In 2012, a total of 42 cases of acute hepatitis C and 3,181 cases of chronic hepatitis C were reported in Colorado.[1] Rates are highest among the American Indian population, followed by the black, non-Hispanic and Hispanic populations (Table 12). In 2012, 59 of 64 Colorado counties reported new cases of chronic hepatitis C. Less than half of the counties have a health care provider who can treat people with hepatitis C infection.[1]

Table 12. Rate of newly reported acute and chronic cases of Hepatitis B and C per 100,000 population by race, ethnicity in Colorado, 2012.

Race/ethnicity	Hepatitis B	Hepatitis C
White, non-Hispanic	1.6	16.2
Hispanic	1.3	27.5
Black, non-Hispanic	29.1	43.2
Asian/Pacific Islander	107.9	17.0
American Indian	9.1	81.8

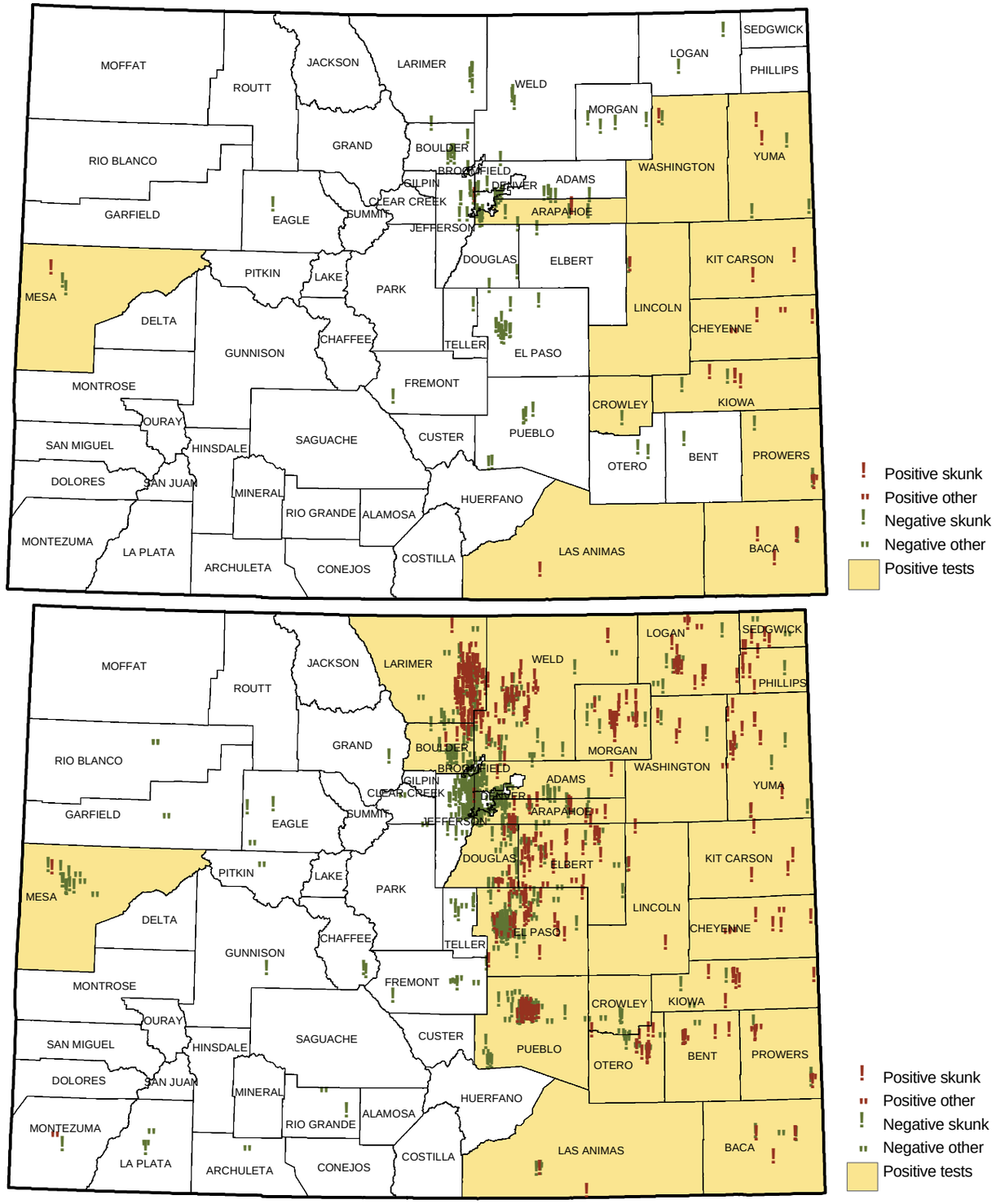
Source: The Viral Hepatitis Program, Disease Control and Environmental Epidemiology Division, Colorado Department of Public Health and Environment.

1. Colorado Department of Public Health and Environment Viral Hepatitis Program.

Rabies

Although no human rabies cases have been identified in Colorado since 1931, the risk for rabies exposure is growing and moving westward across the state (Figure 44). From January 1 to November 22, 2013, Colorado State University and CDPHE confirmed rabies infection in 189 animals: 68 bats, 102 skunks, 3 raccoons, 7 foxes, 3 horses, 1 cow and 5 domestic cats. Through investigation by local public health and animal control officials, 53 humans, 214 domestic animals and 13 exotic animals were considered exposed to these laboratory-confirmed rabid animals.

Figure 44. Locations of confirmed mammal rabies, 2007-2008 compared to 2007-2013.



Source: Colorado Department of Public Health and Environment, Division of Disease Control and Environmental Epidemiology.

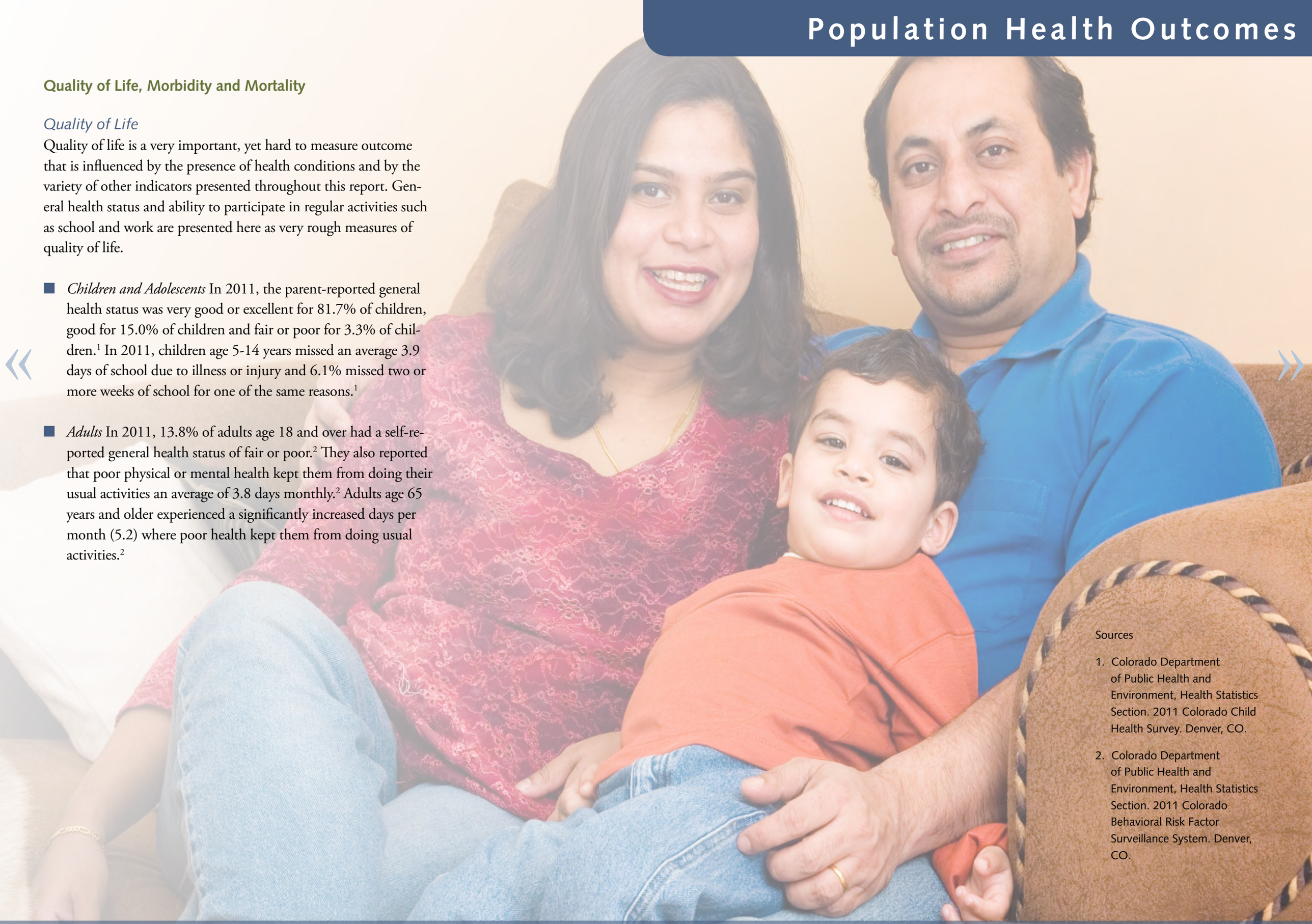
Quality of Life, Morbidity and Mortality

Quality of Life

Quality of life is a very important, yet hard to measure outcome that is influenced by the presence of health conditions and by the variety of other indicators presented throughout this report. General health status and ability to participate in regular activities such as school and work are presented here as very rough measures of quality of life.

- *Children and Adolescents* In 2011, the parent-reported general health status was very good or excellent for 81.7% of children, good for 15.0% of children and fair or poor for 3.3% of children.[1] In 2011, children age 5-14 years missed an average 3.9 days of school due to illness or injury and 6.1% missed two or more weeks of school for one of the same reasons.[1]

- *Adults* In 2011, 13.8% of adults age 18 and over had a self-reported general health status of fair or poor.[2] They also reported that poor physical or mental health kept them from doing their usual activities an average of 3.8 days monthly.[2] Adults age 65 years and older experienced a significantly increased days per month (5.2) where poor health kept them from doing usual activities.[2]



Sources

1. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Child Health Survey. Denver, CO.
2. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.

Morbidity

A number of chronic diseases have varying effects on health status and quality of life. This section focuses on common chronic diseases and other measures of chronic disease burden including low birth weight and prematurity, children with special health care needs, asthma, obesity and diabetes.

Low Birth Weight and Prematurity

Low birth weight (babies born weighing less than 2500 grams) and prematurity (babies born at less than 37 weeks gestational age) increase the risk of respiratory, cardiovascular, neurologic, gastrointestinal, metabolic, visual and hearing disorders. Low birth weight is also a factor in infant mortality rates. Colorado is lower than the Healthy People 2020 target for preterm births but does not meet the target for low birth weight (Table 13).

Table 13. Percent of live births that are preterm or low birth weight in Colorado compared to Healthy People 2020 targets, 2012.

	Healthy People 2020 target	Colorado
Low birth weight	7.8%	8.8%
Preterm births	11.4%	8.9%

Source: Colorado Department of Public Health and Environment Health Statistics Section, 2012 Colorado Vital Records.

Low Birth Weight and Prematurity

Risk Factors

- Inadequate prenatal care
- Inadequate nutrition during pregnancy
- Smoking, drinking or drug use during pregnancy
- Exposure to secondhand smoke during pregnancy and after birth
- Not gaining enough weight during pregnancy
- Maternal conditions such as diabetes, high blood pressure and heart, lung or liver problems
- Unintended pregnancy
- Closely spaced pregnancies
- Maternal age less than 20 or greater than 35
- Sociodemographic factors such as having a low income, being black and/or having low education
- Maternal stress

Protective Factors

- Receipt of adequate prenatal care
- Proper folic acid intake before and during pregnancy
- Maintaining a healthy diet and weight during pregnancy
- Maternal exercise during pregnancy
- Proper care and treatment of any maternal chronic diseases
- Appropriate weight gain during pregnancy
- Family planning

Reducing Preterm Births

Colorado was awarded the March of Dimes Virginia Apgar Award for reducing the percent of babies born preterm from 11.3% in 2009 to 10.3% in 2011. Efforts that contributed to this success include tobacco cessation activities focused on pregnant women and women of reproductive age, the Colorado Family Planning Initiative focused on decreasing unintended pregnancy, the promotion of healthy weight both before and during pregnancy, and home visitation services provided to low-income pregnant women through the Nurse Family Partnership.[1]

Source

1. CO Prevent. (2013). Colorado Earns March of Dimes Apgar Award for Leadership in Prematurity Campaign. Retrieved from website: http://www.coprevent.org/2013/06/colorado-earns-march-of-dimes-apgar.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+Coprevent+%28COPrevent%29

Children with Special Health Care Needs

An important and standard method of assessing the burden of chronic health problems among children is identifying children with special health care needs, defined as children with one or more chronic physical, developmental, behavioral or emotional condition for which they require health and related services of a type or amount beyond that required by children generally.[1] The majority have multiple conditions that impact their functional status, quality of life and potential for developing additional health problems in childhood and through adulthood. In Colorado, an estimated 16.7% of children from birth to age 17 have special health care needs.[2]

Improving Outcomes for Children with Special Needs

Health outcomes can be improved if children's health needs are managed within quality systems of care. The Health Care Program for Children with Special Needs **helps improve access to integrated, family-centered, culturally competent, community-based programs and services for families with children and youth with special needs. The program works closely with state agency partners and local public health agencies to implement care coordination, regional rural pediatric specialty clinics and medical home systems development.**

Asthma

Asthma is one of the most prevalent chronic conditions among children and a leading cause of missed school. While it is a condition that can be well controlled, its prevalence and degree of impact are influenced by a variety of community and environmental factors such as indoor and outdoor air quality and access to quality health care. In 2011, 6.5% of children age 1-14 years had asthma.[3] Asthma can persist through adulthood. In Colorado, 12.8% of adults have ever been told by a health professional that they have asthma and 8.5% currently have asthma.[4]

Asthma

Risk Factors

- Low birth weight
- Exposure to tobacco smoke
- Allergies, or a family history of allergies
- Living in an urban area with increased exposure to air pollution
- Obesity
- Other conditions such as chronic runny or stuffy nose, severe lower respiratory tract infection, sinusitis and heartburn
- Being male

Protective Factors

- Regular appropriate physical activity
- Adequate medical care
- Limiting exposure to asthma triggers
- Limiting exposure to tobacco smoke
- Breastfeeding

Sources

1. McPherson M, Arango P, Fox H, et al. "A new definition of children with special health care needs", Pediatrics, 1998; 102: 137-14
2. National Survey of Children's Health. NSCH 2011/12. Data query from the Child and Adolescent Health Measurement Initiative, Data Resource Center for Child and Adolescent Health website. Retrieved [11/5/2013] from www.childhealthdata.org.
3. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Child Health Survey. Denver, CO.
4. Colorado Department of Public Health and Environment, Health Statistics Section. 2011-12 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.

Overweight and obesity

The causes of obesity are complex and multifaceted, occurring at the social, economic, environmental and individual levels. Obesity increases the risk of many health conditions such as heart disease, stroke, high blood pressure, diabetes, cancer and mental health conditions.[1] In many cases, Americans live in environments that promote physical inactivity and consumption of unhealthy food. It is estimated state spending attributable to obesity was more than $1.6 billion dollars in 2009.[2]

Childhood obesity can lead to health problems that once were confined to adults, such as diabetes, high blood pressure and high cholesterol. It also contributes to emotional problems such as poor self-esteem and depression. In Colorado, an estimated 16.3%, or nearly 140,000 children age 2-14 years are obese[†] and an additional 15.1% are overweight.[††,3] An estimated 7.3% of high school age adolescents are obese[†] and an additional 10.7% are overweight.[††,4]

Overweight and Obesity

Risk Factors

- Childhood overweight and obesity
- Calorie-rich and high fat diets
- Physical inactivity
- Cigarette smoking
- Alcohol and high caloric drink consumption
- Cultural factors and attitudes towards diet and physical activity
- Living at lower income levels
- Genetics
- Lack of sleep
- Certain medications
- Stress and poor emotional health

Protective Factors

- Physical activity
- Diets rich in fruits, vegetables, legumes, nuts and whole grains
- Limiting consumption of high-fat foods
- Limiting intake of high-caloric drinks and alcohol
- Low intake of high-sodium foods
- Receipt of adequate health services
- Maintaining emotional health
- Getting recommended amount of sleep
- Not smoking

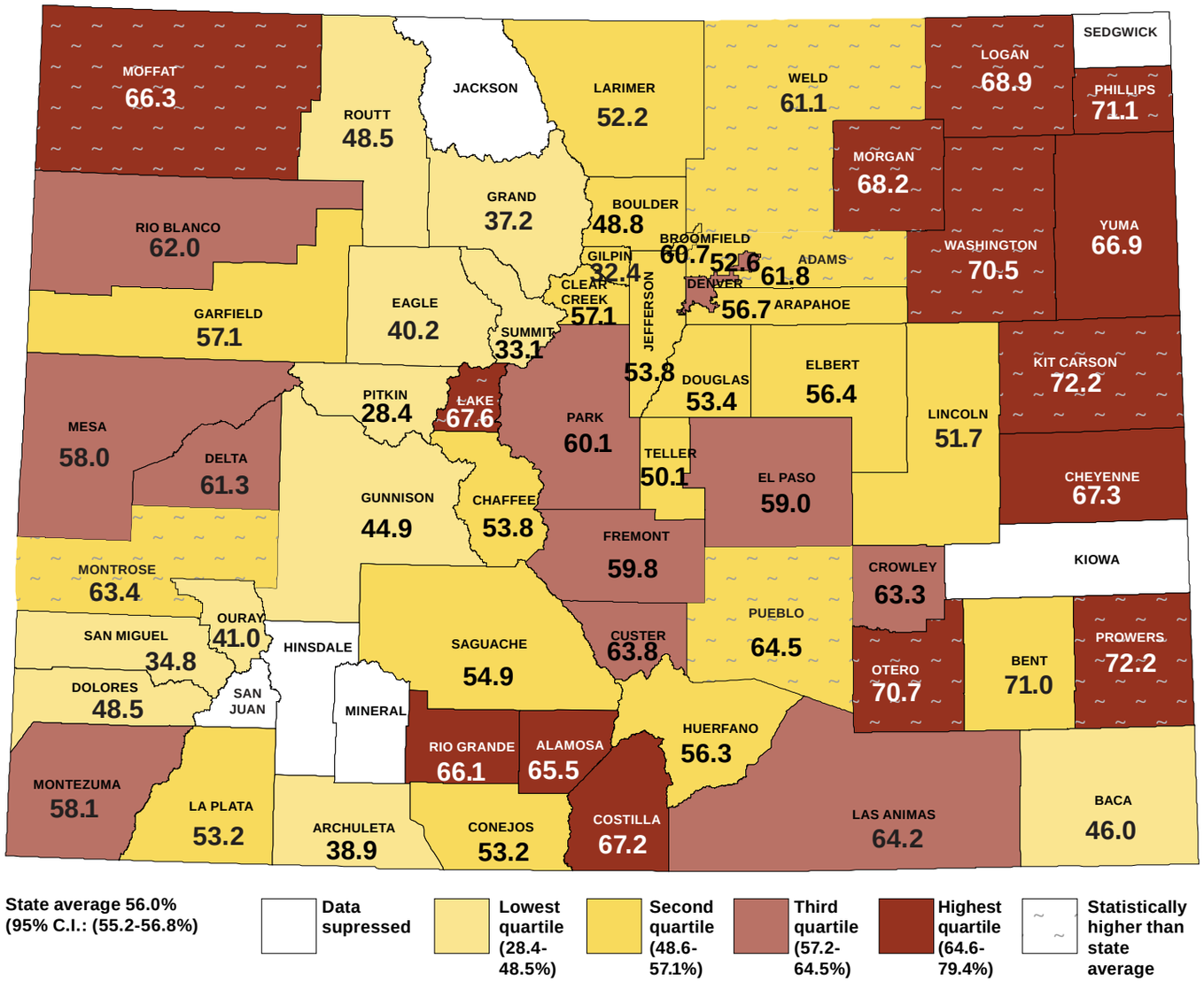
Sources

† Body mass index ≥ 95th percentile.

†† Body mass index 85th to < 95th percentile.

1. The Centers for Disease Control and Prevention. National Center for Chronic Disease Control and Prevention, Division of Nutrition, Physical Activity and Obesity. (2011). Obesity at a Glance 2011: Halting the Epidemic by Making Health Easier. Retrieved from website: http://www.cdc.gov/chronicdisease/resources/publications/aag/pdf/2011/Obesity_AAG_WEB_508.pdf.2. National Survey of Children's Health. NSCH 2011/12. Data query from the Child and Adolescent Health Measurement Initiative, Data Resource Center for Child and Adolescent Health website. Retrieved [11/5/2013] from www.childhealthdata.org.
2. Trogdon, J. G., Finkelstein, E. A., Feagan, C. W., & Cohen, J. W. (2012). State-and Payer-Specific Estimates of Annual Medical Expenditures Attributable to Obesity. Obesity, 20(1), 214-220.
3. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Child Health Survey. Denver, CO.
4. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Youth Risk Behavior Survey. Denver, CO.

Figure 45a. Overweight or obese prevalence among adults 3-year estimate (2010-2012) by county.



Source: Colorado Behavioral Risk Factor Surveillance System.

Although Colorado has the lowest adult obesity rate in the nation, over 750,000, or 20.7% of adults in Colorado are obese[†] and an additional 35.4% are overweight.[††,1] Adult obesity in Colorado significantly increased from 18.2% in 2006 to 21.4% in 2010. The percent of overweight or obese adults ranges geographically from 28.4% to 72.2%, although the numbers are higher in counties with larger populations (Figures 45a and 45b).

There also are disparities in overweight and obesity by race, income and education level in Colorado:

- Higher proportions of Black and Hispanic populations are overweight or obese compared to White and other ethnic populations (Figure 46) (next page).
- Obesity deceases as income increases. Two in 10 (21.1% of) children and 25.9% of adults in homes with yearly incomes below $15,000 are obese compared to 8.2% of children and 18.7% of adults living in households with yearly incomes of $50,000 or more.[2,3]
- Obesity decreases as education level increases. Adults with less than a high school degree (25.7%) had higher proportions of obesity compared to adults who were high school graduates (23.5%), attended some college (22.3%) or college graduates (15.6%).[3]

Sources

† Body mass index greater than or equal to 30.

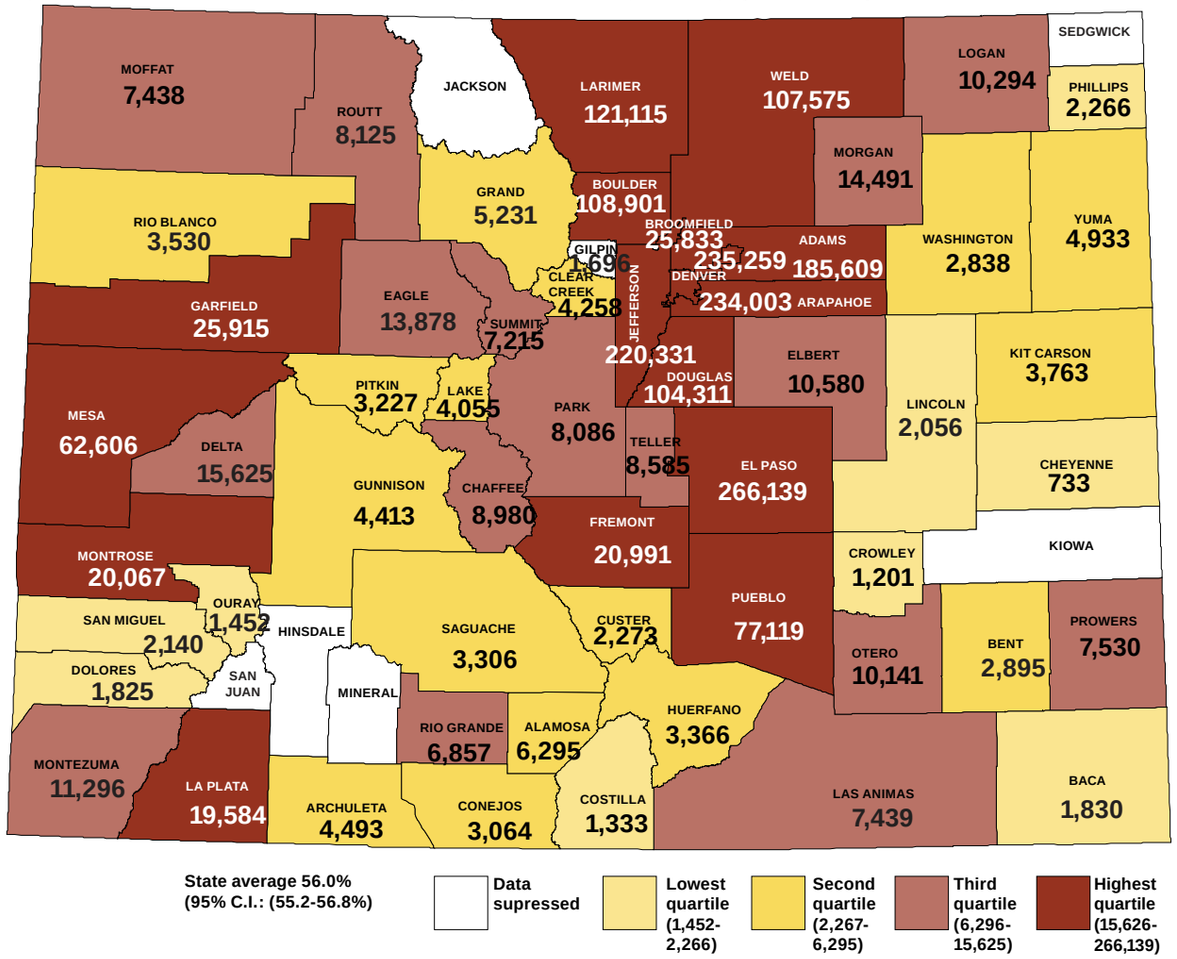
†† Body mass index greater than or equal to 25 but less than 30.

1. Colorado Department of Public Health and Environment, Health Statistics Section. 2011-12 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.4. American Diabetes Association. Diabetes Statistics. Accessed from http://www.diabetes.org/diabetes-basics/diabetes-statistics/

2. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Child Health Survey. Denver, CO.

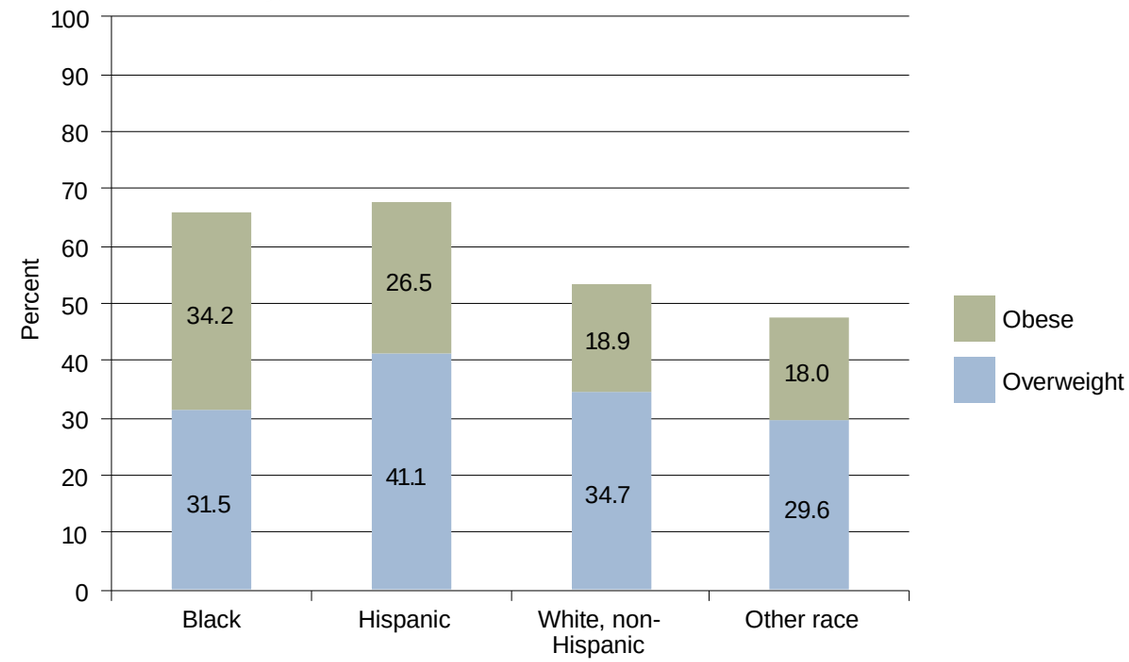
3. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.

Figure 45b. Number of adults overweight or obese by county (2010-2012).



Source: Colorado Behavioral Risk Factor Surveillance System.

Figure 46. Percent of Colorado adults age 18 years and older who are overweight‡ or obese† by race/ethnicity, 2011.



‡ Overweight for adults was defined as BMI ≥ 25 to <30.
† Obesity for adults was defined as BMI≥ 30.
Adolescent data not shown because it is not available for all race categories due to small sample size.
Source: Colorado Behavioral Risk Factor Surveillance System.

Communities Putting Prevention to Work

In 2010, Tri-County Health Department was awarded a two-year national grant to increase opportunities for the residents of Adams, Arapahoe and Douglas counties to make healthier choices related to healthy eating and physical activity. Some of the highlights of this collaborative and multi-faceted work include:

1. **Achieving an 88% completion rate for students taking the Youth Risk Behavior Survey;**
2. **Delivering a first-of-its-kind training on how to improve healthy eating and active living through the planning, zoning and land use process;**
3. **Implementing a wide variety of wellness, healthy eating and physical activity initiatives across 15 school districts serving 252,394 students;**
4. **Funding for projects, including improved playgrounds, adaptive physical activity resources for disabled students, and installing bike and skateboard racks;**
5. **Improving the health and physical activity of local communities by funding projects such as new community gardens, improved trail infrastructure and incentivizing grocers to provide fresh produce where access is limited;**
6. **Recruiting local restaurants to participate in the SmartMeal program, which increases consumer knowledge of menu item nutritional content through labeling; and**
7. **Producing and distributing healthy eating and physical activity videos for children and families in English and Spanish.**

Engaging Communities to Live Well

With a structural model that is unique in the nation, LiveWell Colorado excels at meaningfully engaging the community in its activities that range from funding community coalitions, informing and advancing multi-sector policy efforts and leading social marketing initiatives. To date, more than 600,000 "Gut Checks" have been performed on LiveWell Colorado's website, helping Coloradans gain a better understanding of their weight status as a first step toward better weight management. To learn more, visit www.LiveWellColorado.org.

For more information on obesity in Colorado, see

- **CDPHE's** *The Weight of the State: 2009 Report on Overweight and Obesity in Colorado*
- **CDPHE's** *2011 Colorado Early Childhood Obesity Prevention Report*
- **LiveWell Colorado's** 2012 Annual Report

Diabetes

Being overweight or obese increases the risk of developing diabetes, a group of diseases in which the body does not properly process glucose, or blood sugar. Complications of diabetes include cardiovascular disease, nerve, kidney, eye or foot damage, skin conditions, osteoporosis and hearing problems.[1] In Colorado:

- As of 2012, 6.7% of adults have diabetes, which is lower than the national estimate of 8.3%.[2, 3]
- Diabetes prevalence increases with age, ranging from 1.1% for adults age 18-24 years to 16.9% for adults age 65 years and older.[3]
- Notable disparities exist by income and race/ethnicity. Of adults with yearly household incomes below $25,000, 10.4 % have diabetes compared to 4.9% of adults with yearly household incomes of $50,000 and above.[3] Diabetes prevalence among Black and Hispanic adults is significantly higher than among white, non-Hispanic adults (10.9%, 11.1% and 5.8%, respectively).[3]
- The prevalence of diabetes increased significantly from 4.5% in 2003-04 to 5.4% in 2009-10.[†, 4]

Diabetes

Risk Factors

- Age 45 years or older
- Familiy history of diabetes
- Being overweight or obese
- Physical inactivity
- High blood pressure
- High cholesterol
- Certain races and ethnicities: black, Hispanic, American Indian and Asian

Protective Factors

- Physical activity
- Diets high in whole grains and low in highly processed carbohydrates
- Diets consisting of good (polyunsaturated) fats in place of trans fats and low in red meat
- Avoiding sugary beverages
- Maintaining a healthy weight

Sources

† Due to changes in survey methodology, estimates from 2011/12 cannot be compared to previous years of data.

1. Mayo Clinic. Type 2 diabetes complications. Retrieved from website: http://www.mayoclinic.com/health/type-2-diabetes/DS00585/DSECTION=complications
2. American Diabetes Association. Diabetes Statistics. Accessed from http://www.diabetes.org/diabetes-basics/diabetes-statistics/
3. Colorado Department of Public Health and Environment, Health Statistics Section, 2011-2012 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.
4. Colorado Department of Public Health and Environment, Health Statistics Section. 2003-2004 and 2009-2010 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.

Mortality

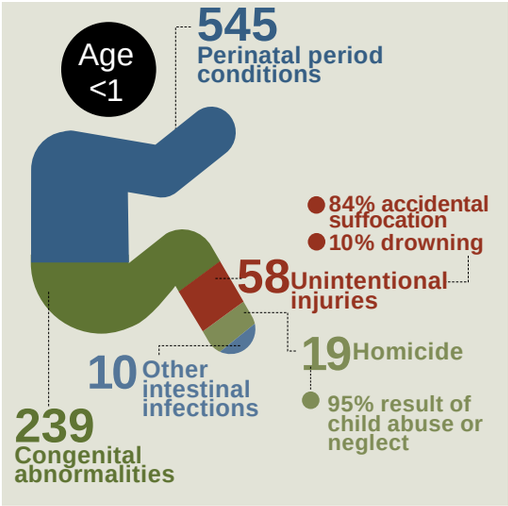
Although mortality is ultimately inevitable, premature mortality is not. The leading causes of death in Colorado are cancer and heart disease, which respectively account for 22% and 19% of total deaths, but the leading causes of death vary by age.

The infant (under 1 year old) mortality rate in Colorado is 5.9 deaths per 1,000 live births, which is just below the Healthy People 2020 target of 6.0 deaths per 1,000 live births.[1] The leading causes of death among infants under one year old are perinatal period conditions and congenital abnormalities, but a small number of deaths for this population are due to unintentional injuries, homicide or intestinal infections (Figure 47).

Although infant mortality in Colorado has generally decreased in the past two decades, large racial/ethnic disparities persist. In 2009-2011, infant mortality ranged from 3.9 per 1,000 live births for Asian/Pacific Islander populations to 14.6 per 1,000 for Black/African American populations (Figure 48).

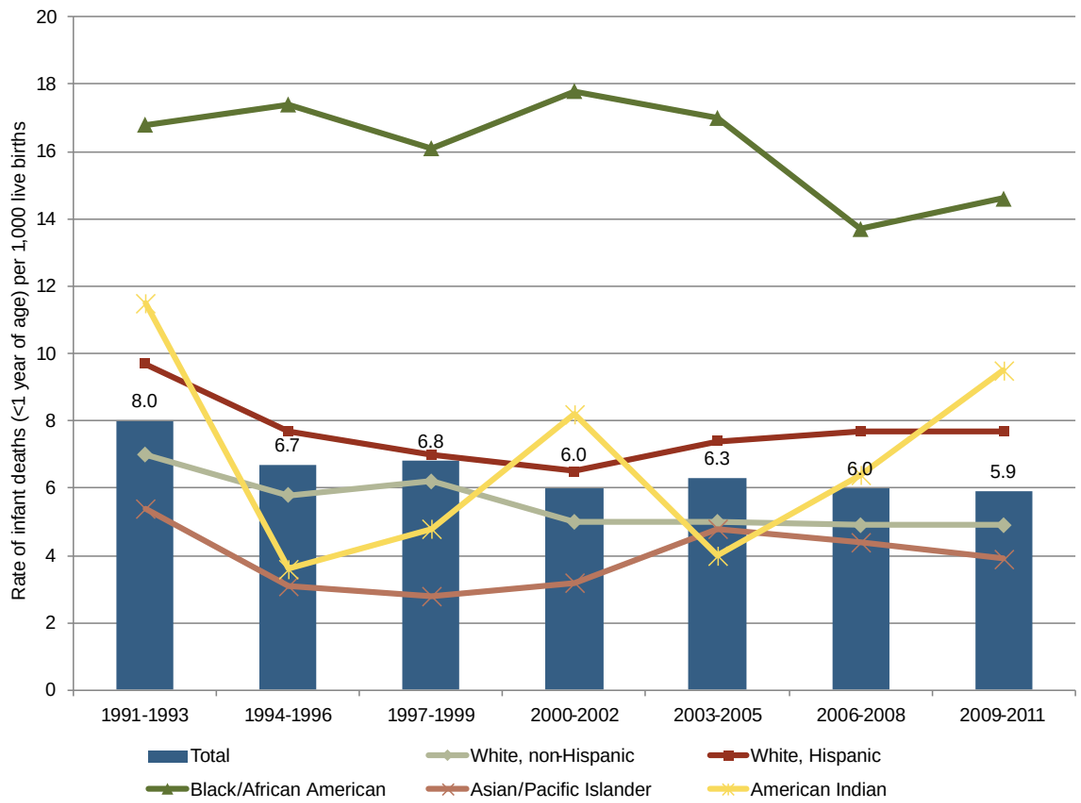
Most deaths among children age one to nine years are due to unintentional injuries, congenital abnormalities or cancer. For adolescents, young adults and adults under the age of 45, the leading causes of death are unintentional injuries and suicide (Figure 49) (next page).

Figure 47. Five leading causes of death for infants under 1 year old, 2010-2012 totals.



Source: Colorado Health Statistics and Vital Records.
Rates for the leading causes of death by age are shown in Appendix C.

Figure 48. Infant mortality rates by race/ethnicity and year group, 1991-2011.

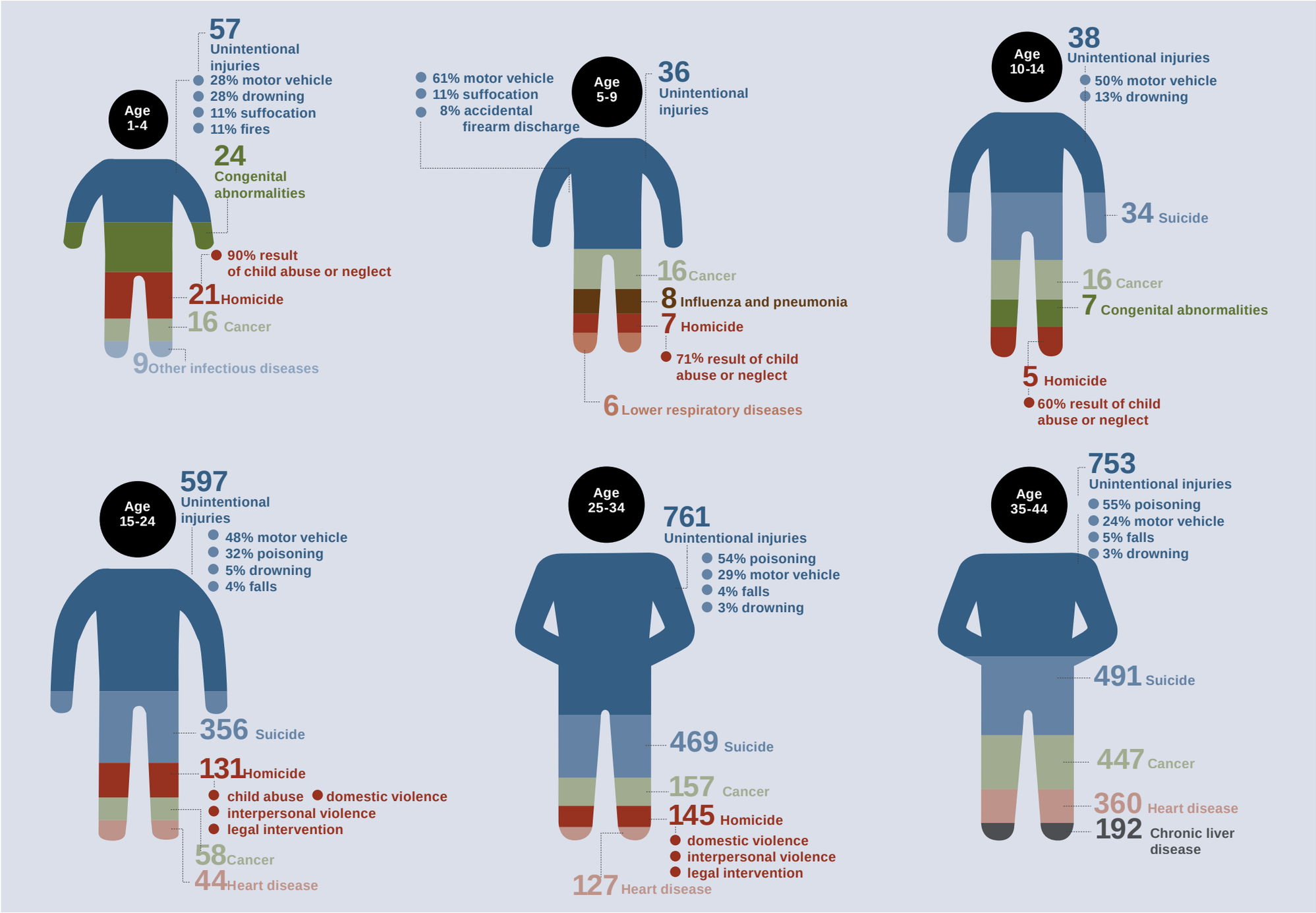


Source: Colorado Department of Public Health and Environment, Center for Health and Environmental Information and Statistics, Heatlth Statistics Section.
Rates shown are for the statewide total.

Source

1. Colorado Department of Public Health and Environment, Health Statistics Section. 2009-2011 Colorado Vital Records. Denver, CO.

Figure 49. Five leading causes of death for children, adolescents and adults under 45 years old, 2010-2012 totals.



Source: Colorado Health Statistics and Vital Records.
Rates for the leading causes of death by age are shown in Appendix C.

Unintentional Injury

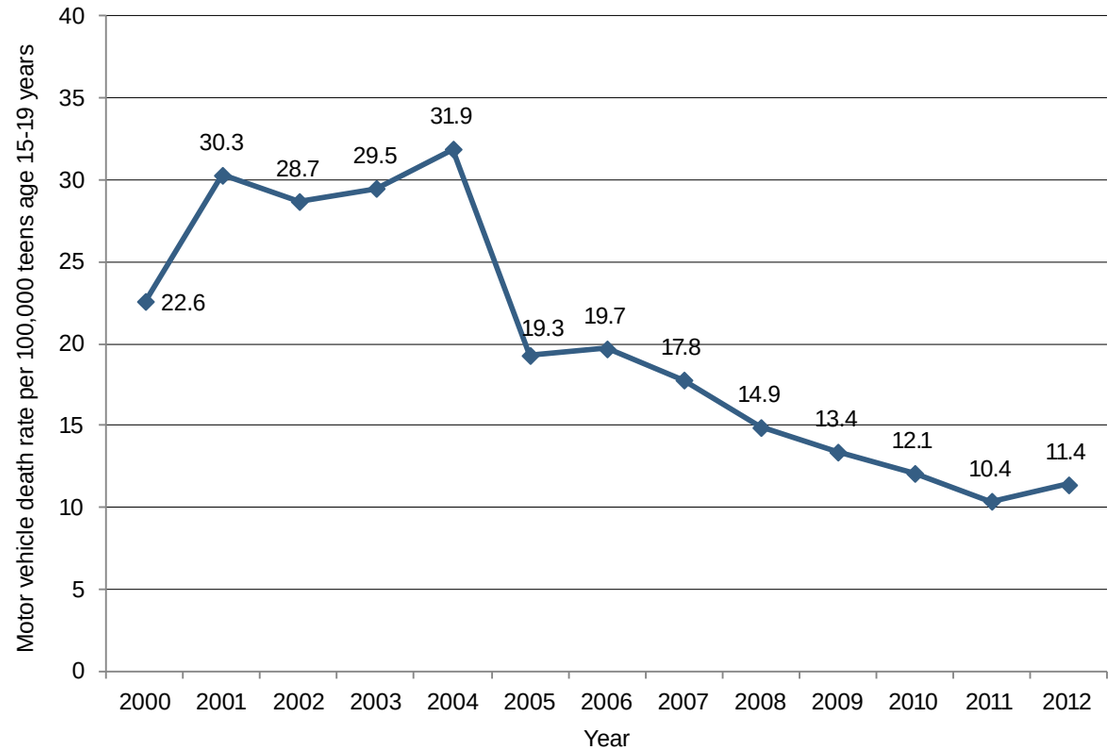
The leading causes of unintentional injury for people under the age of 65 in Colorado are motor vehicle accidents and unintentional poisoning, including drug overdose.† The age-adjusted rate of motor vehicle accident injuries was 75.0 hospitalizations per 100,000 population during 2009-2011.[1]

For people between the age of five and 24 years, half of unintentional injury death is due to motor vehicle crashes. In 2012, the motor vehicle death rate for Colorado teens age 15-19 years was 11.4 per 100,000 population. This rate is currently nearly three times lower than the rate in 2004, although it increased slightly between 2010 and 2011 (Figure 50).

Since the 2004 enactment of Graduated Driver Licensing laws, designed to help teens develop driving skills gradually while adhering to restrictions in their first years of driving, Colorado has seen a 66% reduction in teen (15-19 years old) motor vehicle fatalities, from 107 deaths in 2004 to 36 in 2011.

The mortality rate from unintentional poisoning has increased over the last decade with the majority of deaths due to prescription drug overdose. Since 2009, unintentional poisoning has exceeded the rate for motor vehicle accidents, which had been the leading cause of unintentional injury in Colorado. In 2009-2011, the age-adjusted rate of unintentional poisoning hospitalizations was 35.7 per 100,000 population.[1]

Figure 50. Motor vehicle death rates per 100,000 population among Colorado teens age 15-19 years, 2000-2012.



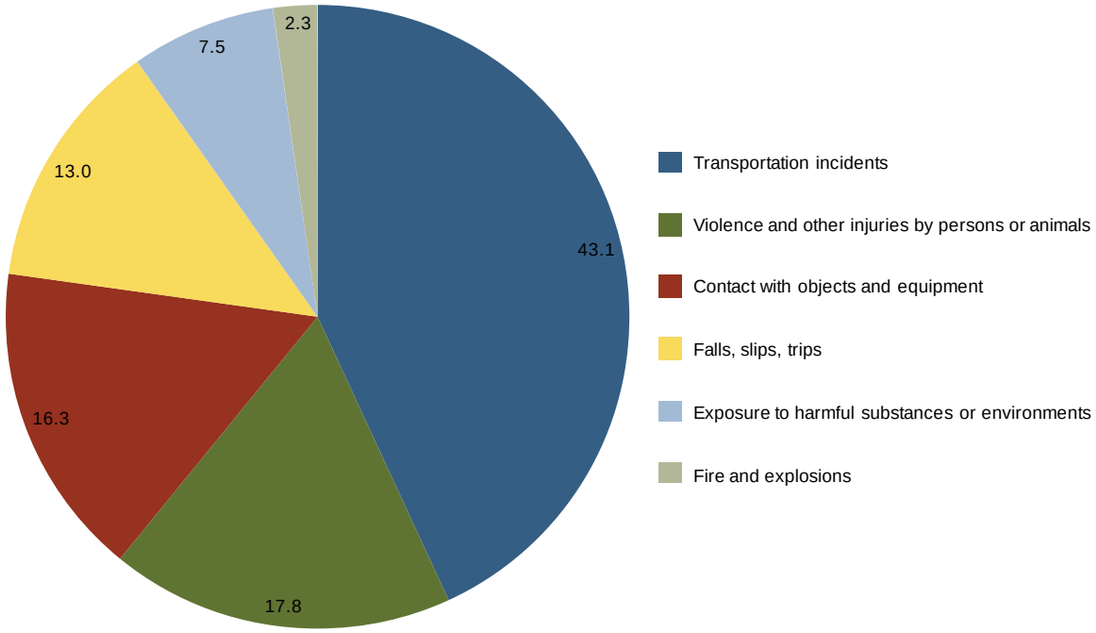
Source: Colorado Health Statistics and Vital Records.

Sources

† Unintentional poisoning hospitalizations included accidental poisoning by drugs, medicinal substances, biological, other solid and liquid substances, gases, vapors (including alcohol, cleaning agents, solvents, carbon monoxide, etc).

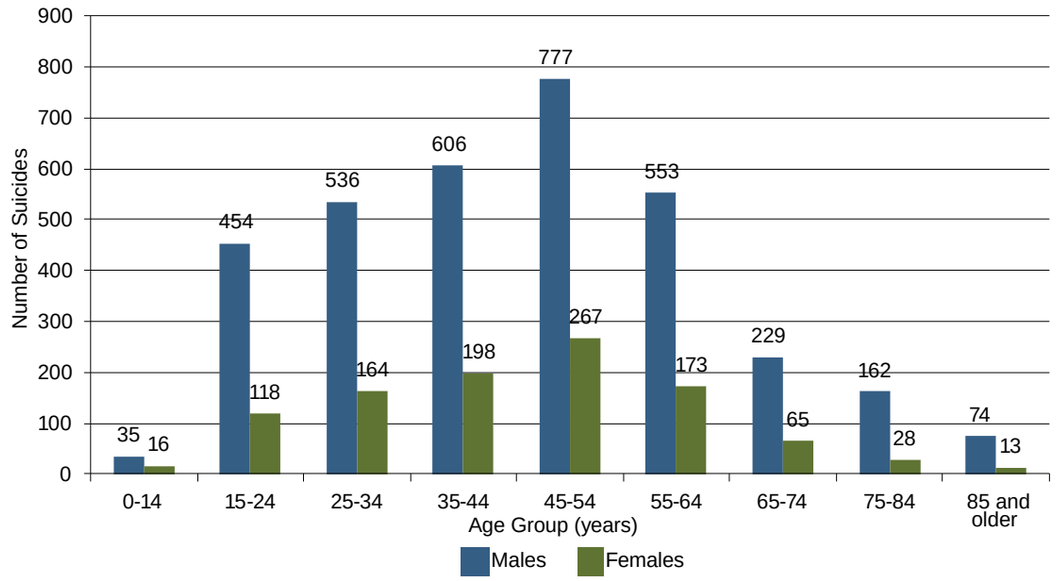
1. Colorado Hospital Association. 2009-2011 Hospital Discharge Dataset. Data prepared by Colorado Department of Public Health and Environment, Health Statistics Section. Denver, CO.

Figure 51. Percent of fatal occupational injuries in Colorado by event/exposure, 2007-2011 combined.



Source: Colorado Fatal Occupational Injury System.

Figure 52. Suicide deaths by age and gender in Colorado,* 2008-2012 totals.



Source: Colorado Violent Death Reporting System.

Worksite incidents are another source of unintentional injury, some of which result in death. From 2009-2011 there were 6,498 work-related hospitalizations in Colorado. The rate of work-related injuries resulting in hospital admission was 40.7 per 100,000 employed population aged 16 years and older.[1] In 2011, the rate of work-related emergency department hospitalizations was 721.1 per 100,000 employed population 16 years and older.[2]

There were 478 fatal occupational injuries in Colorado from 2007-2011.[3] Transportation incidents were the most common cause, accounting for 43.1% of fatal occupational events. Other types of common fatal occupational events included violence and other injuries by people or animals, contact with objects and equipment, and falls, trips or slips (Figure 51).

Suicide

Suicide is a serious public health problem with multiple and complex influencing factors, including depression or mental illness, access to care and social support. In 2012 there were 1,053 suicide deaths in Colorado, which is more than other causes of mortality such as motor vehicle crashes, breast cancer or diabetes. Colorado has an age-adjusted suicide rate of 16.9 resident deaths per 100,000 population of all ages, which is one of the highest rates in the country.[4] The age-adjusted rate among adolescents age 10-17 years is 5.4 per 100,000 population.[4]

Man Therapy

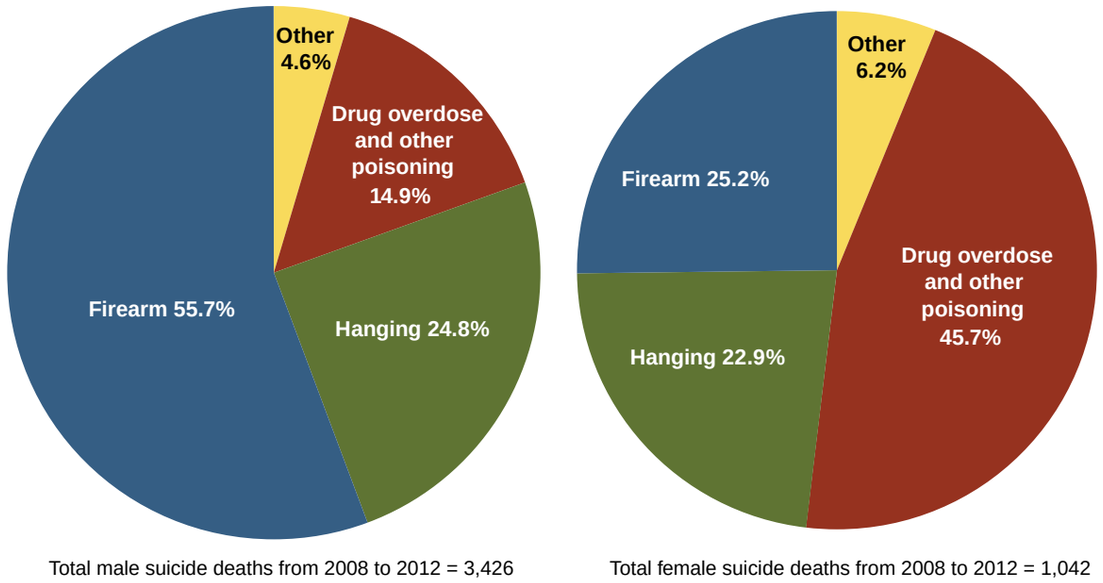
There are roughly one thousand people in Colorado who die by suicide in a given year and the majority of these deaths are among adult males. The number of suicide deaths in the state is approximately double the number of motor vehicle crash deaths.

Created through a partnership between CDPHE's Office of Suicide Prevention, Cactus Communications advertising firm and the Carson J. Spencer Foundation, Man Therapy **is part of Colorado's solution to this problem. It was created from market research that included male focus groups and uses male-targeted humor within an approachable and private forum - an interactive website - to provide guidance and resources on dealing with depression. It also provides a screening tool that directs men to take suitable action based on the score generated. The site has received several state and national awards and is gaining attention internationally, serving as the model for an** Australian version**. It generates over 500 visitors per day and 90% of those who have taken the self-assessment reported they are likely or very likely to take the advice and recommendations prescribed after their exam.**

Sources

1. Colorado Hospital Association. 2009-2011 Hospital Discharge Dataset. Data prepared by Colorado Department of Public Health and Environment, Health Statistics Section. Denver, CO.
2. Colorado Hospital Association. *2011 Emergency Department Visits Dataset*. Data prepared by Colorado Department of Public Health and Environment, Health Statistics Section. Denver, CO.
3. Colorado Department of Public Health and Environment, Health Statistics Section. 2007-2011 Colorado Fatal Occupational Injury System. Denver, CO.
4. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Violent Death Reporting System. Denver, CO.

Figure 53. Suicide deaths by method and gender, 2008-2012 combined.



Total male suicide deaths from 2008 to 2012 = 3,426

Total female suicide deaths from 2008 to 2012 = 1,042

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment.

There have been notable increases in suicide rates in recent years. From 2011 to 2012, the rate increased 16.7% percent for adults age 20-64 years (from 23.4 to 27.3 per 100,000 population). Suicide is considerably more common among males (Figure 52), but male and female suicides are increasing at approximately the same rate.

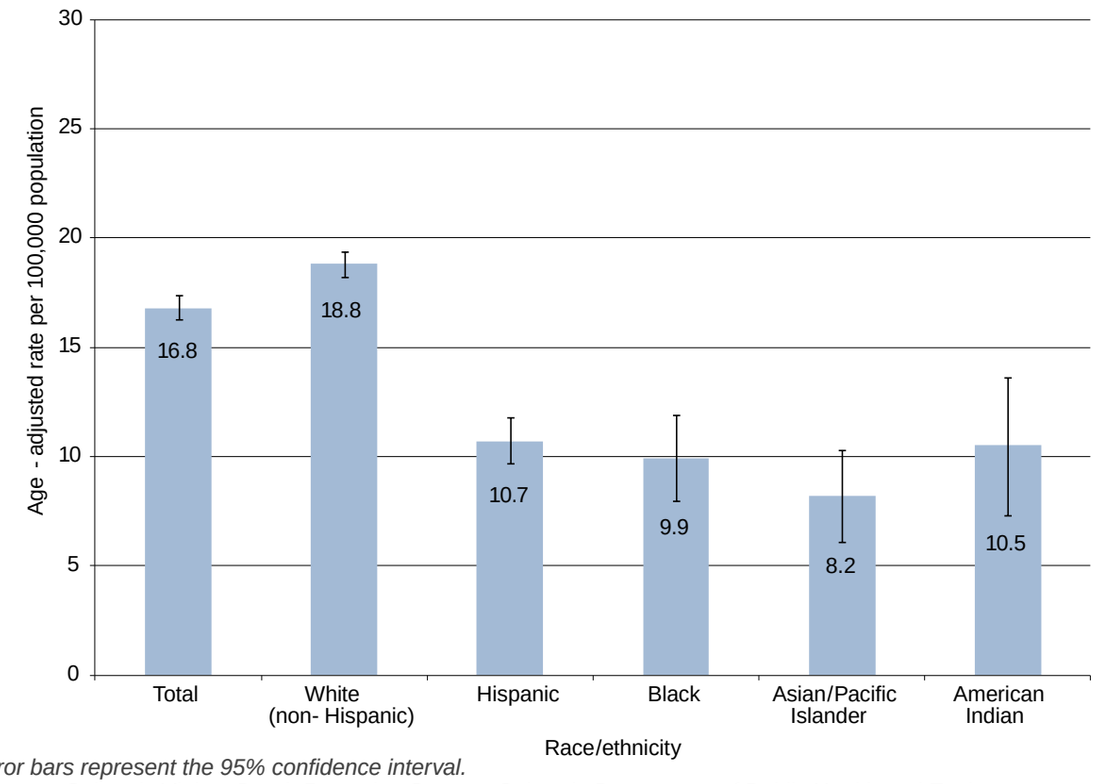
Over half (55.7%) of male suicides are completed by firearm and nearly half (45.7%) of female suicides are completed by poisoning, which includes drug overdose (Figure 53).

From 2007 to 2011 the statewide age-adjusted suicide rate was 16.8 per 100,000, but this varied by race/ethnicity. Compared to the state, rates were significantly higher among the white, non-Hispanic population and significantly lower for all other racial/ethnic groups (Figure 54).

Suicide in Colorado also varies geographically (Figure 55). Health Statistics Regions 11, 13, 17 and 19* had significantly higher 5-year (2008-2012) age-adjusted suicide rates compared to the state.[1]

Six in 10, or 62.6% of, suicide victims in Colorado were documented to have experienced a depressed mood shortly before death and 42% of suicide cases had a diagnosed mental health problem.[1]

Figure 54. Colorado age-adjusted suicide rate by race/ethnicity, 2007-2011 combined.



Error bars represent the 95% confidence interval.
Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment.

Combating Prescription Drug Abuse

In 2012,The National Governors Association, led by the governors of Colorado and Alabama, identified six strategies for reducing prescription drug abuse: (1) making better use of prescription drug monitoring programs**; (2) enhancing enforcement efforts; (3) ensuring proper disposal of prescription drugs; (4) leveraging the state's role as regulator and purchaser of services; (5) building partnerships among key stakeholders; and (6) promoting public education about prescription drug abuse.**

Sources

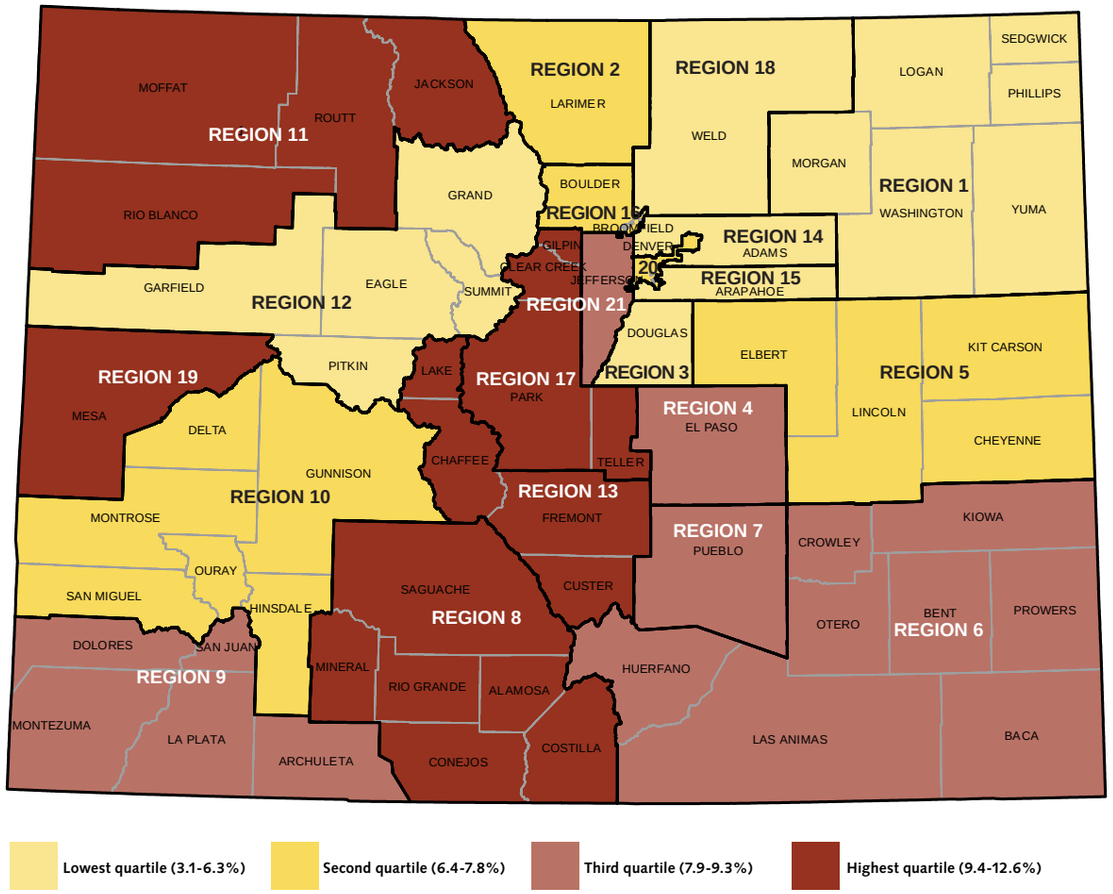
* Region 11 counties-Jackson, Moffat, Rio Blanco, Routt; Region 13 counties-Chaffee, Custer, Fremont, Lake; Region 17 counties- Clear Creek, Gilpin, Park, Teller; Region 19 county- Mesa.

1. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Violent Death Reporting System. Denver, CO.

Advancing Colorado's Mental Health Care

In 2010, Advancing Colorado's Mental Health Care (ACMHC), commissioned an assessment of Colorado's behavioral health care system entitled The Status of Behavioral Health Care in Colorado. **Among other observations, they found that the continued coordination and integration of services is needed; the funding for mental and behavioral health services is low; that the system is not keeping up with the needs of growing veteran, Latino and immigrant populations; and that many people cannot access the care they need, especially in rural communities. Entities such as the** Colorado Telehealth Network **offer many rural communities the ability to augment limited resources through linkages to urban areas. ACMHC is a partnership between Caring for Colorado Foundation, The Colorado Health Foundation, The Colorado Trust and The Denver Foundation.**

Figure 55. Colorado age-adjusted suicide rates by health statistics region, 2008-2012 combined.

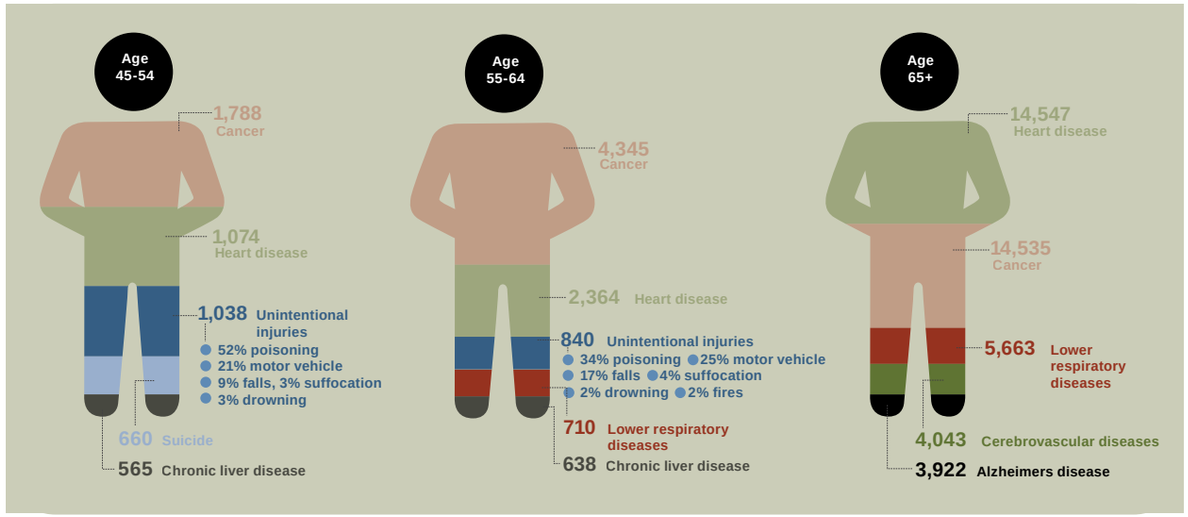


Data source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment.

Adults age 45 years and over

The leading causes of death for adults age 45 years and older are heart disease and cancer (Figure 56).

Figure 56. Five leading causes of death for adults age 45 years and over, 2010-2012 totals.



Source: Colorado Health Statistics and Vital Records.
Rates for the leading causes of death by age are shown in appendix C.

Heart Disease and Stroke

Heart Disease and Stroke

Risk Factors

- Older age
- Certain sociodemographic factors such as being black or low income
- Depression
- Stress
- Poor diet
- Physical inactivity
- Being overweight or obese
- High blood pressure

Protective Factors

- Physical activity
- Diets rich in fruits and vegetables
- Low intake of high sodium foods
- Maintaining a healthy weight
- Limiting exposure to tobacco smoke
- Limiting alcohol intake
- Receipt of adequate health services
- Maintaining emotional health

Heart disease and stroke (a cerebrovascular disease) together are the leading cause of death in Colorado. Two of the major risk factors for heart disease and stroke are high blood cholesterol and high blood pressure. Of adults reporting that they ever have had their blood cholesterol screened, 33.5% were told by their health provider that their cholesterol was high.[1] One-quarter (25.0%) of adults have been told by their health provider at some point in their lives that their blood pressure was high.[1]

From 2009-2011, the age-adjusted hospitalization rate due to stroke was 263.8 per 100,000 population and the age-adjusted rate of acute myocardial infarction (heart attack) hospitalizations was 177.0 per 100,000 population.[2]

Sources

1. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.
2. Colorado Hospital Association. 2009-2011 Hospital Discharge Dataset. Data prepared by Colorado Department of Public Health and Environment, Health Statistics Section. Denver, CO.

Cancer

Risk Factors

There are numerous risk factors for cancer and they vary by cancer type, but generally fall into the following categories:

- Age: cancer risk generally increases with age
- Habits and behaviors
- Family history
- Health conditions
- The environment

Protective Factors

There are many protective factors for cancer that vary by cancer type, but generally include:

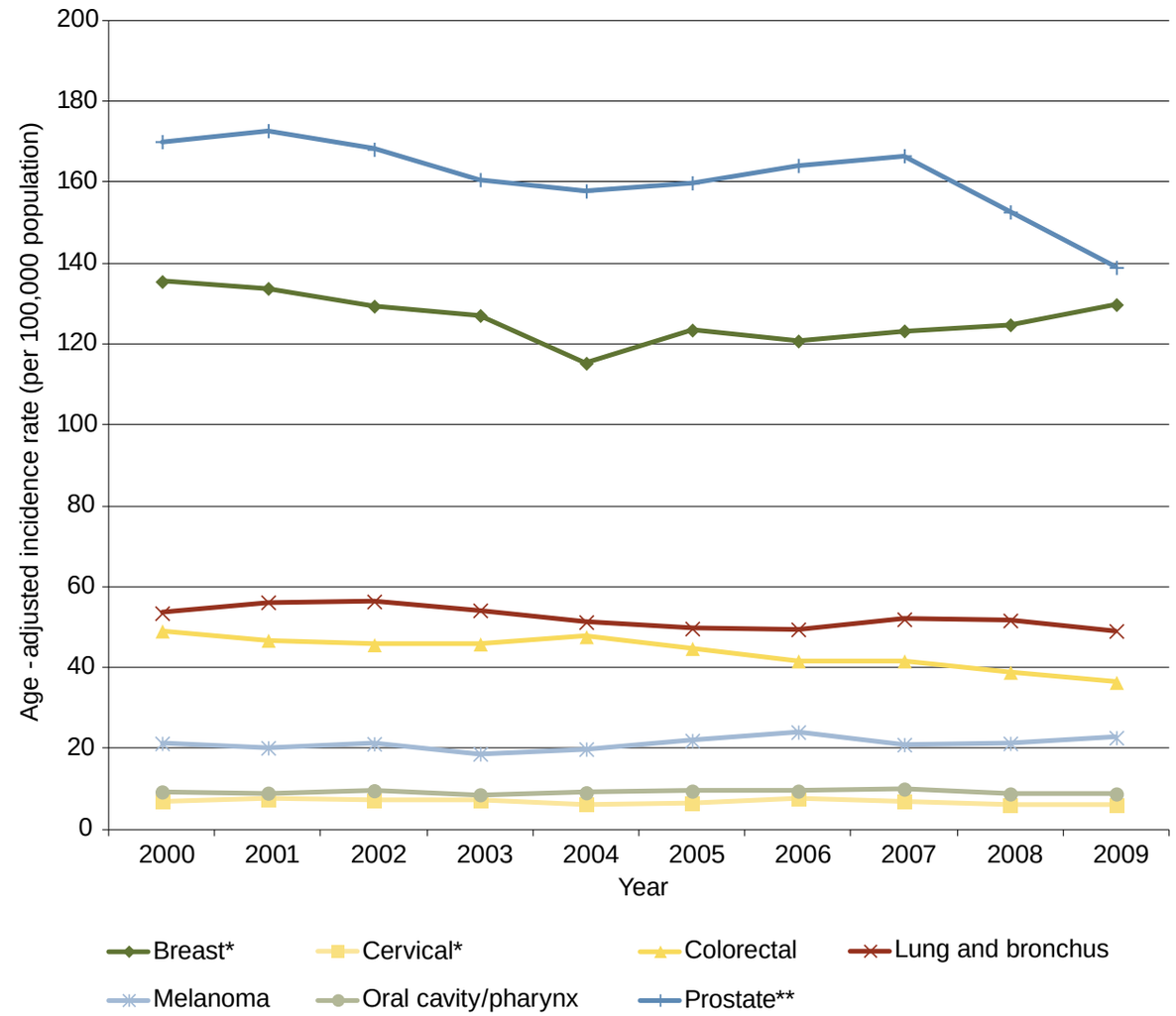
- Maintaining a healthy weight and eating a healthy diet
- Avoiding tobacco
- Limiting alcohol intake
- Getting regular physical activity
- Protecting skin from the sun
- Regular cancer screening tests
- Vaccination against Hepatitis B and human papillomavirus

There are over 100 types of cancer and cancer accounts for 22.1% of total deaths for all ages in Colorado. In 2012, there were 22,820 new cancer cases diagnosed in Colorado and 20 adults died from cancer each day on average. The adult cancer mortality rate is 182.8 per 100,000 people age 18 years and older and this is higher for males than females (188.7 versus 180.7).

The most common types of cancer are breast, prostate and lung and bronchus cancer. Figure 57 shows trends in the incidence of seven major cancers, which are either preventable or detectable at an early and more survivable state of disease. While the incidence rates of prostate, colorectal and lung cancers have decreased since 2000, the incidence rates of breast cancer and melanoma (the most invasive type of skin cancer) increased between 2004 and 2009. The age-adjusted incidence rate of invasive cancer for all sites in the body combined is 440.7 new cases per 100,000 population.[1]

Recent trends in cancer mortality are similar to the trends for cancer incidence. As shown in Figure 58, the difference between incidence and mortality for certain types of cancers, such as breast and prostate, is large, whereas the mortality rate is closer to the incidence rate for cancers such as lung and bronchus and colorectal. Such differences are associated with the probability of surviving various cancer types. The age-adjusted mortality rate for invasive cancer for all sites in the body combined is 147.9 deaths per 100,000 population.[2]

Figure 57. Age-adjusted incidence rates for invasive cancers in Colorado, 2000-2009.

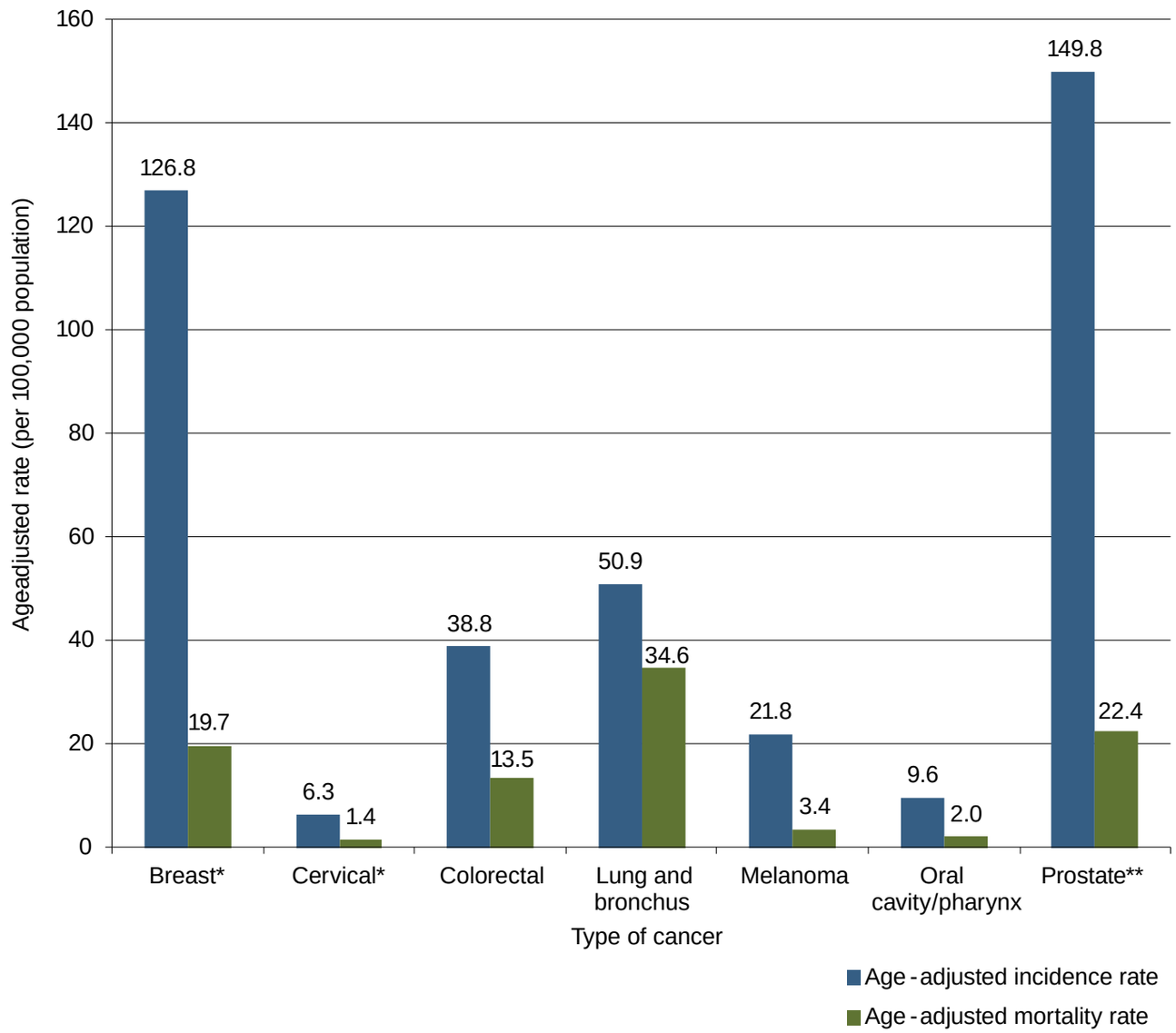


**Rates are per 100,000 female population.*
***Rates are per 100,000 male population.*
Source: Colorado Central Cancer Registry; Colorado Health Statistics and Vital Records.

Sources

1. Colorado Department of Public Health and Environment, Prevention Services Division. 2007-2009 Colorado Central Cancer Registry. Denver, CO.
2. Colorado Department of Public Health and Environment, Health Statistics Section. 2007-2009 Colorado Vital Records. Denver, CO.

Figure 58. Age adjusted incidence and mortality rates for select invasive cancers in Colorado.†



**Rates are per 100,000 female population.*
***Rates are per 100,000 male population.*
Source: Colorado Central Cancer Registry; Colorado Health Statistics and Vital Records.
† Incidence rates are for years 2007-2009 and mortality rates are for 2009-2011.

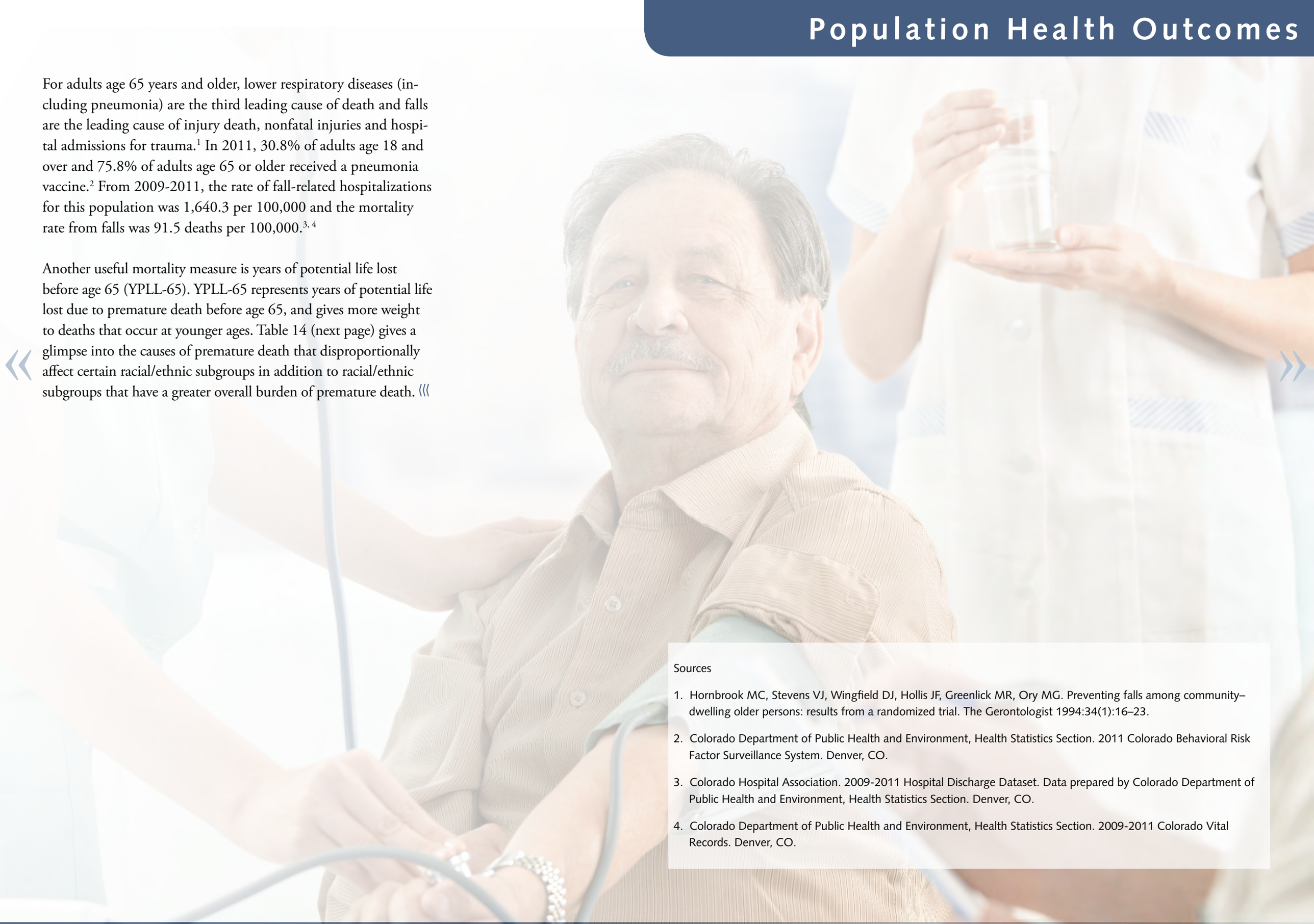
Partnerships in Cancer Prevention and Control

The Colorado Cancer Coalition aids in the formation of collaborative partnerships among the multiple agencies in Colorado that focus on cancer prevention and control. The Coalition's Colorado Cancer Plan 2010-2015 **is a guiding document for organizations across the state to make decisions based on cancer prevention, control and care priorities. Purposes of the plan include:**

- **Promoting the collection and use of information about cancer**
- **Improving healthy behaviors**
- **Increasing screening rates**
- **Improving access to the full spectrum of cancer diagnosis and care**
- **Reducing disparities to achieve health equity**
- **Improving the quality of life of cancer survivors**
- **Setting targets to improve cancer prevention and control**
- **Supporting policies to facilitate these efforts**

For adults age 65 years and older, lower respiratory diseases (including pneumonia) are the third leading cause of death and falls are the leading cause of injury death, nonfatal injuries and hospital admissions for trauma.[1] In 2011, 30.8% of adults age 18 and over and 75.8% of adults age 65 or older received a pneumonia vaccine.[2] From 2009-2011, the rate of fall-related hospitalizations for this population was 1,640.3 per 100,000 and the mortality rate from falls was 91.5 deaths per 100,000.[3, 4]

Another useful mortality measure is years of potential life lost before age 65 (YPLL-65). YPLL-65 represents years of potential life lost due to premature death before age 65, and gives more weight to deaths that occur at younger ages. Table 14 (next page) gives a glimpse into the causes of premature death that disproportionally affect certain racial/ethnic subgroups in addition to racial/ethnic subgroups that have a greater overall burden of premature death.



Sources

1. Hornbrook MC, Stevens VJ, Wingfield DJ, Hollis JF, Greenlick MR, Ory MG. Preventing falls among community–dwelling older persons: results from a randomized trial. The Gerontologist 1994:34(1):16–23.
2. Colorado Department of Public Health and Environment, Health Statistics Section. 2011 Colorado Behavioral Risk Factor Surveillance System. Denver, CO.
3. Colorado Hospital Association. 2009-2011 Hospital Discharge Dataset. Data prepared by Colorado Department of Public Health and Environment, Health Statistics Section. Denver, CO.
4. Colorado Department of Public Health and Environment, Health Statistics Section. 2009-2011 Colorado Vital Records. Denver, CO.

Table 14. Ten leading causes of years potential life lost in Colorado by race/ethnicity, 2010-2012 combined.

	Total Population	White, non-Hispanic	White, Hispanic	Black	Asian/Pacific Islander	Native American/ Alaskan Native
Rate** for all causes	3,600.6	3,475.0	3,773.8	5,665.7	1,802.4	3,307.8
1st Cause (rate**)	Unintentional injuries (786.8)	Unintentional injuries (784.4)	Unintentional injuries (858.4)	Unintentional injuries (865.5)	Cancer† (402.0)	Unintentional injuries (680.4)
2nd Cause (rate**)	Cancer† (475.1)	Cancer† (470.2)	Perinatal period conditions‡ (291.2)	Perinatal period conditions‡ (756.4)	Suicide (222.2)	Suicide (340.8)
3rd Cause (rate**)	Suicide (446.6)	Suicide (502.0)	Cancer† (458.9)	Homicide or legal intervention (573.0)	Unintentional injuries (220.8)	Chronic liver disease and cirrhosis (382.0)
4th Cause (rate**)	Heart disease (309.3)	Heart disease (304.2)	Suicide (322.8)	Cancer† (617.2)	Birth defects¥ (200.3)	Cancer† (345.9)
5th Cause (rate**)	Perinatal period conditions‡ (284.7)	Perinatal period conditions‡ (243.9)	Heart disease (284.9)	Heart disease (594.3)	Heart disease (199.8)	Heart disease (249.5)
6th Cause (rate**)	Birth defects¥ (161.9)	Chronic liver disease and cirrhosis (118.7)	Birth defects¥ (169.6)	Suicide (310.9)	Perinatal period conditions‡ (148.0)	Homicide or legal intervention (209.4)
7th Cause (rate**)	Chronic liver disease and cirrhosis (136.4)	Birth defects¥ (144.6)	Homicide or legal intervention (200.3)	Birth defects¥ (230.8)	Cerebro-vascular diseases (53.0)	Birth defects¥ (170.5)
8th Cause (rate**)	Homicide or legal intervention (139.2)	Homicide or legal intervention (89.2)	Chronic liver disease and cirrhosis (243.9)	Cerebro-vascular diseases (132.2)	Homicide or legal intervention (43.6)	Perinatal period conditions‡ (107.1)
9th Cause (rate**)	Cerebro-vascular diseases (57.9)	Chronic lower respiratory diseases (52.8)	Diabetes mellitus (80.8)	Influenza and pneumonia (106.6)	Injuries of undetermined intent (28.4)	Injuries of undetermined intent (69.9)
10th Cause (rate**)	Diabetes mellitus (55.5)	Cerebro-vascular diseases (52.3)	Cerebro-vascular diseases (73.4)	Diabetes mellitus (120.4)	Nephritis, nephrotic syndrome, nephrosis (19.5)	Cerebro-vascular diseases (53.3)

** Rank order is based on the total number of years of potential life lost, not the age-adjusted rate.*
*** Age-adjusted rates per 100,000 population.*
† Malignant neoplasms.
‡ Perinatal period conditions include complications during pregnancy, labor, or delivery; disorders related to low birth weight or short gestation; birth trauma; respiratory complications or distress; or other fatal newborn disorders.
¥ Congenital malformations, deformations, and chromosomal abnormalities.
Deaths are among Colorado residents only.
Source: Colorado Health Statistics and Vital Records.

Injury-related cause of death

Chronic disease-related cause of death

Perinatal and birth defects-associated cause of death

GAINING A BETTER UNDERSTANDING OF THE COMPLEXITIES AND INTERCONNECTIVITY OF THE SOCIAL DETERMINANTS OF HEALTH CAN ONLY IMPROVE POPULATION HEALTH OUTCOMES, CREATING A CLEARER PATH TO THE ELIMINATION OF HEALTH DISPARITIES.

Throughout this report on the health status of Coloradans, the data presented was selected and organized to describe how:

- Populations are impacted differently during the various stages of life;
- Societal influence, such as economic opportunity, physical environment and social factors play critical roles in the length and quality of life;
- Health behaviors and conditions, mental health and access, utilization and quality of health care directly impact health outcomes; and
- Factors combine to paint a picture of Colorado's health, measured by quality of life, morbidity, mortality and life expectancy.

This health assessment will inform decisions about current and future health priorities and it will contribute to development of the 2014 Colorado Public Health Improvement Plan. In alignment with local, state, and national priorities, the Colorado Public Health Improvement Plan will highlight the shared health priorities and include evidence-based and promising practices, measurable objectives, system improvement strategies, policy change recommendations and quantifiable performance measures.

Over the next five years, the 2013 Colorado Health and Environmental Assessment will be available as a resource to policy makers, program developers, service providers, and anyone with a shared commitment to enhancing the health and environment of Colorado citizens and its visitors. On an annual basis, these data will be revisited to track and communicate progress and trends. Quantitative data available through the Colorado Department of Public Health and Environment will be continually updated at the Colorado Health and Environmental Data website at http://www.chd.dphe.state.co.us/default.aspx.

To communicate input or questions related to the 2013 Colorado Health and Environmental Assessment or the 2014 Colorado Public Health Improvement Plan, please contact us at (303) 692-2350 or via email at cdphe.edplanningandpartnerships@state.co.us.

Thank you to the many individuals who contributed time, input and other assets to the creation of this resource, including but not limited to the following people.

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Appendix A: Colorado's Health Assessment and Planning System

Colorado's Public Health Act of 2008 requires all local public health agencies to lead the preparation of a local public health improvement plan every five years in coordination with the statewide assessment and plan.

To support this vision, one of the six overarching priorities of the 2009 Colorado Public Health Improvement Plan – From Act to Action included the following recommendations:

- Ensure access to a comprehensive set of public health indicators, to include health status, behavioral risk, mental health, environmental health, oral health, health disparities, and social determinants of health. Measure, update, and make indicators available to local public health agencies in a timely manner to enable community health assessment and planning at the state and local levels.
- Develop a standardized approach to community health assessment and provide technical assistance, tools, and templates for the collection and analysis of community-specific data, health improvement planning, and outcome evaluations in local public health agencies.
- Establish a statewide public health planning process to help facilitate coordination between CDPHE and local public health agencies in achieving improved health status across jurisdictions.
- Develop a mechanism through which every local public health agency can access a public health professional(s) with health planning skills in order to facilitate the process of assessment, prioritization, program development, and evaluation of public health issues.

To meet these recommendations, the Colorado Health Assessment and Planning System (CHAPS) was created through the partnership and lessons learned of public health system collaborators throughout the state. The building of the CHAPS guidance was a shared effort and is the result of collaborative process improvement informed by state and national guidelines. Local public health agency representatives and state-level system partners served on CHAPS development work groups, established a common set of indicators, and participated on the Public Health Improvement Steering Committee which serves as the oversight committee appointed by the Colorado Board of Health to guide implementation of the Public Health Act. The CHAPS system offers a consistent approach to assessment and planning that is in alignment with best practices in the field, meeting the requirements for voluntary national and public health agency accreditation. It incorporates broad stakeholder participation; a mixed-methods approach to data collection and analysis; use of a common set of public and environmental health indicators; criteria- and data-driven prioritization of focus areas; and coordinated, cross-jurisdictional planning. Each step of the process is influenced and informed by the CDPHE Health Equity Model. By 2014, all local public health agencies in Colorado will have developed and begun implementing a local public health improvement plan with their community partners.

During the local prioritization process, data collected in the assessment phase is analyzed to enable stakeholders to weigh factors such as health burden, capacity and ability to impact the issue. While each local agency will continue to offer a broad range of core public health services, these priorities represent areas of high need, where the application of enhanced coordination and evidence-based strategies can be employed to make significant impact within a relatively short period of time. Table 13 demonstrates the most frequently identified priority areas to date, and provides a visual comparison with Colorado Winnable Battles and top priories identified by the Centers for Disease Control and Prevention (CDC) and the Environmental Protection Agency (EPA) (Table 15).

Table 15. Priority alignment among Colorado local public health agencies, Colorado Winnable Battles, Colorado Governor's Priorities, CDC Winnable Battles and the EPA.

	Local Priority – Frequency*	Colorado Winnable Battle	Governor's Priority	CDC Winnable Battle	EPA Priority
Obesity	31	■	■	■	
Mental Health	18	■	■		
Substance Abuse	13	■	■		
Clean Air	11	■			■
Clean Water	9	■			■
Safe Food	8	■		■	
Access to Care	8		■		
Unintended Pregnancy	7	■		■	
Injury Prevention	5	■		■	
Tobacco	4	■		■	
Oral Health	4	■	■		■
Infectious Disease Prevention	1	■			

**40 local public health agencies have prioritized as of December, 2013.*

Appendix B: Methods

The 2013 Colorado Health and Environmental Assessment was created through a structured stakeholder input process with state and local level participation. The Colorado Public Health Improvement Steering Committee provided project guidance and reviewed recommendations on data access, analysis and presentation developed by quantitative and qualitative workgroups prior to implementation. Data collection proposals involving CDPHE staff were vetted within the agency to ensure appropriateness and feasibility.

Figure 59 shows the structure and roles of the assessment development process.

Quantitative Methods

The quantitative workgroup was comprised of 14 workgroup members each with a unique data expertise who guided the data selection process. (REFERENCE: Quant member list). Participants represented local and state health departments, multiple state agencies, academia, non-profit organizations and foundations.

The workgroup met monthly from December 2012 through June 2013 to review the Colorado Health Indicators, identify and address data gaps, and consider options for data presentation and formatting. The workgroup produced an indicator list for each domain of the Health Equity Framework and established recommendations regarding related metrics, primary sources and data presentation.

Criteria and guiding principles for indicator selection are listed below.

Criteria for indicator selection:

1. Availability at the state level: The indicator is available at least at the state level and may be available at sub-state levels or for selected demographic subgroups.

2. Standardization and comparability:

   - The indicator is standardized so that it can be compared to other measures. (Source: Quality Indicators for Progress, Jacksonville Community Council)

   - The indicator is equivalent in its metric and timeframe in order to examine the magnitude and direction of differences between counties or between other measures.

   - The indicator is well-documented, consistent and of known quality.

   - The sample and data collection methods used are comparable.

   - The analytic methods are comparable.

Figure 59. 2013 Colorado Health and Environmental Assessment Development Oversight and Workgroup Structure and Roles.

Appendix B: Methods (continued)

3. Trusted sources: The indicator comes from a recognized-population based data source known to be trustworthy. Credible sources clearly state the context and sources of their data and any assumptions or limitations their data may have. (Source: Colorado Health Institute)

4. Valid and reliable:

   - Valid: The indicator measures what it is intended to measure. Face or ecological validity will also be considered. (Source: Rossi, PH, et al. Evaluation, A System Approach, 6th Edition)

   - Reliable: The indicator produces the same results repeatedly. Related, the phenomenon being measured by the indicator can be consistently measured over time and will continue to be measured over time. (Source: Adapted from Jacksonville; Evaluation, A System Approach)

5. At least one indicator is selected from each area of the Health Equity Model. (Source: Colorado's Public Health Improvement Plan 2009, Recommendations for Improving Colorado's Public Health System. Section II, Assessment and Planning, Strategic Recommendation #1 (p. 19))

6. Meaningful/salient: The indicator represents an important and relevant aspect of the public's health and is presented in a user-friendly manner. (Source: Healthy People 2010 Leading Health Indicators Criteria)

7. Burden: The indicator measures something that significantly contributes to mortality, morbidity and/or quality of life.

8. No redundancy: Each indicator makes a unique contribution. (Source: Quality Indicators for Progress, Jacksonville Community Council)

Additional guiding principles for indicator selection:

- Ability to stratify by demographics to identify disparities: Disparities by race, ethnicity, age, gender, income, education, disability and sexual orientation were illustrated to allow for a focus on priority populations.

- Openness to emerging issues: Data systems are often static and measure what is known to be important at a given point in time.

- Comprehensiveness: The indicator set was chosen to encompass factors contributing to health or illness such as social and physical environments, individual behaviors, and health care access as well as morbidity and mortality measures.

- Use of the smallest timeframe possible: Due to rare events or small population sizes, it is sometimes necessary to combine years of data in order to generate stable estimates but this obstructs the ability to look at trends over time. Every effort was made to combine the fewest number of years while still yielding reliable estimates.

- Evidence-based: Indicators were selected based on evidence that they make an important contribution to the health and wellbeing of the population.

- Actionable and contextual: Indicators were chosen to reflect areas amenable to change over time both with regard to public health intervention and contextual factors known to impact health.

- Consistency with key indicators of state-level efforts where possible.

Qualitative Methods

Qualitative data methods were guided by a 14-member advisory committee comprised of stakeholders representing the following sectors: nonprofit, local and state governmental public health, K-12 and post-secondary education. The Qualitative Data Advisory Committee convened monthly between December 2012 and August 2013 to determine data collection and analysis goals, sources, instrumentation, and timing.

Local Public Health Improvement Plans

Local public health improvement plans developed between 2008 and 2013 (n=17) were reviewed and analyzed to provide insight into priorities of the local public health system (Appendix E). Through a partnership with QUERI, Inc., information regarding community assessment processes, priority areas, and five-year goals and strategies was identified and coded into NVivo 10 qualitative data software for comparative analysis. Additional content was sought that specifically addressed issues of health equity, environmental justice, quality improvement, or community highlights. Information from the plans was used document community-level priorities, current initiatives, and examples of programmatic or systems-level strength and innovation.

State Assessments and Plans

A review was conducted of 56 state-level assessments and plans prepared within the past five years (Appendix E). Source material was reviewed and coded into NVivo 10 qualitative data software for comparative analysis. The information gleaned was used to triangulate interview data and inform assessment content related to need, capacity, goals and examples of programmatic strength. Criteria used to prioritize inclusion of specific programmatic highlights included replicability, link to the evidence base, and a representation of information specific to a variety of ages, geographies and topics.

Appendix B: Methods (continued)

Key Informant Interviews

Semi-structured interviews were conducted with 17 CDPHE content experts specializing in Colorado's 10 Winnable Battles. The nine-question interview guide was developed by the Advisory Committee through a nominal group process. Interviews were recorded using iPhone voice recorder and uploaded into the transcription tool Transcribe Pro to facilitate summarization. The Colorado Winnable Battles webpage and other sources were consulted to augment field notes when necessary, and a summary report was prepared in Microsoft Word. Voice recordings will be stored as m4a audio files at CDPHE. Interview findings informed the assessment content, including data presentation and discussion of contributing causes, as well as the development of stand-alone resources such as a summary document highlighting state-level initiatives within each Colorado Winnable Battle (Appendix D).

Asset and Capacity Scan

An inventory was conducted of state assets available to address health issues in the coming years. The inventory was comprised of information collected through the key informant interviews and the review of state and local plans.

To further assess available resources to support plan implementation, information was gathered to identify and verify federal, state and local grant-making institutions offering funding at the local level to support initiatives in priority areas. To access this information in an interactive funding hub, visit http://emaps.dphe.state.co.us/HS/Chapsfundinghub6b.html.

Findings will be consulted during a data-driven prioritization process preceding development of the 2014 state plan, and will support efficient and effective use of resources.

Stakeholder Input

Stakeholder input discussions were held February 2013 through October 2013 to communicate the goals, structure, timeline and initial findings of the assessment process. Input techniques including open discussion, written feedback, question and answer periods, and round-table brainstorming in response to seven structured questions. Formal input opportunities included but were not limited to: Public Health in the Rockies Annual Conference; a joint meeting of the Colorado Air Quality Control Commission and the Colorado State Board of Health; Public Health Nursing Association of Colorado Annual Conference; Colorado Maternal and Child Health Conference; a multi-county assessment and planning meeting in Leadville, Colorado; meetings of the Colorado Association of Local Public Health Officials; and briefing sessions with CDPHE employees. Input was compiled in Microsoft Excel and shared with workgroups to steer decision making.

Appendix C: Three leading causes of death (mortality rate per 100,000 population) in Colorado by age, 2009-2011

Table 16. Three leading causes of death (mortality rate per 100,000 population) in Colorado for each age group (2009-2011).

Age Group (years)	First Cause (mortality rate)	Second Cause (mortality rate)	Third Cause (mortality rate)
Less than 1	Perinatal period conditions* (297.5)	Congenital malformations, deformations, and chromosomal abnormalities (131.0)	Unintentional injuries (28.4)
1 - 4	Unintentional injuries (6.6)	Congenital malformations, deformations, and chromosomal abnormalities (3.3)	Homicide (2.3)
5 - 14	Unintentional injuries (3.8)	Suicide (1.6)	Cancer† (1.3)
15 - 24	Unintentional injuries (28.8)	Suicide (17.2)	Homicide/legal intervention (6.2)
25 - 34	Unintentional injuries (33.5)	Suicide (19.2)	Cancer† (8.5)
35 - 44	Unintentional injuries (36.0)	Suicide (24.2)	Cancer† (21.9)
45 - 54	Cancer† (82.2)	Heart disease (51.4)	Unintentional injuries (48.1)
55 - 64	Cancer† (232.6)	Heart disease (126.5)	Unintentional injuries (43.6)
65 - 74	Cancer† (537.6)	Heart disease (280.4)	Chronic lower respiratory diseases (153.7)
75 - 84	Cancer† (1,123.3)	Heart disease (904.3)	Chronic lower respiratory diseases (438.5)
85+	Heart disease (3,371.8)	Cancer† (1,639.9)	Alzheimer's disease (1,248.4)

**Perinatal period conditions include complications during pregnancy, labor, or delivery; disorders related to low birth weight or short gestation; birth trauma; respiratory complications or distress; or other fatal newborn disorders.*
Deaths are among Colorado residents only.
Source: Colorado Health Statistics and Vital Records.

Appendix D: Major Initiatives in Each Colorado Winnable Battle Priority Area

Major Initiatives in Each Colorado Winnable Battle Prioity Area Identified During Key Informant Interviews, Summer 2013

Clean Air

1. *Regulations for oil and gas exploration and production.* Fine tune these regulations by conducting a series of stakeholder meetings with representatives from industry, industry organizations and associations, Environmental Defense, Sierra Club, Local Public Health Agencies (LPHAs) and citizens to gather input on how to approach related activities.

2. *Ground level ozone.* While Colorado's ground-level ozone is not getting worse, the ceiling on the standards has lowered and may be lowered again in the near future. This means that some areas in Colorado are at risk for non-attainment on these new standards.

3. *Clean air on the western slope.* The Western Regional Air Quality Collaborative will work with counties and local public health agencies on the western slope to improve clean air compliance in this region.

Clean Water

1. *Clean water bodies.* The 2016 target for Colorado water bodies is for 60% of river and stream (flowing waters) miles to attain standards and 40% of lakes and reservoirs (still waters) to attain standards. The main challenge in both flowing and still waters is cleaning up what has been polluted because while there are resources to maintain clean water, there are not enough to restore water. The top four problems are metals from abandoned mines, leaching of naturally occurring selenium driven by urban and agricultural irrigation, E. coli and nutrient impairments.

2. *Clean drinking water.* The goal is that all Colorado's residents and visitors served by public drinking water systems will have drinking water that meets all health-based standards. The main and most chronic concern related to drinking water is naturally occurring uranium and radium in ground water wells that are used as water supplies. The goal for 2016 is to reduce the number of public water systems exceeding uranium or radium standards to 16 systems serving 4,116 people by working with affected public drinking water systems to install drinking water treatment processes or identify alternate drinking water sources. Currently there are 28 systems that exceed these standards.

3. *Water infrastructure.* Although there is no related Colorado Winnable Battle measure, safe drinking water and clean water bodies each face important issues due to aging infrastructure. This piece is extremely important for wastewater plants, sewage systems, drinking water treatment facilities and distribution piping.

Note: the work in these areas is very site-specific and could be described as hyper-local. Some of the most well-known sites include the Lowry Landfill Superfund Site, Suncor Energy and Summitville Mine Superfund Site.

Infectious Disease Prevention

Pertussis

1. *Diphtheria, tetanus and pertussis (DTaP) immunizations.* The goal is to increase the number of children in Colorado who are up to date on DTaP immunizations when upon entering kindergarten. CDPHE has asked local public health agencies to focus on this initiative and has given grants supporting a wide variety of related activities at the community level.

2. *Colorado Immunization Information System (CIIS).* The goal is to expand access and utilization of CIIS in childcare facilities, head start programs, Women Infants and Children (WIC) programs and elementary schools. This allows staff to review immunization records online and quickly identify any children who need additional vaccinations to be up to date.

Appendix D: Major Initiatives in Each Colorado Winnable Battle Priority Area (continued)

Major Initiatives in Each Colorado Winnable Battle Prioity Area Identified During Key Informant Interviews, Summer 2013 (continued)

3. *Personal belief exemption.* CDPHE is worked with the Colorado Children's Immunization Coalition and the Keystone Center to gather stakeholder perspectives about the current Personal Belief Exemption, statute and accompanying Board of Health rule that allows parents to exclude their children from required vaccinations for school enrollment. Colorado has one of the most lenient vaccination exemption policies. The stakeholder group developed formal recommendations for desired changes to the current personal belief exemption statute and rule.

Hospital Acquired Infections

1. *Central Line Associated Blood Stream Infection (CLABSI). The goal is to decrease CLABSI rates by 10% in 2013 and by 15% by 2016. There are four initiatives to work towards this end:*

    1. Conduct a validation study, based on Centers for Disease Control and Prevention (CDC) protocol, for CLABSI in adult critical care units (CCU) and neonatal critical care units (NCCU) in 18 facilities.

    2. Convene an advisory committee to gather stakeholder input, provide guidance on CLABSI reporting and reduction, and follow up.

    3. Provide CLABSI training at CDPHE and onsite as needed.

    4. Complete an Annual Report and semi-annual bulletin to include CLABSI results. The fall 2012 bulletin, CLABSI in Neonatal Critical Care Units was released in December of 2012. A spring 2013 bulletin, CLABSI in LTAC, was released to stakeholders on May 24, 2013.

2. *Hand Hygiene Collaborative.* This collaborative provides a variety of resources including guidelines for providers and patient empowerment materials to participating facilities. Working in collaboration with the Colorado Hospital Association, the Colorado Foundation for Medical Care and Network 15, the collaborative provides education in the importance of hand washing to prevent infections during dialysis.

Gonorrhea

1. *The Gonorrhea (GC) Strategy: prevention and surveillance.* These activities have been improved through increased efficiencies in electronic reporting. Staff capacity in meaningful disease intervention strategies such as prevention and partner notification has increased. The goal was to follow up with fifty percent of all gonorrhea cases in the state. This follow-up helped gather more complete information on items such as race and ethnicity and treatment information, and added a ten-fifteen minute counseling session as a prevention component.

2. *Access to Care.* Working with Colorado Access to ensure that those diagnosed with gonorrhea have better access to treatment for themselves and their partners. The GC Strategy uncovered that people are often diagnosed in an emergency room and are not being treated at the point of care. CDPHE has targeted an area with a high disease rate as a pilot for this intervention and has requested carry-forward funds to team up with Colorado Access providers to ensure treatment for individuals diagnosed with gonorrhea free of charge.

Appendix D: Major Initiatives in Each Colorado Winnable Battle Priority Area (continued)

Major Initiatives in Each Colorado Winnable Battle Prioity Area Identified During Key Informant Interviews, Summer 2013 (continued)	
	3. *Gonorrhea rates in 15-18 year olds.* This includes convening a strategic planning group with Denver Health and Hospital Authority to work with school-based clinics and community-based providers. This is a grassroots effort leveraging parental support to change existing school policy as it relates to making contraceptives and other preventive services available in school-based clinics. Additional support for this project comes from the Far Northeast Sexual Health Alliance. CDPHE has applied for a new grant to augment the GC Strategy for a more intensive intervention among 15-29 year-olds and to conduct partner elicitation notification and expedited partner therapy (delivering therapy to partners without testing).
Injury Prevention	1. *Motor vehicle safety*. This is specifically focused on teen driving and increasing seat belt use. There has been a 60% reduction in teen motor vehicle accident fatalities since the implementation of Graduate Drivers Licensing requirements for teens. There are plans to strengthen this program. Currently, 82.1% of adults use seat belts in Colorado and the initiative aims to increase this to 90% through the enactment of a primary seatbelt law. 2. *Older adult falls*. The state is monitoring the data and has found an increasing trend in older adult falls. CDPHE is starting with limited funds and is compiling and communicating the evidence about best practices so that change can be affected.
Mental Health and Substance Abuse	1. *Adult depression.* This is specifically focused on pregnancy-related depression and adult male depression. • To combat pregnancy-related depression, the objective is to educate providers to ensure screening for depression both pre and post pregnancy and to make referrals for care. • The focus on adult male depression is specifically related to the high suicide risk in men. Man Therapy was created from market research including male focus groups and uses a less public forum to provide guidance on how to deal with depression. The interactive website has a screening tool, called the eighteen point head inspection that directs men to take suitable action based on the score generated. Another approach is to encourage more integrated care, where mental health providers are located inside health care clinics in order to make the referral process easier and more successful. CDPHE is collaborating with other agencies, stakeholders in mental health and providers to make this happen. • Raise awareness among primary care providers about the bi-directional relationship between obesity and depression. The medical home and in some cases, the mental health home, is encouraged as means to providing integrated care. 2. *Prescription drug overdose. The Prescription Drug Initiative is in response to the growing number of prescription drug overdose deaths. CDPHE has five related initiatives:* 1. Ensure data sources can be used together to accurately portray trends and risks. The tracking of prescriptions, trafficking, abuse and treatment are done within different programs and agencies and it will take work and policy to connect this data. 2. Raise public awareness of the misuse of prescription drugs and the potential danger of drug interactions. 3. Work with the Department of Regulatory Agencies to have access to the Prescription Drug Monitoring Program data to determine how to encourage prescribers to use

Appendix D: Major Initiatives in Each Colorado Winnable Battle Priority Area (continued)

Major Initiatives in Each Colorado Winnable Battle Prioity Area Identified During Key Informant Interviews, Summer 2013 (continued)

the system as it is intended and to use the data for public health research.

4. Finding a better way to dispose of opioid medications, currently these drugs when collected have to be transported out of state to be disposed of properly, as there are no in state options for safe disposal.

5. Provide pain management education for providers who prescribe medication for pain.

Obesity

There are currently twelve separate initiatives; the following six are the major and most stable.

1. *The built environment.* Address the impact of the built environment on obesity, which is especially relevant at the local level.

2. *Baby Friendly Hospitals.* Incentivize more local hospitals to become accredited as Baby Friendly Hospitals. There are many elements to this accreditation, but one is to promote breastfeeding.

3. *Childcare nutrition standards and childhood physical activity programs.* The state is engaging in school food policy work related to nutrition standards, healthy eating and physical activity for children.

4. *The link between depression and obesity.* A Centers for Disease Control and Prevention fellow is working on this part time, focusing on provider education. The mental health program also sees the benefit of addressing depression and obesity together, but neither program has funding for this.

5. *Sugar sweetened beverages.* Policy work in this area involves many agencies. The state is moving forward with nutrition standards and worksite wellness, focusing on the public sector on the front end. The Healthy Hospital Coalition group is also working on reducing sugar sweetened beverages in hospitals.

6. *Diabetes Prevention Program.* This coincides with the CDPHE Worksite Wellness initiative. CDPHE is drafting policies to get health plans to cover and reimburse for diabetes prevention activities..

Oral Health

1. *Statewide sealant system.* This aims to increase the percent of Colorado children with sealants on their permanent molars, targeting certain schools for a school-based sealant program. To streamline the data, providers will be given access to a data entry system.

2. *Regional oral health specialists.* These individuals are hygienists who work on a part-time basis to serve as a small-scale oral health unit within local public health agencies. They are performing oral public health services in 22 rural counties. They will be doing school assessments regarding sealant programs and fluoridation issues.

3. *Cavity Free at Three*. This is focused on ensuring that infants get an oral assessment and dental home by age one.

4. *Integrate oral health with overall health*. The medical home initiative includes oral health. When Medicaid begins to use a third party administrator for dental care in the summer of

Appendix D: Major Initiatives in Each Colorado Winnable Battle Priority Area (continued)

Major Initiatives in Each Colorado Winnable Battle Prioity Area Identified During Key Informant Interviews, Summer 2013 (continued)	
	2014, there will be opportunity to make some progress in integrating oral health with other primary care. 5. *Water fluorination*. This goal is that 75 percent or more of the population is served by community water systems with optimally fluoridated water.
Safe Food	1. *Voluntary National Retail Food Regulatory Program Standards.* The goal is to enroll 34 local public health partners in these Food and Drug Administration (FDA) program standards and to support the process of meeting them. Another goal is to bring the entire state up to acceptable standards in retail food establishment compliance. This consistent approach will allow CDPHE to provide uniform support throughout the state and particularly to smaller agencies. 2. *Standardization of food safety data.* Currently, there are nine different database providers used by the 34 agencies in Colorado. A standard language will be implemented for inspections, reports and violations. This will allow comparisons to be made across the state and for targeted statewide initiatives. 3. *Communication.* The goal is to improve communication about food risks to the public. The FDA food safety program standards will enable generation of relative risk measures. CDPHE is working on a webpage called Food Shield that is designed to store statewide information on food defense. The site can then be used to share tools being implemented at the local level to ensure uniformity, quality and non-duplication.
Tobacco	1. *Administration of the Amendment 35 grants program according to the seven goals contained in the program's strategic plan.* 2. *Reduce access to tobacco for Colorado youth.* 3. *Defend and maintain the Colorado Clean Air Act 2006.* *Note: The overarching goal of these three initiatives is to improve cessation rates and to reduce the overall health burden due to tobacco.*
Unintended Pregnancy	1. *Contraceptive availability.* The goal is to increase the availability and use of long acting reversible contraceptives (LARCs) and other forms of contraception. This is part of a Title X Family Planning Program and as such, does not turn away anyone seeking family planning services and covers contraception, educational services and referrals. For the last five years, Title X funds have been coupled with those from an anonymous donor to help providers and local public health agencies increase usage and availability of LARC and other forms of contraception. The state is also working to increase public awareness of contraceptive coverage and family planning services under health reform. 2. *Colorado Family Planning Initiative*. This helps individuals and families make choices about if and when they would like to become pregnant. A piece of this is increasing the number of providers offering contraceptive services and expanding contraceptive services to fit within this framework. For instance, asking pediatricians to counsel parents on family planning during well baby visits. CDPHE is working with Medicaid and private insurance to ensure that providers are able to offer and be reimbursed for these services.

Appendix E: Local and state health assessments and plans reviewed in preparing the 2013 Colorado Health and Environmental Assessment

State Assessments, Plans and Reports

A Conversation with Coloradans 2010: Survey of Colorado's Lesbian, Gay, Bisexual and Transgender Communities

Annual Report to the Colorado Legislature and Water Quality Control Commission Fiscal Year 2011-2012

Bold Steps Toward Child and Adolescent Health: A Plan for Youth Violence Prevention in Colorado

Colorado 2010 Air Quality Data Report

Colorado Air Quality Control Commission Report to the Public

Colorado Asthma Plan

Colorado Cancer Plan 2010-2015

Colorado Department of Education Strategic Literacy Plan

Colorado Department of Public Health and Environment Strategic Map

Colorado Diabetes Prevention and Control Strategic Plan

Colorado Early Childhood Obesity Prevention Report

Colorado EMPOWER Project State Sexual Violence Prevention Plan

Colorado Heart Healthy and Stroke Free

Colorado Homeless Youth Action Plan

Colorado Injury Prevention Strategic Plan 2010-2015

Colorado Kids Count 2013

Colorado Losing Ground

Colorado Maternal and Child Health Needs Assessment FY 2011-2015

Colorado Maternal and Child Health Priorities with State and National Performance Measures

Colorado Oral Health Plan

Colorado Report Card - 2011

Colorado Report Card - 2012

Colorado Sexual Violence Prevention: Evaluation Plan

Colorado State Alzheimer Disease Plan: A Roadmap for Alzheimer's disease caregiving and family support policies

Colorado State Plan Temporary Assistance for Needy Families

Colorado State Plan Title V Abstinence Education Grant Program

Colorado Teen Dating Violence Prevention Final Report

Colorado Tobacco Control Strategic Plan

Colorado Trauma System Rapid Planning Crosswalk

Colorado Trauma System Rapid Planning Event Report and Letter

Colorado's Adverse Childhood Experiences Study

Colorado's Early Childhood Framework in Action State Plan 2010-2012

Colorado's Part B Comprehensive Plan for HIV Care and Treatment

Colorado's Physical Activity and Nutrition State Plan 2010

Colorado's Population in Need Study, 2009

Colorado's Public Health Improvement Plan 2009: From Act to Action

Colorado's Solid and Hazardous Waste Commission Annual Report

Colorado's State Health Information Exchange Strategic Plan

Colorado's State Plan for Prevention, Intervention and Treatment Services for Children and Youth, 2010-2013

Colorado's State Plan on Aging, 2012-2015

Determining Colorado's Future, Report and Recommendations of TBD Colorado

Early Intervention Colorado State Plan

Healthy Kids Colorado Survey 2009 State Report

Preventing Suicide in Colorado: Progress Achieved and Goals for the Future

Prevention: Strong Investments in Colorado's Health, Supplement of the 2011 Colorado Health Report Card

Racial and Ethnic Health Disparities in Colorado, 2009

Strategic Plan for Lesbian, Gay, Bisexual and Transgender Health in Colorado

Strategic Plan to Address Chronic Obstructive Pulmonary Disease in Colorado, 2007

Trauma System Consultation Report for the State of Colorado

The 2013 Health Disparities Report

The Colorado Trust Access to Health: Health Equity

The State of Health: Colorado's Commitment to Become the Healthiest State

The State of Lesbian, Gay, Bisexual and Transgender Health in Colorado

The Status of Behavioral Health Care in Colorado: Advancing Colorado's Mental Health Care, 2011 Update

The Weight of the State: 2009 Report on Overweight and Obesity in Colorado

Youth Sexual Health Call to Action

Local Assessments, Plans and Reports

2012-2016 Community Health Improvement Plan for Routt & Moffat Counties

Adams, Arapahoe and Douglas Counties (Tri-County Health Department) Public Health Improvement Plan, 2014-2018

Alamosa County Public Health Improvement Plan

Baca County Data Assessment, October 2012

Be Healthy Denver: Denver's Community Health Improvement Plan, 2013-2018

Boulder County Public Health Improvement Plan

Broomfield Public Health and Environment Community Health Assessment

Chaffee County Public Health Improvement Plan

Cheyenne County Public Health 2012 Community Health Assessment

Clear Creek County Public Health Improvement Plan, 2013-2017

Costilla County Public Health Agency Community Health Assessment

Custer County Public Health Improvement Plan, 2014-2018

Dolores and Montezuma Counties Public Health Improvement Plan, 2014

Douglas, Adams and Arapahoe Counties, Tri-County Public Health Improvement Plan, 2014-2018

Eagle County Community Health Improvement Plan, 2017

Elbert County Public Health Improvement Plan, 2014-2018

El Paso County Community Health Improvement Plan, 2013-2017

Fremont County Public Health Agency Community Health Assessment

Garfield County Public Health Improvement Plan, 2013-2017

Gilpin County Health Status Report, January 2013

Grand County Public Health Improvement Plan, 2012-2013

Jackson County Public Health Improvement Plan, 2013-2017

Jefferson County Community Health Improvement Plan, 2014-2017

Kiowa County Public Health Agency Community Health Assessment

Kit Carson County Health and Human Services 2012 Community Health Assessment

Lake County Public Health Improvement Plan, 2012-2015

Larimer County Community Health Improvement Plan, 2014-2018

Lincoln Public Health Improvement Plan, 2013

Mesa County: Healthy Mesa County, 2012-2017

Montezuma and Dolores Counties Public Health Improvement Plan, 2014

Northeast Colorado Public Health Improvement Plan

Park County Community Health Assessment Report

Pueblo County Community Health Improvement Plan, 2013-2017

Pitkin County Community Health Improvement Plan, 2013

Rio Blanco County Public Health Improvement Plan, 2013-2017

Rio Grande County Community Health Improvement Plan, 2013-2018

Saguache County Community Health Improvement Plan

San Juan Basin Health Department (Archuleta and La Plata Counties) Public Health Improvement Plan 2013-2018

San Luis Valley Community Health Survey, 2010

Summit County Community Health Improvement Plan, 2013

Teller County Community Health Improvement Plan

Tri-County, Adams, Arapahoe and Douglas Counties Public Health Improvement Plan, 2014-2018

Weld County 2012 Health Status Report

West Central Public Health Partnership (Delta, Gunnison, Hinsdale, Montrose, Ouray and San Miguel Counties) Public Health Improvement Plan, 2013

Note: *This list includes the most recently completed local community health assessment or public health improvement plan for each local public health agency in Colorado at the time of this report. For an up-to-date list of completed local health assessments and public health improvement plans, please visit the Colorado Health Assessment and Planning System.*

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