



DOUGLAS COUNTY COLORADO
**COMMUNITY HEALTH
ASSESSMENT &
PUBLIC HEALTH
IMPROVEMENT PLAN**

2021 - 2026

**"A big tree standing by itself may look majestic
and self-reliant.**

Yet a tree is never alone.

**Like all living things, it belongs to a community
of organisms that depend on each other."**

Beth Botts

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Douglas County's five-member Board of Health (BOH) was officially formed on September 14, 2021, by the Douglas County Board of Commissioners. The BOH is an integral component of the Douglas County Health Department's governance structure including compliance with the Colorado's Public Health Act and making recommendations regarding the department's budget, contracting for public health services, and maintaining continuity of core public health services for Douglas County.

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The Douglas County Board of Commissioners established the Public Health Advisory Committee as an ad hoc committee providing guidance, personal insights and citizen perspectives to the Douglas County Community Health Assessment and Public Health Improvement Planning process.

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EXECUTIVE SUMMARY

Executive Summary

The purpose of this community health assessment (CHA) report is to summarize important health issues that emerged from analyzing various data sources, including the voice of Douglas County residents, related to the following questions:

- What are the health problems in a community?
- Why do health issues exist in a community?
- What factors create or determine the health problems?
- What resources are available to address the health problems?
- What are the health needs of the community from a population-based perspective?

Methodology

The Douglas County Board of Health partnered with Health Management Associates, Inc. (HMA) to conduct the CHA. HMA utilized a modified Mobilizing for Action through Planning and Partnerships (MAPP) framework for the CHA, which did not rely upon any single source of information, but rather the consideration of multiple data sources in analysis before arriving at findings.

Data includes both quantitative and qualitative data from primary (data collected first-hand through surveys, focus groups, and interviews) and secondary data sources (data collected by another entity or for another purpose). Quantitative data used in the CHA are considered high-quality, population-based data sources. Data came from local, state, and national sources such as Vital Statistics and Records from the Colorado Department of Public Health and Environment, U.S. Census Bureau, Behavioral Risk Factor Surveillance System (BRFSS), Healthy Kids Colorado Survey (HKCS), and Colorado Health Access Survey (CHAS).

To develop recommendations for the health concerns Douglas County should prioritize in its Public Health Improvement Plan (PHIP), HMA considered community input, the magnitude of the problem, the severity of the problem and how it has changed over time, practicality/feasibility of addressing the problem, and how Douglas County compares to Colorado in terms of quantitative data.

Findings

The CHA identified several strengths and assets available to Douglas County. Residents shared that they felt Douglas County has a strong sense of community connectedness, reporting they felt Douglas County was a good place to raise children and a safe place to live and grow old. Residents are satisfied with the quality of life and the health care in their community. Additionally, the abundant open space and access to outdoor recreation opportunities are seen as important, positive assets of the community. Additional strengths identified include:

- Highly engaged citizens
- Existing resources and successes to leverage and build upon
- Strong cross-sector partnerships

Health Priorities

Based on an assessment of all primary and secondary data sources at the county and sub-county level, trends analysis, and comparison to Colorado, the following were identified as priority health areas for Douglas County:

- Disease Management and Prevention
- Behavioral Health
- Injury Prevention

PRIORITY AREA ONE: DISEASE MANAGEMENT AND PREVENTION

The CHA community survey conducted by HMA identified vaccine-preventable hospitalization and/or death caused by easily transmissible viruses (i.e., COVID-19) as the second “worst health problem” in Douglas County. As an important upstream protective factor for the management and prevention of disease, community members noted that the fourth most important factor in a healthy community is “healthy behaviors and lifestyles”, and that among the top 10 most risky or harmful behaviors happening in their communities are “being overweight,” “poor eating habits,” and “lack of exercise.” Secondary data sources point to cardiovascular disease, lower respiratory diseases, and diabetes as being significantly lower in Douglas County in 2020 compared to Colorado. However, while this is a positive trend, cardiovascular disease was the leading cause of hospitalization and death while rates of diabetes appeared to have increased since 2013 to approximately one in 20 adults (18+ years) ever having been diagnosed with diabetes in 2020.[i] Generally, in 2017, the prevalence of one or more chronic conditions increased slightly between 2013 and 2017 from 58 percent to 63 percent among adults 18 years and older to approximately two in three adults.[ii] There are strong attributes of Douglas County to support efforts to improve of Management and Prevention of Disease. For example, more than half of residents within the major cities of Douglas County live within a 10-minute walk of a park.[iii] Additionally, 84 percent of Douglas County residents report being very satisfied or somewhat satisfied with the open space and land conservation services provided by Douglas County and agree that Douglas County is working effectively with state and municipal officials and conservation groups to ensure adequate natural open space and land conservation for the public’s benefit – including space for recreation, such as hiking or mountain biking.[iv]

[i] Behavioral Risk Factor Surveillance System, 2020

[ii] Behavioral Risk Factor Surveillance System, 2018

[iii] Trust for Public Land’s ParkScore® index

[iv] 2021 Douglas County Poll

PRIORITY AREA TWO: BEHAVIORAL HEALTH

The CHA community survey identified mental health problems as the “worst health problem” in Douglas County, followed by suicide as the fifth and substance/drug misuse as the ninth worst health problem. Secondary data sources point to concerns with increasing mental health distress. Douglas County youth and adults self-reported feeling more mental distress in 2019 and 2020, respectively, than they did in 2013.^[i] Additionally, emergency department (ED) and hospitalization for mental health issues and substance use has increased. For example, ED visits per 100,000 residents involving drugs with potential for abuse increased 18.5 percent between 2016 and 2020.^[ii]

Mental health issues were the leading cause of hospitalization in Douglas County and the rate of hospitalizations increased between 2015 and 2019. Lastly, drug overdose deaths, which increased to a five year high in 2020 (from 10.0 per 100,000 people in 2016 to 13.4 per 100,000 people in 2020). In addition to the data above, it is important to note that behavioral health was identified as a priority area also because of the many strong resources and successes regarding mental health and suicide intervention in Douglas County that can be leveraged and built upon.

PRIORITY AREA THREE: INJURY PREVENTION

Community members indicated unsafe driving behaviors are the second most risky or harmful behavior in the County. In Douglas County, there were 4,321 crashes in 2020, which was a 21.3 percent decrease since 2016. The decrease is largely between the year 2019 and 2020, which saw a steep drop in crashes.^[iii] Of these crashes in 2020, 26 percent resulted in either a possible, minor, serious, or fatal injury. Careless driving was a contributing driver action for 2,737 (63%) crashes in 2020. In consideration of a “typical” year of 2019 prior to the pandemic, among the 6,186 crashes in 2019, 1,203 (19.5%) were due to a distracted driver.

More broadly than motor vehicle injury, unintentional injury overall was the third leading cause of death in Douglas County (of which motor vehicle injury is a part), causing 8.7 percent of all deaths between 2016 and 2020.^[iv] While the unintentional injury age adjusted death rate was significantly lower in Douglas County at 48.1 compared to 52.9 per 100,000 in Colorado, injury deaths due to falls was significantly higher at 27.8 per 100,000 compared to Colorado at 16.1 per 100,000. Among unintentional injuries, fall related injuries are the leading reason for ED visits with an age adjusted rate of 1,802.5 per 100,000 residents, followed by ED visits mentioning motor vehicle crashes (148.4) and poisoning due to drugs (143.7).

[i] Healthy Kids Colorado Survey, 2019

[ii] Colorado Department Of Public Health And Environment, Hospital Data.

[iii] Crash data. Colorado Department of Transportation. (2022, June 24). Retrieved September 8, 2022, from <https://www.codot.gov/safety/traffic-safety/data-analysis/crash-data>

[iv] Colorado Department of Public Health And Environment, Vital Statistics.

Public Health Improvement Plan

The CHA and its related engagement activities was only the beginning of Douglas County's roadmap to better health for all community residents. In December of 2021 the County hosted another round of community meetings and engaged residents and stakeholders to review the community's health priorities and learn about best practices to improve population health from public health subject matter experts. Through facilitated discussions residents and stakeholders engaged in discussion and decisions on some important probing questions that laid the groundwork for the newly formed health department to engage partners in developing goals, strategies, objectives, and action plans with measurable outcomes. Questions from the Association of State and Territorial Health Officials (ASTHO) Companion Document to the State Health Assessment Guidance and Resources was used to facilitate the discussions.

Examples questions and discussion topics from ASTHO's companion document include:

- What efforts are already in place to address each priority?
- What do residents and stakeholders hope to accomplish in five years for each priority? .
- How will we know if we are successful?
- Are any of the priorities aligned with other state and national priorities?
- What barriers or potential threats might impact the ability to positively implement the priorities?
- How can partners and stakeholders contribute to achieving the priority area goal(s)?
- Who should be engaged to address each priority issue?[1]

[1] Developing a State Health Improvement Plan: Guidance and Resources. The Association of State and Territorial Health Officials (ASTHO), 2231 Crystal Drive, Suite 450, Arlington, VA 22202. www.astho.org



PART I: PUBLIC HEALTH

Part I: Public Health

As part of standing up its own public health agency and exploring the needs and priorities of Douglas County citizens related to the delivery of public health services, Douglas County worked with Health Management Associates, Inc. (HMA), a public health and health care research and consulting firm. HMA assisted the County with conducting a Community Health Assessment (CHA) and developing a Public Health Improvement Plan (PHIP) specific to Douglas County and its public health needs. Colorado's Public Health Act of 2008 requires the use of CHAs to determine population health and system capacity. It also requires the development of local PHIPs based on the CHA for local public health agencies.^[i]

A CHA is an assessment of the health status of a community's population and is used to identify key problems and strengths in a community. The goal of a CHA is to inform the prioritization of public health focus areas and strategies to address the health needs of the community. The PHIP is based on the findings of the CHA and documents the plan to meet the health needs of the community over a defined period, including the strategies, actions, partners and resources needed to achieve measurable public health improvements.

What is Public Health?

Public health is the work of protecting and improving the health of people and their communities. The major achievement of public health has been to prolong life by addressing prevailing health issues. This focus of public health and how it is accomplished has evolved over time. Historically, public health focused on the control of transmissible diseases and the reduction of environmental hazards by improving the safety of air and water, promoting sanitation through proper sewage disposal, promoting hygienic practices such as handwashing and eliminating diseases through immunizations. With time, the focus of public health included additional strategies to address emerging threats to the health and safety of populations such as injuries and chronic diseases.

It is also within the scope of public health to understand and address the social drivers or social determinants of health which are the conditions in which people are born, grow, live, learn, play, work and age that shape their health. These drivers of health are non-medical factors that affect both the average and distribution of health within populations. Social drivers of health include things like socio economic status, employment, living and working conditions, social support networks, access to health care or education, neighborhood and physical community environments, access to transportation and discrimination. Addressing these social drivers of health is critical to improving population health and reducing health disparities.^[ii] While a healthcare provider treats a person, public health is concerned with protecting the health of an entire population. These populations can be as small as a local neighborhood, or as big as an entire country or state.

[i] Public Health Service Act, retrieved from COMPS-8773.pdf (govinfo.gov)

[ii] Artiga, S., & Hinton, E. (2019). Beyond health care: the role of social determinants in promoting health and health equity. *Health*, 20(10), 1-13.

FOUNDATIONAL CAPABILITIES

Core Public Health Duties

PARTNERSHIPS

Colorado's governmental public health system will create, convene, and support strategic partnerships, engage community members and cross-sectoral partners, agencies, and organizations to achieve public health goals.

ASSESSMENT & PLANNING

Colorado's governmental public health system will apply the principles and skilled practice of epidemiology, laboratory investigation, surveillance, and program valuation to support planning, policy and decision making in Colorado. The public health system will monitor, diagnose, and investigate health problems and hazards in communities including public health emergencies, outbreaks, and epidemics, and collect and analyze data.

ORGANIZATIONAL COMPETENCIES

Colorado's governmental public health system will include: Accountability, performance management and quality improvement; human resources; legal services and analysis; financial management, contract and procurement services and facilities management; information technology/informatics (IT); and leadership and governance.

EMERGENCY PREPAREDNESS & RESPONSE

Colorado's governmental public health system, in coordination with federal, state and local agencies and public and private sector partners, will have the capability and capacity to prepare for, respond to, and recover from emergencies with health, environmental and medical impacts.

POLICY DEVELOPMENT & SUPPORT

Colorado's governmental public health system will inform and implement policies to meet the community's changing health needs. Public health policies will aim to eliminate health disparities, reduce death and disability, and improve environmental quality and health outcomes for all people in Colorado.

COMMUNICATION

Colorado's governmental public health system will be a trusted source of clear, consistent, accurate, and timely health and environmental information. The system will consistently use equitable, multi-directional communication strategies, interventions, and tools to support all public health goals.

HEALTH EQUITY & SOCIAL DETERMINANTS

Colorado's governmental public health system will intentionally focus on improving systems and institutions that create or perpetuate socioeconomic disadvantage, social exclusion, racism, historical injustice, or other forms of oppression so that all people and communities in Colorado can achieve the highest level of health possible. Governmental public health will have the requisite skills, competencies, and capacities to play an essential role in creating comprehensive strategies needed to address health inequities, and social and environmental determinants of health.

Department of Public Health & Environment, State Board of Health,
Core Public Health Services, 6 CCR 1014-7

Figure 1 Foundational Capabilities for Public Health

In Colorado, the state public health system is required to apply the principles and skilled practice of epidemiology, laboratory investigation, surveillance, and program evaluation to support planning, policy and decision-making in the state. The public health system will monitor, diagnose, and investigate health problems and hazards in communities including public health emergencies, outbreaks, and epidemics, and collect and analyze data. These activities are intended to contribute to research that provides insight into health problems and the development of innovative solutions.

Colorado's Public Health Requirements

Colorado statute creates the Colorado Department of Public Health and Environment (CDPHE) and the State Board of Health. The state board is responsible for determining general policies to be followed by the department in "administering and enforcing the public health laws and the orders, standards, rules, and regulations of the board."^[i] Additionally, the Colorado Revised Statutes (C.R.S.) 25-1-506 (1), states "Each county, by resolution of its board of county commissioners, shall establish and maintain a county public health agency or shall participate in a district public health agency" to carry out the "core public health" duties to include the assessment of health status and health risks, development of policies to protect and promote health, and the assurance of provision of the essential public health services^[ii] which are to:

- Monitor health status to identify and solve community health problems.
- Investigate and diagnose health problems and health hazards in the community.
- Inform, educate, and empower individuals about health issues.
- Mobilize public and private collaboration and action to identify and solve health problems.
- Develop policies, plans, and programs that support individual and community health efforts. Enforce laws and regulations that protect health and promote safety.
- Link people to needed personal health services and assure the provision of health care.
- Encourage a competent public health workforce.
- Evaluate effectiveness, accessibility, and quality of personal and population-based health services.

Additionally, state statute provides the State Board of Health the power to create and enforce rules that govern the work of CDPHE and county public health agencies. Through their rule-making authority, the State Board of Health specifies seven foundational capabilities (Figure 1) and five foundational public health services that comprise the core public health duties and essential public health services.^[iii]

^[i] C.R.S. 25-1-108

^[ii] C.R.S. 25-1-502

^[iii] Department of Public Health And Environment, State Board Of Health, Core Public Health Services, 6 CCR 1014-7

Public Health Foundational Capabilities & Services

In Colorado, the state and county public health agencies exist to ensure the health of their residents, which requires collaboration among a complex network of people and organizations in the public and private sectors, as well as an alignment of policy and practice at the state and local levels. Figure 1 outlines the seven foundational capabilities for public health agencies. These capabilities (or competencies) are the underpinning of the five foundational services:

- Communicable disease prevention, investigation, and control
- Environmental health
- Maternal, child, adolescent, and family health
- Chronic disease and injury prevention and behavioral health promotion
- Access to/linkage with clinical health care

Communicable Disease Prevention, Investigation, and Control

All local public health agencies in Colorado are required to carry out state and locally coordinated surveillance, disease investigation, laboratory testing, and prevention and control strategies to monitor and reduce the incidence and transmission of communicable diseases.

Programs that carry out these functions must target illnesses that are vaccine-preventable, zoonotic, vector-borne, respiratory, food- or water-borne, bloodborne, healthcare-associated, and sexually transmitted as well as emerging threats. Additionally, local public health agencies must collaborate with national, state, and local partners to ensure mandates and guidelines are met and timely, actionable information is provided to the public and to health professionals.

Environmental Health

All local public health agencies in Colorado are required to use evidence-informed practices to understand the cause-and-effect relationships between environmental changes and ecological and human health impacts, to protect, promote, and enhance the health of the community and environment. Local health agencies will participate in the protection and improvement of air quality, water, land, and food safety by identifying, investigating, and responding to community environmental health concerns, reducing current and emerging environmental health risks, preventing communicable diseases, and sustaining the environment in a coordinated manner with agencies at the federal, state, and local levels as well as industry stakeholders and the public.

Maternal, Child, Adolescent & Family Health

All local public health agencies in Colorado are required to develop, implement, and evaluate state-wide, regional, and local strategies related to maternal, child, adolescent, and family health to increase health and wellbeing, reduce adverse health outcomes and advance health equity across the life course.

The State Board of Health identified strategies to improve the health of families such as providing education, promoting evidence-informed and multigenerational approaches to family health, identifying community assets that promote healthy behaviors, advocating for initiatives such as breast-feeding campaigns, and convening partners to identify areas of opportunity for improving the health of mothers, infants, children, adolescents, and families.

Chronic Disease, Injury Prevention & Behavioral Health Promotion

All local public health agencies in Colorado focus on common risk and protective factors that affect social, emotional, and physical health and safety. To prevent chronic disease and injuries and promote behavioral health, public health agencies are required to use policy, systems, and environmental change strategies to comprehensively address the root causes of poor health outcomes and advance health equity. Priority areas for the state include nutrition, physical activity, oral health, access to care and disease management, injury prevention, violence prevention, suicide prevention, mental health promotion and substance use (including tobacco, alcohol, and other substances) prevention.

Access to/Linkage with Clinical Health Care

All local public health agencies in Colorado are required to coordinate governmental and community partners to link individuals to and ensure the provision of health care within their jurisdictions including primary care, maternal and child health care, oral health care, specialty care, and mental health care.

Barriers to Care

HEALTH INSURANCE

People who have no health insurance or are “underinsured” are much less likely to have a primary care provider than a person who has health insurance and typically receive little or no preventive care, dental care, chronic disease management, and behavioral health services.

People without insurance are often diagnosed later, when a disease is less treatable than those with insurance and, overall, have worse health outcomes, lower quality of life, and higher mortality rates.

SOCIAL DETERMINANTS

Language barriers, time, transportation, and racial and ethnic disparities in the delivery of health care services also create barriers to care.

Creating a Healthy Community

The places where our children are born, where we grow, live, learn, play, work and age contribute significantly to our ability to be and stay healthy. A healthy community is one where all citizens have what they need to be as healthy as possible-like access to social and economic resources, quality education, quality and culturally competent healthcare, clean environments, safe and inclusive neighborhoods.[i] These conditions are interconnected drivers of health outcomes for Douglas County residents. The CHA sought to explore these interconnected drivers of health outcomes across health issues as an important context for improving the health and well-being of all Douglas County residents.

Additionally, all people have biological and psychological characteristics, and risk and protective factors that make them vulnerable or resilient to health and safety issues. These exist in multiple contexts like relationships, communities, and society. Risk factors are those elements that increase the likelihood of them engaging in behaviors that compromise their health such as substance misuse, violence, or unprotected sex. Protective factors are those elements that safeguard against risk in otherwise adverse circumstances by reducing the impact of risk or changing the way a person responds to risk. The components of a healthy community described below and assessed in the Douglas County CHA can enhance or exacerbate risk and protective factors across the social ecology.

Access to Social & Economic Resources

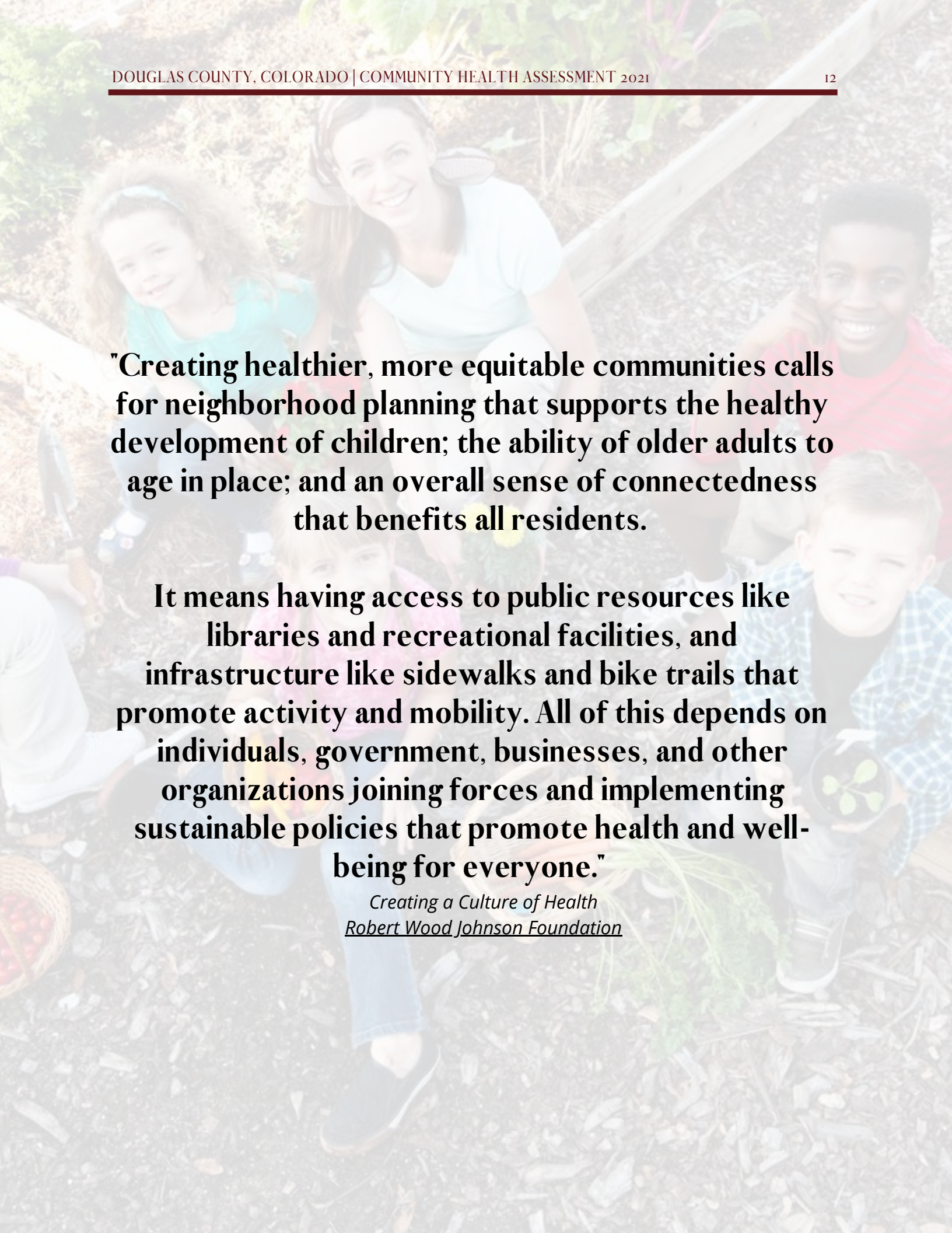
Ensuring access to social and economic resources provides a foundation for a healthy community. Economic and social insecurity are associated with poor health, as poverty, unemployment, and lack of educational achievement affect access to health care services. Employment provides income and increased choice in housing education, healthcare, childcare, and food. Unemployment or underemployment limits these choices by limiting income and the ability to accumulate economic assets.[ii] Family and social supports can serve as a protective factor. Research has shown that individuals who have greater social support or who live in neighborhoods with stronger social cohesion live longer, healthier lives than individuals who experience isolation.[ii] Without access to economic opportunity and social support within the community, people and families cannot thrive.

Economic Opportunity

Economic opportunity refers to the expectation for upward mobility for everyone in the community and impacts opportunities for health. Employment is a key factor in economic opportunity and the types of employment available within a community can improve stability and employment benefits that result in better health. Income allows families and individuals to purchase health insurance and medical care, but also provides options for healthy lifestyle choices.

[i] Social Determinants of Health. Social Determinants of Health - Healthy People 2030. (n.d.). Retrieved October 8, 2021. from <https://health.gov/healthypeople/priority-areas/social-determinants-health>

[ii] What works? social and economic opportunities to improve health for all. County Health Rankings; Roadmaps. (n.d.). Retrieved October 8, 2021. from <https://www.countyhealthrankings.org/reports/what-works-social-and-economic-opportunities-to-improve-health-for-all>



"Creating healthier, more equitable communities calls for neighborhood planning that supports the healthy development of children; the ability of older adults to age in place; and an overall sense of connectedness that benefits all residents.

It means having access to public resources like libraries and recreational facilities, and infrastructure like sidewalks and bike trails that promote activity and mobility. All of this depends on individuals, government, businesses, and other organizations joining forces and implementing sustainable policies that promote health and well-being for everyone."

Creating a Culture of Health
Robert Wood Johnson Foundation

While the clearest difference in health is between those with the highest and lowest incomes, this relationship persists throughout all income brackets. Adults in the highest income brackets are healthier than those in the middle class and will live, on average, more than six years longer than those with the lowest incomes. The ongoing stress and challenges associated with poverty can lead to cumulative health damage, both physical and mental. Chronic illness is more likely to affect those with the lowest incomes, and children in low-income families are sicker than their high-income counterparts. Low-income mothers are more likely than higher-income mothers to have pre-term or low birthweight babies, who are at higher risk for chronic diseases and behavioral problems.[i]

Education

Education provides benefits to both individuals and society, with more schooling linked to higher incomes, better employment options, and increased social supports that, together, support opportunities for healthier choices and opportunities for better health.[ii] Vice versa, good health supports student learning, attendance, and concentration while in school.

Access to Care

Health disparities and access to care go together. The link between poor health outcomes and limited access to care or culturally competent care is consistent.[iii] Rates of morbidity, mortality, and emergency hospitalizations can be reduced if community residents engage in regular preventive health care services such as health screenings, routine tests, and vaccinations. Prevention indicators call attention to a lack of access or knowledge regarding one or more health issues and can inform program interventions.

Having a usual primary care provider is associated with a higher likelihood of appropriate care, and a usual source of care is associated with better health outcomes. In 2019, 87.8 percent of Americans had a usual source of care, but those with low incomes were less likely to have a usual source of care than those with higher incomes, and the uninsured were nearly three times as likely as the insured to lack a usual care source.[iv]

Cost can be a barrier to care even for those who have insurance. In 2019, nationally, people younger than 65 had premium (11.6%) and out-of-pocket costs (6.8%), or both (2.7%) totaling more than 10 percent of their family income.[iv] Those with public insurance are more likely than those with private insurance to be unable to get or are delayed getting needed medical care and prescription medicines due to financial or insurance reasons.[v]

[i] Virginia Commonwealth University, Center on Society and Health. Education: It Matters More to Health than Ever Before. 2015.

[ii] Healthy People 2020, Health and Health Care. Social determinants health interventions resources.

[iii] 2019 National Healthcare Quality and Disparities Report. Content last reviewed June 2021. Agency for Healthcare Research and Quality.

[iv] Hayes, Collins, & Radley. How Much U.S. Households with Employer Insurance Spend on Premiums and Out-of-Pocket Costs: A State-by-State Look.

[v] Braveman P, Egerter S, Barclay C. Income, wealth and health. Princeton: Robert Wood Johnson Foundation (RWJF); 2011. Exploring the Social Determinants of Health Issue Brief No. 4.

Built Environment

The built environment refers to where we live, work, and play and includes homes, buildings, streets, open spaces, and infrastructure. The built environment affects the health of a community because it influences community members' ability to be physically active, to access healthy food, and safely recreate. Living in a healthy built environment influences a person's ability to make healthy choices such as eating nutritious food and being physically active. Conversely, a community that has few or nonexistent sidewalks or bicycle paths make it difficult to be physically active which contributes to poor health outcomes such as obesity, cardiovascular disease, and diabetes.[i] For the purposes of this report, the built environment includes the following five factors as drivers of community health.

Access to Healthy Food

There is strong evidence that food deserts- geographic areas where residents' access to affordable, healthy food options (especially fresh fruits and vegetables) is limited or nonexistent because there are no grocery stores nearby- are a health risk. The other defining characteristic of food deserts is socio-economic meaning that they are most commonly found in communities of color and low-income communities.

Studies have found that wealthy urban communities have many supermarkets with an abundance of fresh fruits and produce whereas predominantly low-income and minority communities do not, they must shop at convenience stores or smaller grocery stores lacking in choices for healthy food options.[ii][iii] Low-income and minority communities face barriers to accessing a consistent source of healthy food which is related to negative health outcomes such as weight gain, premature mortality, asthma, and activity limitations, as well as increased health care costs. Simply put, less access to healthy foods is correlated with a high prevalence of chronic disease and premature death.

Opportunity for Physical Activity

Increased physical activity is associated with lower risks of type 2 diabetes, cancer, stroke, hypertension, cardiovascular disease, and premature mortality, independent of obesity.[iv] The role of the built environment is important for encouraging physical activity. Individuals who live closer to sidewalks, parks, and gyms are more likely to exercise.

[i] Walsh, Bryan. "It's Not Just Genetics." *Time*. June 12, 2008. <http://www.time.com/time/magazine/article/0,9171,1813984,00.html>

[ii] Morland, K., Wing, S., et al. "Neighborhood characteristics associated with the location of food stores and food service places." *American Journal of Preventive Medicine*. January 2002, vol. 22(1): p. 23-29.

[iii] CDC. Benefits of Physical Activity. Reviewed on 11/1/2021.

[iv] Healthy places. (n.d.). Why invest? Centers for Disease Control and Prevention. Retrieved October 1, 2021, from https://www.cdc.gov/healthyplaces/why_invest.htm

Safe and Affordable Housing

Stable, healthy, and affordable housing can provide a safe environment for families to live, learn, grow, and form social bonds. However, housing is often the single largest expense for a family and when too much of a paycheck goes to paying the rent or mortgage, this housing cost burden can force people to choose between paying for other essentials such as utilities, food, transportation, or medical care.

Additionally, the safety and quality of housing is correlated with health. Exposure to lead from pipe and paint can harm brain and nervous system development. Asthma and other respiratory illnesses can be exacerbated by indoor allergens such as mold and dust and residential crowding has been linked to both physical illness (e.g., infectious disease) and psychological distress.

Community Connectedness

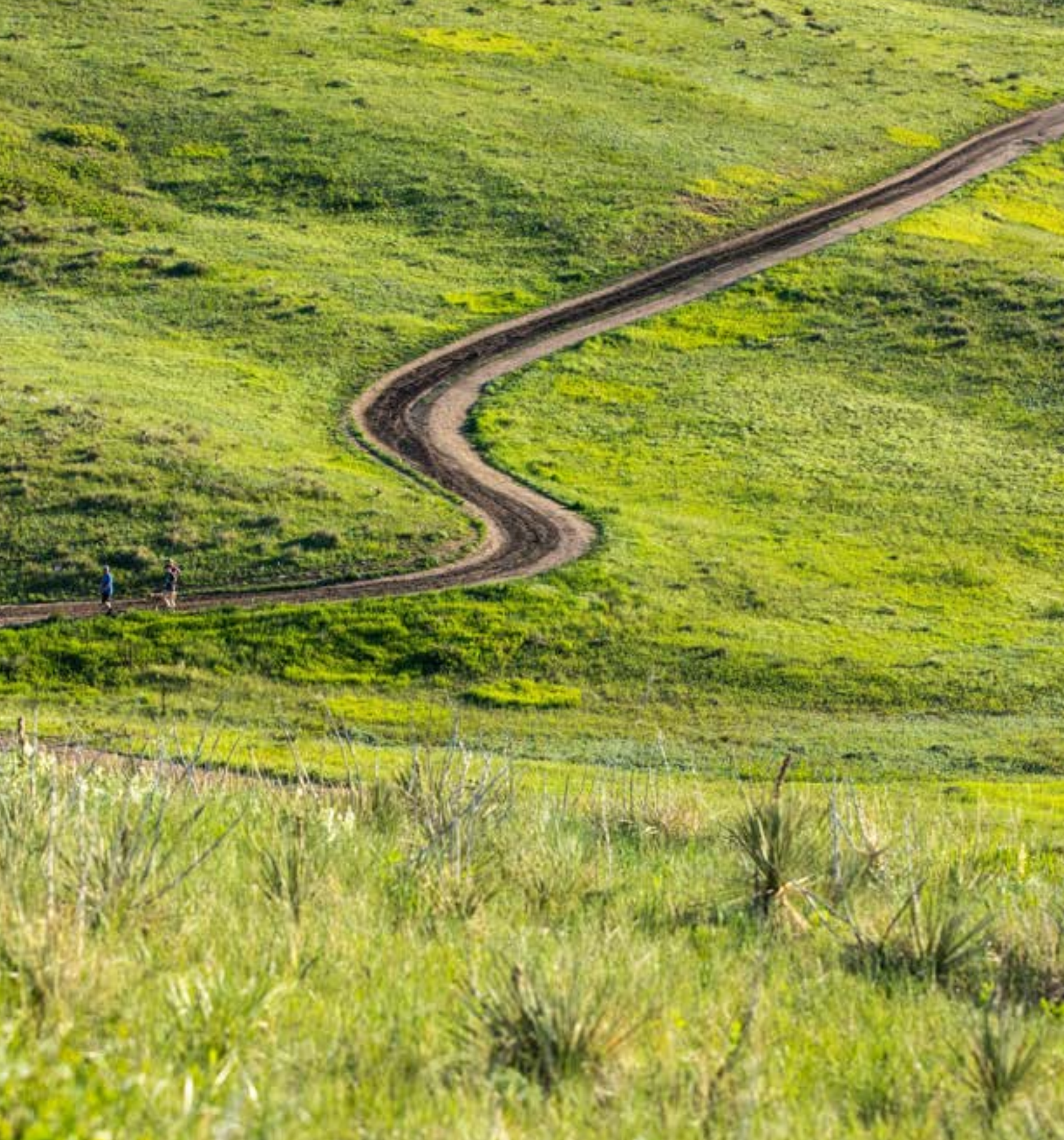
High levels of violent crime compromise physical safety and psychological well-being. Research has shown that there are environmental factors such as high alcohol outlet density and neighborhood deterioration that make crime and violence more likely in a community.^[i]

High crime rates can also deter residents from pursuing healthy behaviors, such as exercising outdoors. Additionally, exposure to crime and violence has been shown to increase stress, which may exacerbate hypertension and other stress-related disorders and may contribute to obesity prevalence.^[ii] Exposure to chronic stress also contributes to the increased prevalence of certain illnesses, such as upper respiratory illness, and asthma in neighborhoods with high levels of violence. Racial/ethnic minorities and people with low incomes are more likely to live in environments with higher risk of violence or other safety risks.^[iii]

^[i] Community Safety by Design: Preventing Violence through Land Use (Prevention Institute 2015).

^[ii] Ellen IG, Mijanovich T, Dillman KN. Neighborhood effects on health: Exploring the links and assessing the evidence. *Journal of Urban Affairs*. 2001;23:391-408.

^[iii] Healthy People 2030. Neighborhood and Built Environment.



PART II: METHODOLOGY

PART II: METHODOLOGY

There are numerous ways to approach the assessment of a community's health. According to the National Association of County and City Health Officials (NACCHO), a thorough CHA should answer the following questions:

1. What are the health problems in a community?
2. Why do health issues exist in a community?
3. What factors create or determine the health problems?
4. What resources are available to address the health problems?
5. What are the health needs of the community from a population-based perspective?

What is the CHA & PHIP?

The CHA and PHIP provide the Board of Commissioners, County Staff and the Douglas County Board of Health with key health related themes that identify:

1. The most important health issues in Douglas County communities.
2. The most risky/unhealthy behaviors in Douglas County communities.
3. The factors most important for the County's communities and residents' personal health.

The CHA and PHIP also reveal what community members identify as opportunities and challenges related to health, community assets, and strategies to address health issues within the community. A variety of primary and secondary data sources were used to develop the key themes that inform the CHA and PHIP such as:

- Qualitative data from community members through an electronic survey, community meetings, key informant interviews and focus groups.
- Collaboration and data sharing with community partners such as Centura Hospital and others.

Mobilizing for Action through Planning & Partnerships (MAPP)

To answer these questions for Douglas County, HMA utilized a modified Mobilizing for Action through Planning and Partnerships (MAPP) framework. HMA utilized a modified MAPP process for three reasons:

- The nature of this process was intended to be exploratory as Douglas County Commissioners initially considered creating a local public health department, which has now been created.
- The 2018 CHA and 2019-2024 PHIP created by Tri-County Department of Public Health provided Douglas County with a starting point.
- MAPP was created by the National Association of County and City Health Officials (NACCHO) and the Centers for Disease Control and Prevention (CDC) in 2001 and is endorsed by the Public Health Accreditation Board (PHAB) and the Colorado Health Assessment and Planning System (CHAPS). NACCHO is the only organization dedicated to serving local health departments in the nation. NACCHO serves 3000 local health departments and provides skill-building, professional resources, and programs, and supports local public health departments develop effective practices and systems.

A Brief Overview of Accreditation & MAPP

The Public Health Accreditation Board (PHAB) is a 501(c)(3) organization that was formed to implement and oversee national public health department accreditation. At the time the CHA was completed PHAB Standards and Measures Version 2022 was under development so for the purposes of the CHA HMA followed Version 1.5. The accreditation standards and measures in Version 1.5 consist of 12 domains. Domains one – ten address the ten Essential Public Health Services, Domain 11 address management and administration, and Domain 12 addresses governance.

PHAB Standards & Measures Version 1.5, Domain 1 required state, local and tribal health departments to conduct and disseminate assessments focused on population health status and public health issues facing the community. This domain includes four standards to complete the community health assessment (CHA). Domain 5 focuses on the development of public health policies and plans to guide health department's work and bring structure and organization to the department and includes Standard 5.2: Conduct a Comprehensive Planning Process Resulting in a Tribal/State/Community Health Improvement Plan. According to the Standards & Measures, the plan should “ describe how the health department and the community it serves will work together to improve the health of the population of the jurisdiction that the health department serves. The community, stakeholders, and partners can use a solid community health improvement plan to set priorities, direct the use of resources, and develop and implement projects, programs and policies. The plan is more comprehensive than the roles and responsibilities of the health department alone, and the plan's development must include the participation of a broad set of community stakeholders and partners. The planning and implementation process is community-driven. The plan reflects the results of a collaborative planning process that includes significant involvement by a variety of community sectors” (PHAB Standards & Measures Version 1.5 Approved December 2013, pg. 129).

The Internal Revenue Service (IRS) and the Health Resources and Services Administration (HRSA) require non-profit hospitals and health centers to complete a community health (needs) assessment CH[N]A. It is not uncommon to hear these terms used interchangeably. This speaks to the value of PHAB's requirement that public health departments partner with community stakeholders, including local non-profit hospitals and health centers to assess the needs of a community. The MAPP framework lends itself to these cross-sector assessments because it stresses the importance of broad stakeholder and community engagement; the need for policy, systems, and environmental change; and the alignment of community resources toward shared goals.[i]

County Health Rankings

The data and indicators used for this assessment describe the demographic and socioeconomic characteristics of the County and they also characterize important parts of health status and health determinants, such as behavior, social and physical environments, and healthcare use.

[i] MAPP Evolution Blueprint Executive Summary, November 2020. National Association of County and City Health Officials.

The CHA leveraged the County Health Rankings Model as a framework by which to identify health indicators for inclusion in the CHA. The County Health Rankings are based on a model of community health that emphasizes the many factors that influence how long and how well we live. The County Health Rankings Model uses more than 66 measures that help communities understand how healthy their residents are today (health outcomes) and what will impact their health in the future (health factors).^[1]

The list of 66 measures was then cross-walked with two other sources of indicators: 1) CDPHE's Community Health Indicator List of 138 health indicators, which includes county, regional, and state-level data on a variety of health, environmental, and social topics used in the CHAPS process; and 2) Tri-County Health Department's list of indicators used for its most recent CHA (2018). HMA used the Center for Disease Control and Prevention's (CDC) five criteria to select the indicators for the CHA:

- Methodologically sound (valid, reliable, and collected over time)
- Feasible (available or collectible)
- Meaningful (relevant, actionable, and ideally, linked to evidence-based interventions)
- Meaningful (relevant, actionable, and ideally, linked to evidence-based interventions)
- Important (linked to significant disease burden or disparity in the target community)
- Jurisdictions should consider using data and indicators for the smallest geographic locations possible (e.g., county-, census block-, or zip code-level data), to enhance the identification of local assets and gaps)

Data Collection & Data Analysis

This CHA leveraged recently conducted assessments and plans to prevent duplication of effort, seek new stakeholders and partnerships, use data and priorities that have already been established, illuminate gaps, and help frame the scope of the CHA. Several important data sources were reviewed, including:

- Douglas County Department of Community Development, 2021-2025 Consolidated Development Plan
- Douglas County Hazard Mitigation Plan 2021
- September 2020 Douglas County Needs Assessment
- September 2017 Douglas County Needs Assessment
- 2018 Tri-County Public Health Community Health Assessment
- Community Needs Assessments from Castle Rock and Parker Adventist Hospitals
- Community Investment information from Sky Ridge Medical Center
- Blueprint for a Community Based Mental Health System in Douglas County

The on the next page refers to the health priorities these assessments described.

[1] County Health Rankings & Roadmaps. (n.d.). Retrieved October 1, 2021, from <https://www.countyhealthrankings.org/app/colorado/2021/measure/factors/23/data>

Assessment	Priority Issues
Douglas County Department of Community Development, 2021-2025 Consolidated Development Plan	Public services for the low- and moderate-income and vulnerable populations; affordable housing; public improvements
Douglas County Hazard Mitigation Plan 2021	Mitigation risks for floods, wildfires, and severe weather
September 2020 Douglas County Needs Assessment	Housing, utilities, and food
September 2017 Douglas County Needs Assessment	Affordable housing; transportation; integrated care; wellbeing; childcare
2018 Tri-County Public Health Community Health Assessment	Access to mental and physical health care services; mental health; health and food; health and housing (developmental)
Community Needs Assessments from Castle Rock and Parker Adventist Hospitals and Center	Mental health and suicide; healthy eating/active living/obesity; access to care
Community Investment information from Sky Ridge Medical Center	Mental health support for the underserved. Engaging families in the first three years of a child's life; Secondary and community college education with a focus on health career
Blueprint for a Community Based Mental Health System in Douglas County	Access to mental health care

Data Types and Sources

Findings presented in the CHA are not based on any single source of information, rather are the result of considering multiple data sources in analysis before arriving at findings. Data includes both quantitative and qualitative data from primary (data collected first-hand through surveys, focus groups, and interviews) and secondary data sources (data collected by another entity or for another purpose).^[i]



Quantitative Data

Quantitative data is measurable, and expresses a certain quantity, amount, or range. It is used to quantify a problem, or determine "how many," "how often," or "how much." It is data that is produced through a systematic process that is verifiable, replicable and in and of itself is not subject to interpretation.

Quantitative data is used in public health to show comparisons, and may involve counting of people, behaviors, conditions, or other discrete events.^[ii] It may also be used to identify health trends by looking at how a particular indicator has changed over time, helping us to understand the changing needs of communities so we can appropriately plan and prioritize ways to approach disease prevention and health promotion.

^[i] A requirement of PHAB accreditation standards.

^[ii] U.S. Department of Health and Human Services. (n.d.). Common data types in public health research. National Institutes of Health. Retrieved October 8, 2021, from <https://www.nihlibrary.nih.gov/resources/subject-guides/health-data-resources/common-data-types-public-health-research>

Qualitative Data

Qualitative data is a broad category that can include almost any non-numerical data. It is data that can be observed, but not measured, and is subjective rather than objective. Qualitative data can be collected through a variety of means, including opinion-based surveys, meetings, focus group discussions and key informant interviews. Qualitative data is used in public health to offer context, additional detail, and interpretation of quantitative data. It can also help explain trends seen in the data.

CHA Data Sources

Figure 2 lists all quantitative data sources used in this CHA. These sources are considered high quality, population-based data. Data came from local, state, and national resources such as CDPHE, U.S. Census Bureau, CDC, Behavioral Risk Factor Surveillance System (BRFSS) survey, Healthy Kids Colorado Survey (HKCS), and Colorado Health Access Survey (CHAS). Details on the data sources used most often in the CHA are provided in Table 1.

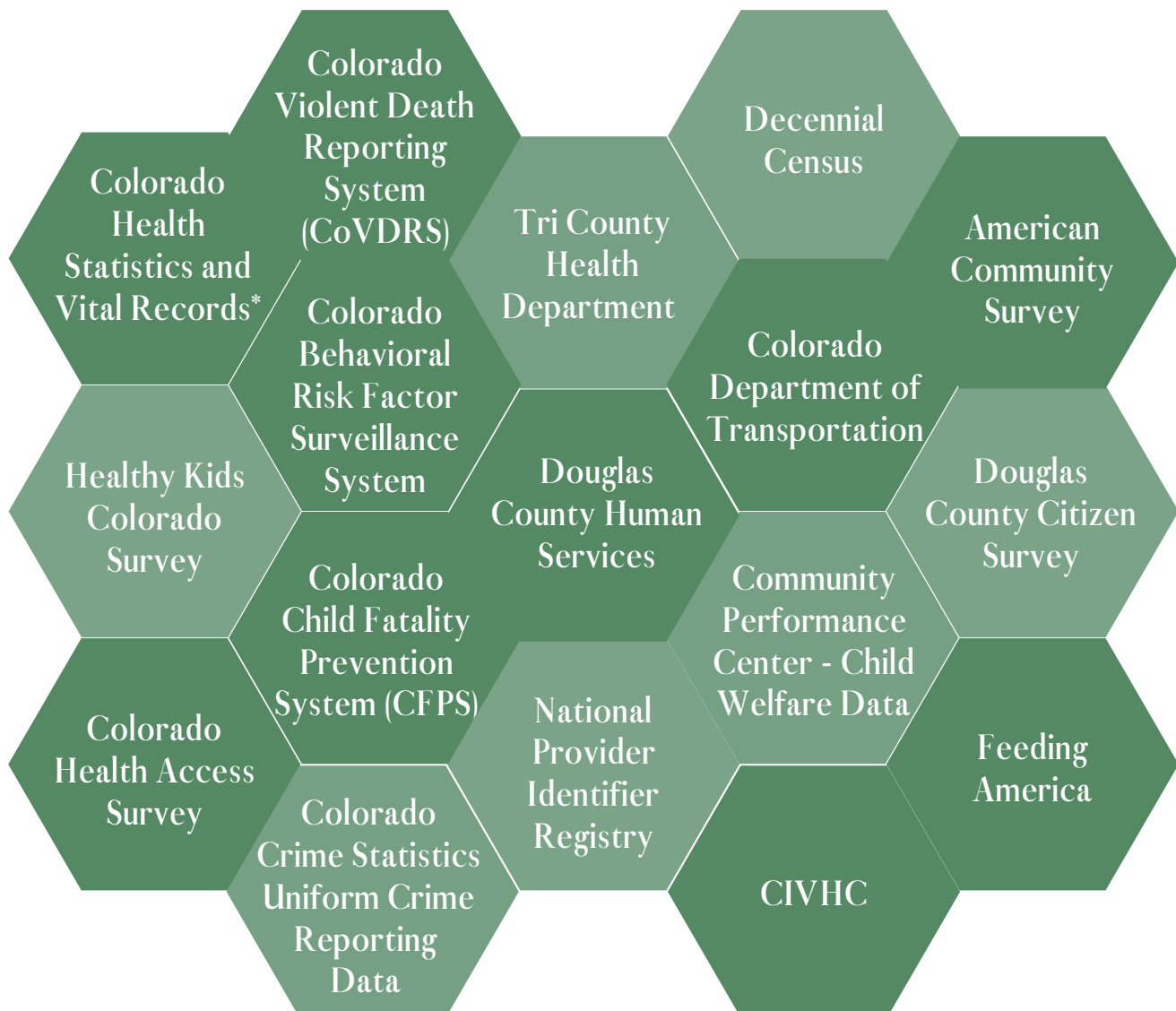


Figure 2 Douglas County CHA Data Sources

Source	Methodology	Health Topics	Most Recent Year Available
Decennial Census	Conducted every ten years Counts every person living in the 50 states, District of Columbia, and the five U.S. territories	Asked a shorter set of questions, such as age, sex, race, Hispanic origin, and owner/renter status	2020
American Community Survey	An ongoing demographic survey program conducted by the U.S. Census Bureau. It regularly gathers information previously contained only in the long form of the decennial census Conducted every month, every year Sent to a sample of addresses (about 3.5 million) in the 50 states, District of Columbia, and Puerto Rico	Ancestry, citizenship, educational attainment, income, language proficiency, migration, disability, employment, and housing characteristics	2019
Colorado Health Statistics and Vital Records	Data from official records of vital events (live births, deaths, fetal deaths, induced terminations of pregnancy/abortions, marriages and divorces) collected through the Office of the State Registrar of Vital Records. Includes data for all vital events that occur in Colorado, as well as those occurring in other states among Colorado residents	Chronic disease, maternal and child health, and injury (including trauma and poisoning) as well as general natality and mortality statistics	2020
Colorado Violent Death Reporting System (CoVDRS)	Collects information on violent deaths that have occurred in Colorado from a variety of data sources, including death certificates, coroner/medical examiner reports, and law enforcement investigations	When, where, and how violent deaths occur, with enhanced information captured on the following manners of death: Suicide, Homicide, Unintentional firearm, Legal Intervention, Undetermined deaths that may be violent in nature	2019
Colorado Behavioral Risk Factor Surveillance System	Federally funded random telephone survey of Colorado residents ages 18 and older	Chronic disease, substance use, disability, injury, fruits and vegetables, exercise (physical activity), immunizations, HIV/AIDS, oral health, cancer screening, environmental health and mental health	2020
Colorado Health Access Survey¹	Colorado survey conducted every other year and results are released in the fall of the survey year	Health coverage, access to health care, and the factors that influence health, including housing, food access, and experiences of discrimination	2021
Healthy Kids Colorado Survey	Colorado, school-based survey on the health and well-being of young people and school health policies and practices that support youth health. The surveys, conducted in the fall of odd-numbered years, are supported by the CDPHE, the Colorado Departments of Human Services, Public Safety, Education, and an advisory group of state and local partners. The surveys are administered by a team of researchers at the Colorado School of Public Health at the University of Colorado Anschutz Medical Campus	Weight, nutrition, physical activity, access to trusted adults, mental health and suicide, bullying, tobacco, alcohol, marijuana, sexual health (high school only), school engagement and more	2019
Colorado Child Fatality Prevention System (CFPS)	Statewide, legislatively mandated, multidisciplinary, multi-agency network of at least 43 local child fatality prevention review teams (local teams), a 46-member State Review Team to prevent child deaths, and support team from CDPHE	Review deaths of infants, children, and youth under 18 in Colorado, offering counts, rates, and circumstance data on the leading causes and circumstances of death for all jurisdictions across Colorado and summarizes some of the most frequently requested data available from the system	2019
Community Performance Center - Child welfare data	Data center developed by Colorado Department of Human Services Division of Child Welfare staff, in partnership with the University of Kansas School of Social Work, to share real-time data about the children, youth and families involved in Colorado's child welfare system	Compilation of child welfare data, including child safety and foster care	2021
Colorado Crime Statistics - Uniform Crime Reporting Data	Crime data for the nation are derived from National Incident-Based Reporting System (NIBRS) reports voluntarily submitted to the FBI Data is current through the last full month, plus a 30-day data-entry lag.	Hate crime, DUI/Drugs, violent crime, property crime, motor vehicle theft	2021

Table 1 Details on Data Sources

^[1] The Colorado Health Access Survey was initiated by The Colorado Trust. It is designed and fielded by the Colorado Health Institute. The 2021 survey is made possible by an investment from the Colorado Health Foundation.

Community Survey

The community survey is a commonly used method to gather community input for CHAs. In CHAs, the survey tool is not meant to gather statistically valid information from community members. This type of survey is a concerns survey - a form of community assessment in which community members are asked to identify what they see as the most important issues facing their community. In this case, we asked community members to anonymously share their opinions about community health issues and the quality of life in Douglas County. With these types of surveys, they are given to as many local people as possible. The results are used to identify health-related issues from the community's perspective and ultimately used during the PHIP process to create strategies to address the issues. The information from this process is the foundation for the community meetings and the discussions that were held there.

Survey Format

To provide survey respondents context for the questions the survey began by defining a healthy community. The definition provided to community members came from the American Planning Association (APA) which defines "healthy communities" as places where all individuals have access to a healthy built, social, economic, and natural environment that gives them the opportunity to live up to their fullest potential, regardless of their race, ethnicity, gender identity, income, age, abilities, sexual orientation or other socially defined circumstance."^[i] The survey was comprised of 13 questions on community health issues and quality of life and 12 demographic questions.

The 13 community health issues and quality-of-life questions covered a variety of topics including access to care and community connectedness, but the crux of the survey was three main questions designed to identify respondent's opinions about the:

- Three most important factors for a happy, healthy, and thriving community
- Three worst "health problems" in the community that are most damaging to the health of the community
- Three most risky and/or harmful behaviors happening in the community that most negatively impact overall community health

The survey's demographic questions collected data such as age, race, ethnicity, marital status, employment, gender identity and zip code. The introduction to the demographic portion of the survey explained that the information collected would give Douglas County a clearer picture of the communities within the county which, in turn, will inform the creation of health programs and the design of public health initiatives by recognizing groups of people who experience specific barriers or could use help in certain areas.

[i] Healthy Communities Policy Guide, October 2017. <https://planning-org-uploaded-media.s3.amazonaws.com/document/Healthy-Communities-Policy-Guide.pdf>

Finally, to reinforce the survey's anonymity to respondents HMA included the following statement before the demographic questions:

“ Please know that your privacy is very important to us. These questions are not mandatory; however, we ask that you please answer these questions if you can and know that all information you share with us will remain completely confidential. As a reminder, the survey is anonymous. Your name will not be attached to the survey results, so people will not know who responded. You may skip any demographic question(s) you do not wish to answer.”

Survey Results

The community survey launched on August 30, 2021 and was open to the public in Douglas County for nine days. It was available in English and Spanish. The goal was to make the survey available to as many residents as possible during the timeframe. The survey was disseminated through existing networks throughout the County, utilizing leveraged contact lists and listservs to share a link to the electronic survey.

Additionally, Douglas County's Communications and Public Affairs Department utilized its extensive social media reach to market the survey link. A story about the CHA and survey, along with a QR code to access the survey ran in community newspapers.

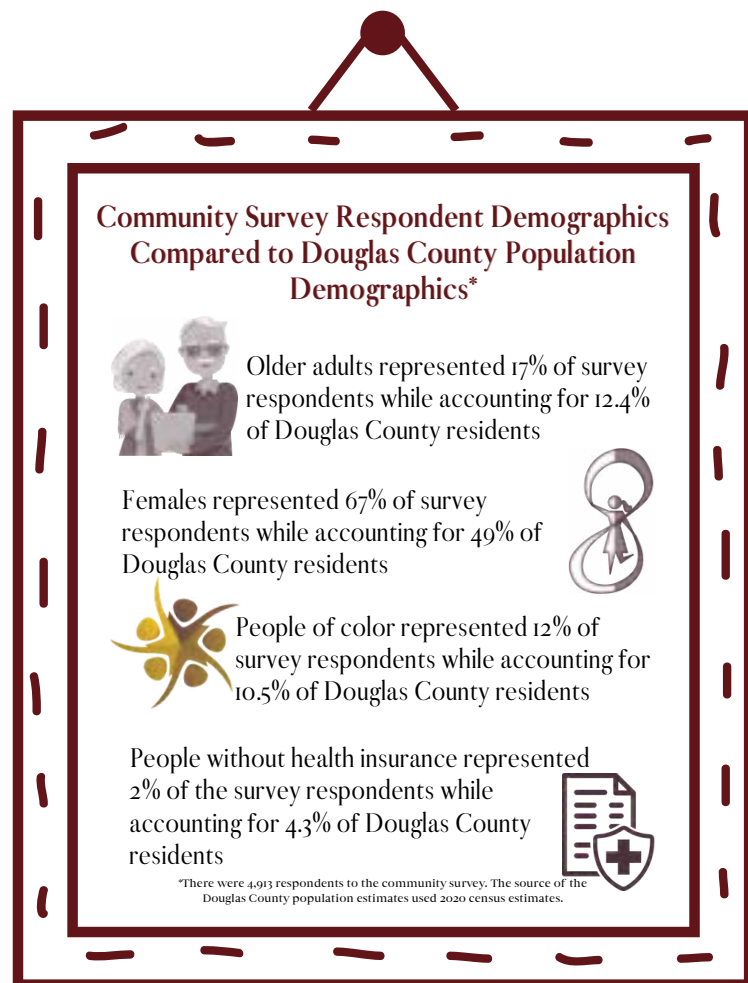


Figure 3 Survey Respondent Demographics

For populations that find accessing the online modality challenging, we leveraged networks to engage caseworkers and care providers to work with citizens to complete the survey. There were 6,867 people who opened and started the survey. HMA excluded surveys where the respondent did not answer the three main questions ultimately analyzing 4,913 surveys with greater than 48 percent completion.

Survey Limitations

All surveys have limitations, as they are inherently prone to respondent bias. Surveys are time-consuming and often do not generate a strong response rate. Additionally, hard-to-reach populations often do not respond to surveys. In this instance the most hard-to-reach population was Spanish speaking residents of Douglas County. To mitigate common challenges such as language barriers and cultural differences HMA staff developed a Spanish language survey and worked with trusted community-based organizations and faith leaders to distribute the survey to Spanish speaking communities within the County. Unfortunately, the response rate was extremely low, so those responses were combined with the English language responses.

HMA worked with Douglas County staff and leadership to enhance outreach efforts to Spanish speaking communities. Working with a few key leaders HMA deployed the Spanish survey a second time and organized a Spanish language focus group to gain additional input. Despite these efforts participation from Spanish speaking communities remained low. We believe that the low participation rate resulted from numerous factors including the inability to engage in-person and over a length of time, which would have allowed for more trust building.

Community Meetings

The community meetings were hosted in person and virtually using Zoom webinar technology. These meetings were held in six communities selected to access a broad and diverse population in Douglas County while also engaging as many stakeholders as possible. The community meetings were held in: Larkspur, Roxborough Park, Parker, Castle Rock, Highlands Ranch and Franktown and marketed through the same network of partners utilized to distribute the survey, through social media, radio, newsletters and a countywide virtual townhall.

Figure 4 details community member participation in the six meetings, which were facilitated by experienced HMA facilitators to ensure participants were respectful of one another and open discussion among the participants would generate the information needed to inform the CHA.

Participants at each community meeting reviewed the primary and secondary data specific to their community and compared to the County. Properly presenting and articulating complex health information was important to ensure the data established effective dialogue and enabled HMA to receive feedback on priorities and alternative solutions. HMA tailored the data's presentation to maximize community comprehension. For each data point, HMA analyzed the data and based on the indicator, produced descriptive tables, charts, maps, and/or infographics that were presented to and easily interpreted by community stakeholders.

After the data presentation, community members participated in a facilitated discussion focused on the following questions:

- Did anything in the data surprise you?
- What do you think is at the root of the health issues you see in the data?
- What health issues do you think your community and Douglas County can change for the better?
- What are the challenges with improving some of these health issues/concerns?
- What are the opportunities with improving some of these health issues/concerns?

Community members were then asked to participate in a brief poll asking the same three community survey questions on health factors, health issues, and risky health behaviors. The audio and video from each meeting were recorded, transcribed and reviewed by HMA staff to identify themes in participant discussions.

Douglas County CHA Community Meeting Registration and Attendance												
Monday October 4, 2021				Tuesday October 5, 2021				Wednesday October 6, 2021				
	In Person Registered	In Person Attended	On-Line Registered	On-Line Attended	In Person Registered	In Person Attended	On-Line Registered	On-Line Attended	In Person Registered	In Person Attended	On-Line Registered	On-Line Attended
DC CHA Meeting-Highlands Ranch - 80110,80112, 80128, 80129, 80130, 80134	12	6	66	43								
DC CHA Meeting-Franktown Fire Station 181- 80106, 80107, 80116	4	3	3	3								
Douglas County CHA Meeting-Larkspur 80118,80133			2	0	7	3						
DC CHA Meeting-Roseborough -80131,80125, 80135			7	8	11	7						
DC CHA Meeting-Douglas Co. Library Cantlerock 80108-80104, 80209, 80883			7	7	36	26						
DC CHA Meeting-PACE Center Parker 80016, 80134, 80139			18	7	33	22						

*Note: Not all participants stayed for the entire meeting, both on-line and in-person

Figure 4 Douglas County CHA Community Meeting Registration and Attendance

The identified themes combined with the poll data were used to assist HMA in identifying the three priority areas. However, this data has limitations, namely low community member participation. Even though all community meetings were scheduled in the early evening with both in-person and on-line attendance options and a robust promotion campaign, it was difficult to get people to attend. The pandemic made this even more challenging.

Key Informant Interviews & Focus Groups

HMA identified key stakeholders and focus groups to interview to ensure a full range of perspectives were captured, especially unique perspectives or knowledge. HMA attempted to conduct focus groups with the business community in Douglas County. Two focus groups were scheduled, and targeted outreach was made to two particular sectors: restaurants and childcare. These sectors were targeted because of their interaction with local public health and public health issues. The focus group for representatives from the restaurant business sector did not have any attendees. The focus group for the childcare business sector was held with six representatives from that sector. HMA also conducted group key informant interviews with community providers of services for older adults.

HMA developed brief discussion guides with questions for all key informant interviews and focus groups to promote consistency across different stakeholders while still permitting them to share their unique perspectives or knowledge. Notes were reviewed to identify key themes. The themes were considered together with the other qualitative and quantitative data in the CHA to identify priority issues of concern. Themes included a need for more communication and education about public health and the transition from TCHD to the DCHD. Representatives across the stakeholders who participated in key informant group interviews, or the focus group had questions about how to stay engaged and informed about the progress of establishing the DCHD, especially as it relates to regulatory requirements and compliance.

Considerations and Limitations

While this assessment is quite comprehensive, it cannot measure all possible aspects of health in Douglas County, nor can it adequately represent all possible populations of interest. It must be recognized that these information gaps might in some ways limit the ability to assess all the community's health needs. For example, certain population groups — such as individuals experiencing homelessness, institutionalized persons, or those who only speak a language other than English — are not well represented in the survey data. Other population groups — for example, pregnant women, lesbian/gay/bisexual/transgender (LGBT) residents, undocumented residents, and members of certain racial/ethnic or immigrant groups — might not be identifiable or might not be represented in numbers sufficient for independent analyses. In terms of content, this assessment was designed to provide a comprehensive and broad picture of the health of the overall community. However, there are certainly a great number of medical conditions that are not specifically addressed.



**PART III:
DOUGLAS COUNTY
COMMUNITY HEALTH PROFILE**

PART III: DOUGLAS COUNTY, COLORADO, COMMUNITY HEALTH PROFILE

According to the Douglas County Historic Preservation Board, when Colorado became a territory in 1861, the area was subdivided into sixteen counties. Douglas County was one of the original counties and was named for Stephen A. Douglas, famed orator, Senator and presidential rival to Abraham Lincoln. At that time, Douglas County extended from the Platte River to the Kansas border. Frank Gardner built a settlement and fort along Cherry Creek. It was named Franktown and served as the county seat until 1874.



Figure 5 Douglas County, Colorado

Surrounded by the beauty of mountains, foothills and plains, Douglas County covers approximately 843 square miles, with 146,000 acres of national forest, state park and state recreation areas. To put the county's size into perspective it is just 202 square miles smaller than the entire state of Rhode Island, which totals 1,045 square miles. Douglas County is often recognized for being one of the most family friendly communities in Colorado. For the fourth year in a row, Douglas County ranked in the top ten happiest counties in the United States and recently ranked as one of the healthiest communities in America by US News and World Report.^[i]

County Demographics

The US Census 2020 estimates a total of 357,978 people live in the 843 square mile report area of Douglas County.^[ii] The Colorado State Demography Office 2021 forecast estimates 368,862 people.^[iii] These estimates suggest the population in Douglas County is increasing. The population density for this area, estimated at 368.7 persons per square mile, is greater than the national average population density of 91.9 persons per square mile. Ninety-one percent of all county residents live in one of five urban areas, the unincorporated area known as Highlands Ranch, and five incorporated municipalities: Castle Pines, Castle Rock, Larkspur, Lone Tree, and Parker.

[i] Healthiest counties in the US | US news healthiest communities. Healthiest Communities Rankings 2021. (2021). Retrieved October 18, 2021, from <https://www.usnews.com/news/healthiest-communities/rankings>.

[ii] American Community Survey 2015-19 5-year estimates.

[iii] Colorado State Demography Office Home Page. (n.d.). Retrieved October 1, 2022, from <https://demography.dola.colorado.gov/>

The cost of housing is a major concern in Douglas County where approximately four percent of citizens live under 125 percent of the Federal Poverty Level. Any household that lives below 200 percent of the Federal Poverty Level is considered more at risk of poor health outcomes. In Douglas County, approximately 8.4 percent of the population, or 28,051 people, live below 200 percent of the Federal Poverty Level.^[i] The median household income in Douglas County is \$119,730, which is \$47,399 higher than the state (\$72,331). Nearly two percent of Douglas County residents use SNAP, compared to 7.5 percent of all Coloradans.

Of the total population of Douglas County, approximately 50 percent are male and 50 percent are female. Twenty-five percent (25%) of the population is under the age of 15, 24 percent is between the ages of 15 and 34, 39 percent is between the ages of 35 and 59, and 12 percent is 60 years and above. Forty-three percent of households in Douglas County have at least one member of the household who is 60 years or older. The majority of Douglas County residents are White Non-Hispanic (82.4%), and 14.6 percent are people of color. Fourteen percent (14%) of Douglas County residents have attained a high school equivalency or less, compared to 30 percent of residents statewide. Twenty one percent of Douglas County residents rent their homes (i.e., do not own) as compared to 34.8 percent of residents statewide.^[ii]

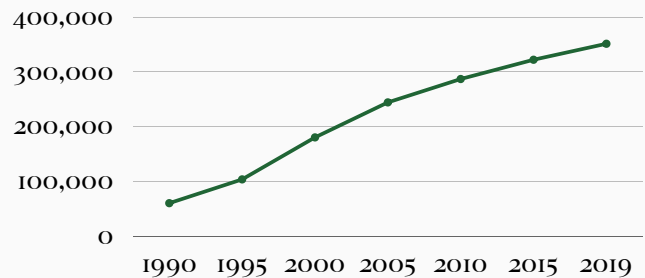
^[i] American Community Survey 2015-19 5-year estimates (Table C17002).

^[ii] American Community Survey 2015-19 5-year estimates (Table B25003).

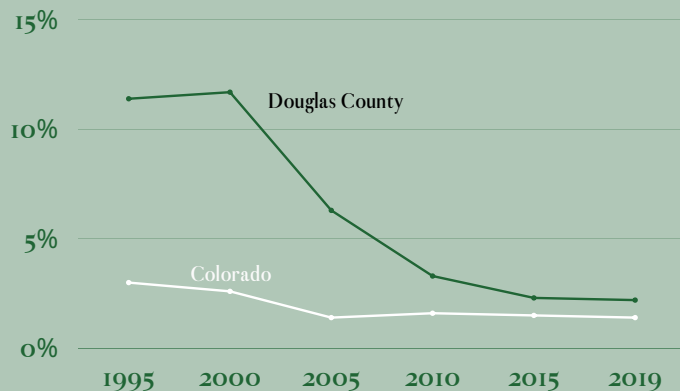
Douglas County Population at a Glance

Overall, the growth rate for Douglas County is expected to decrease between 2020 and 2040. Between 2010 and 2020 the forecast growth rate was 2.2 percent, between 2020 and 2030 the forecast growth rate is 1.4 percent, while the forecast growth rate between 2030 and 2040 is 0.9 percent. The change is due in part to the population aging and changes in the proportion of the population in childbearing ages.

Population Growth



Population Growth Rate



Between 2015 and 2019, the population of Douglas County increased by 36,710 people. The total natural increase (births - deaths) over this period was 12,877 and the total net migration (new residents who moved in minus those who moved out) was 32,161.



The growth rate for Douglas County between 2015 and 2019 was 2.2 percent compared to 1.4 percent for the State of Colorado.

The distribution of the population of Douglas County from 2015 through 2025 is projected to grow most significantly for people between the ages of 60 - 90 years of age. The changes in proportion of different groups is important for future public health planning. The larger growth in the older adult population indicates the need to evaluate housing, transportation and other needs of the senior population.



The median age of Douglas County residents is 1.6 years older than the state. Women in Douglas County are significantly older than women in the state and men in Douglas County are significantly older than men in the state.

ACCESS TO CARE

According to the Colorado Health Access Survey (CHAS), in 2019, Douglas County residents were more likely to agree “the current health care system is meeting the needs of their family” when compared with all Coloradans, at 84.3 percent and 73.8 percent respectively, and this agreement has been increasing since 2011.^[i] However, residents are less likely to agree when asked whether “the current health care system is meeting the needs of all Coloradans” dropping to 51.4 percent of Douglas County residents and 46.8 percent of all Coloradans.

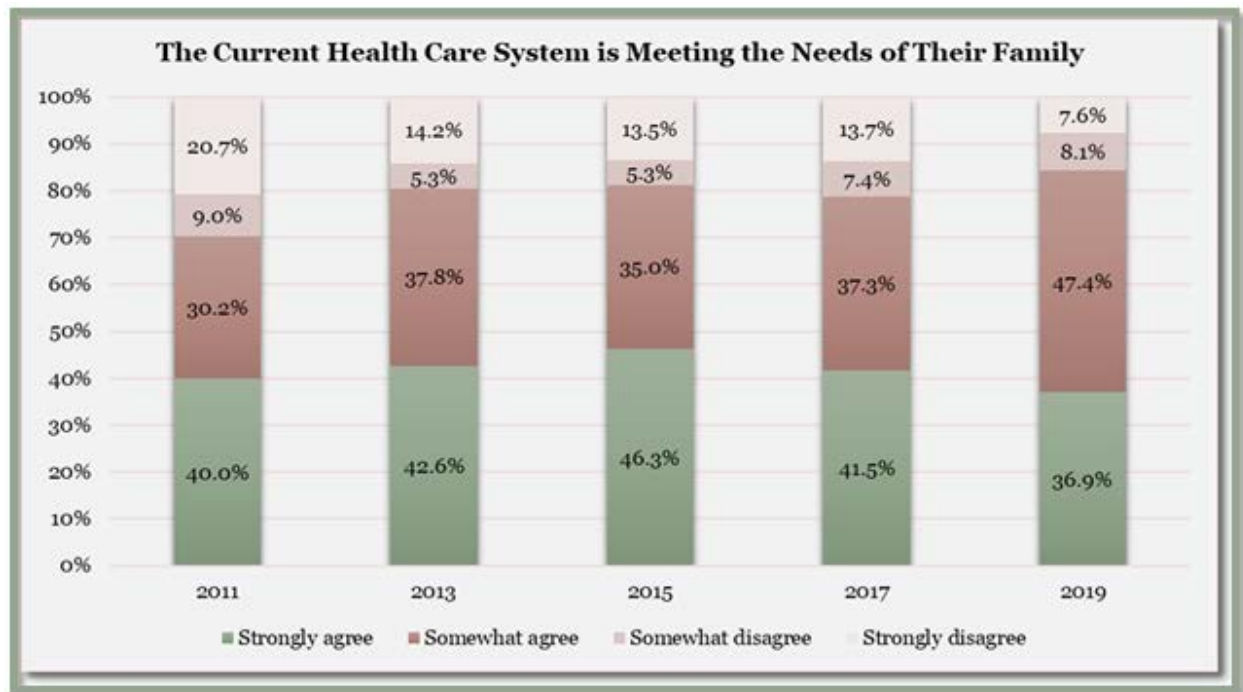


Figure 7 The Current Health Care System is Meeting the Needs of Their Family

Health Insurance Coverage

Among residents in Douglas County with insurance, the most common type is private insurance followed by employee-sponsored insurance and individual market (See chart below). Notable differences from Colorado are Douglas County residents are less likely to report using public insurance (20.0% and 37%, respectively) in 2021, including Medicare (12.0% and 11.5%) and Medicaid (25.6% and 8.0%). Among residents on Medicaid, 53.1 percent of all Medicaid clients live in Highlands Ranch, Lone Tree, or Parker.^[ii] It is notable that Douglas County residents who are enrolled in Medicaid increased between 2019 and 2021, from 5.9 percent of residents in 2019 to eight percent in 2021. It will be important to monitor the enrollment rate to understand whether this was an effect of the COVID-19 pandemic or is a rate that is sustained.

Unfortunately, many people are forced to move between different types of health insurance coverage and/or experience periods of being uninsured. The term “churn” is often used to describe this cycle because of the recurring nature of moving between sources of health insurance coverage or no insurance. The churn rate in Douglas County was like Colorado, with 17.7 percent of people experiencing churn in the past 12 months as of 2019 compared to 17.3% in Colorado.^[iii]

^[i] This question was not asked in CHAS 2021. Therefore, a 2021 update is not available. Source: Colorado Health Access Survey, 2019.

^[ii] Douglas County, Department of Human Services.

^[iii] Colorado Health Access Survey, 2021.

While in some cases churn may be positive (i.e., a person or family becomes insured), it is most often a negative event. Prior to the Affordable Care Act (ACA) churn was typically experienced among low-income individuals and families whose main source of income came from hourly wage employment in industries without employer sponsored health insurance (retail, restaurants etc.) or seasonal work. However, since the ACA expanded Medicaid eligibility and established the Market Place with subsidies for individuals working in industries without employer sponsored health insurance to purchase health insurance, experts have observed a change in how individuals and families experience churn. The ACA dramatically reduced the rates of uninsured individuals but it appears that the combination of insurers electing to offer products on an annual basis and individuals having to find new insurance every year may be undermining the continuity of care for people with ongoing medical needs or chronic conditions. [i] Encouraging individuals to “shop around” each year to find an insurance product that is best suited to meet their medical needs and income only works when there are multiple products to choose from and those products maintain their provider networks.

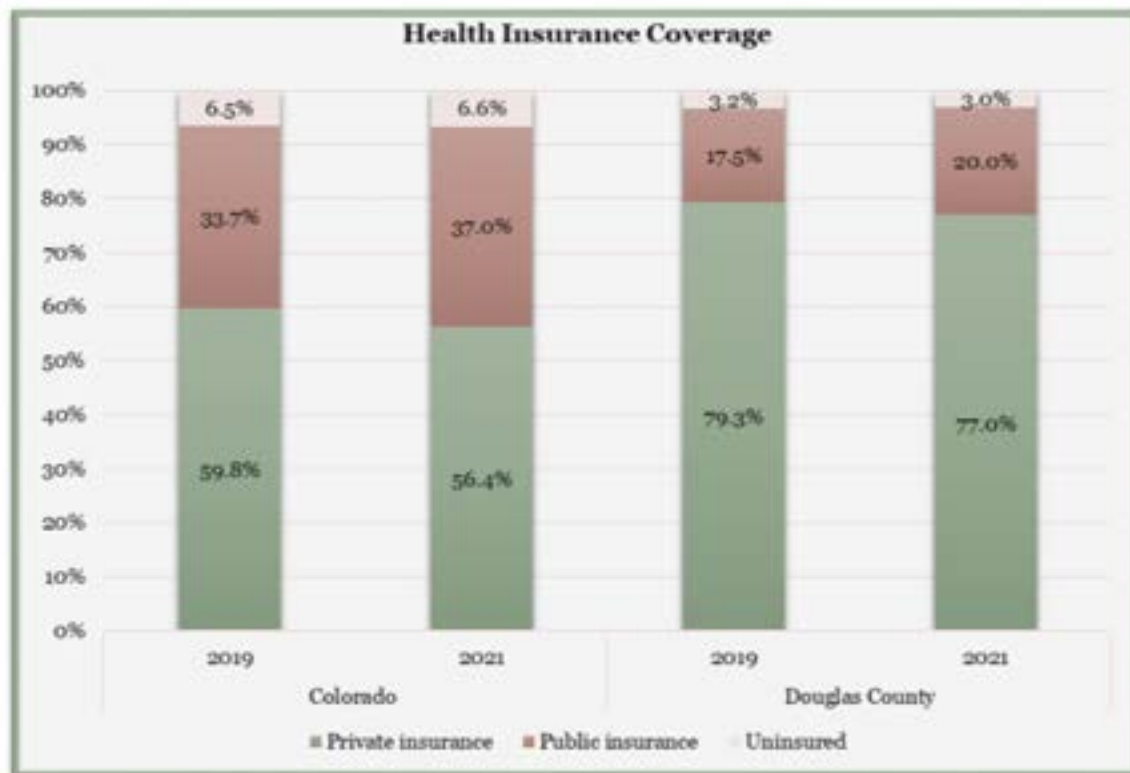


Figure 8 Health Insurance Coverage

Overall, U.S. Census data suggests that the insured rate among children and adults was slightly decreasing in both Douglas County and Colorado before the Pandemic.[ii] Among children 17 years and younger, the rate dropped 30.8 percent (from 2.6% in 2017 to 1.8% in 2019). Among adults 65 and younger, the rate dropped from 4.6 percent in 2017 to 3.7 percent in 2019.[iii] In Douglas County, the (known) percent of uninsured individuals increased the most among Hispanic people at 22.5 percent, while it decreased among Asian (-55.7%) and multi-racial (47.5%) race and ethnicity groups.

[i] Hancock, J. (2017, December 7). Churning, Confusion And Disruption — The Dark Side Of Marketplace Coverage. Kaiser Health News.

[ii] Colorado Health Access Survey, 2021.

[iii] Prior to 2017, age grouping for children was 0-17, whereas starting in 2017, age grouping for children is 0-18, so therefore, estimates in this report for uninsured children include data from 2017 on. Source: ACS, 2017 and 2019 5-year combined estimates, Table S2701.

However, between 2015 and 2019, the percent of people eligible but not enrolled in Medicaid increased in both Douglas County and Colorado and the increase in Douglas County is greater. In 2019, the number of adults between the ages of 19-64 years who are eligible for Medicaid increased from 2,325 (15.5%) to 3,416 (20.6%) adults but in Colorado there was a decrease of 13.5 percent to 12.1 percent among eligible adults. Similarly, for children under 19 years of age, the percent of eligible but not enrolled increased in Douglas County, from 388 (3.4%) to 493 (4.8%).^[1]

Table 2 Percentage of Uninsured Residents

Category of Uninsured	Douglas County			Colorado		
	2017	2019	% Change 2017-2019	2017	2019	% Change 2017-2019
Children < 19	2.60%	1.80%	-30.77%	4.30%	4.50%	4.65%
Adults < 65	4.60%	3.70%	-19.57%	12.80%	10.40%	-18.75%
White alone	3.30%	2.70%	-18.18%	8.80%	7.10%	-19.32%
Black or African American alone	6.20%	5.00%	-19.35%	8.90%	7.20%	-19.10%
Asian alone	6.10%	2.70%	-55.74%	8.80%	6.60%	-25.00%
Two or more races	4.00%	2.10%	-47.50%	8.60%	6.80%	-23.25%
Hispanic or Latino (of any race)	7.40%	4.90%	22.50%	18.70%	15.40%	-17.65%
White alone, not Hispanic or Latino	3.00%	2.50%	-16.67%	6.60%	5.20%	-21.21%

Table 3 Eligible But Not Enrolled

Eligibility Category	Douglas County			Colorado		
	2015	2019	% Change 2015-2019	2015	2019	% Change 2015-2019
CHP+ Children <19	15.4% (301)	6.7% (164)	-56.5%	23.3% (15,256)	18.4% (17,656)	-21.0%
Medicaid Children <19	3.4% (388)	4.8% (493)	41.2%	2.6% (14,702)	3.8% (18,176)	46.2%
Medicaid Adults age 19-64	15.5% (2,325)	20.6% (3,416)	32.9%	13.5% (99,542)	12.1% (84,432)	-10.4%

[1] Colorado Health Institute. Eligible but Not Enrolled 2019. Published: April 6, 2021 | Updated: April 22, 2021.

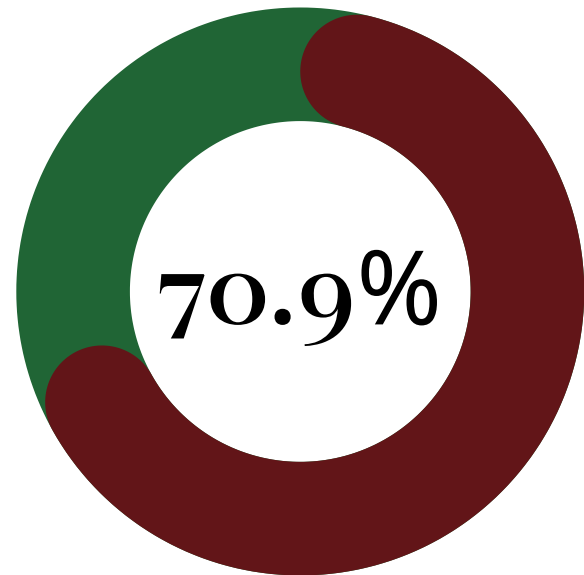
Barriers to Care

Insurance coverage is just one potential barrier to care. Supply of facilities and physicians, transportation barriers, cultural competency of providers, and coverage limitations affect access. In Colorado, the number of primary care physicians is one per every 1,220 Colorado residents. In Douglas County, that ratio is one primary care physician per every 1,399 residents. As a state, Colorado has one mental health provider to every 280 Coloradans, while Douglas County has one mental health provider per every 772 residents.^[1]

In the CHA Community Survey residents were asked about barriers they have faced while trying to access services that support their health care and wellness. Of the 4,913 respondents, most (3,484, or 70.91%) reported that they have not experienced any barriers. The most reported barrier was high out-of-pocket costs (789, or 16.06%), followed by the respondents who needed appointments during weekend or evening hours (359, or 7.31%).

Respondents also experienced needing services not offered in their area (5.74%), not knowing what services were available to them (3.64%), or not having health insurance (2.85%). There were also respondents who reported not being able to find services that understood, valued and respected their culture (69%), or that they were embarrassed about getting services (2.26%).

Douglas County residents who indicated they have not experienced any barriers when accessing health care services.



Douglas County residents who indicated they experienced high out-of-pocket costs when accessing health care services.

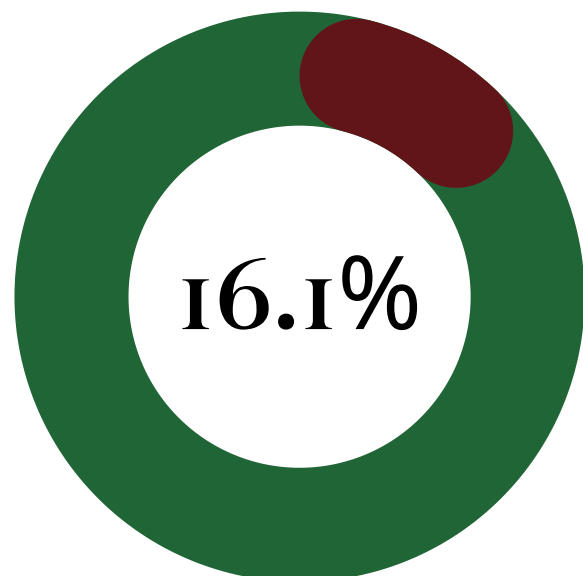


Figure 9 Barriers to Care

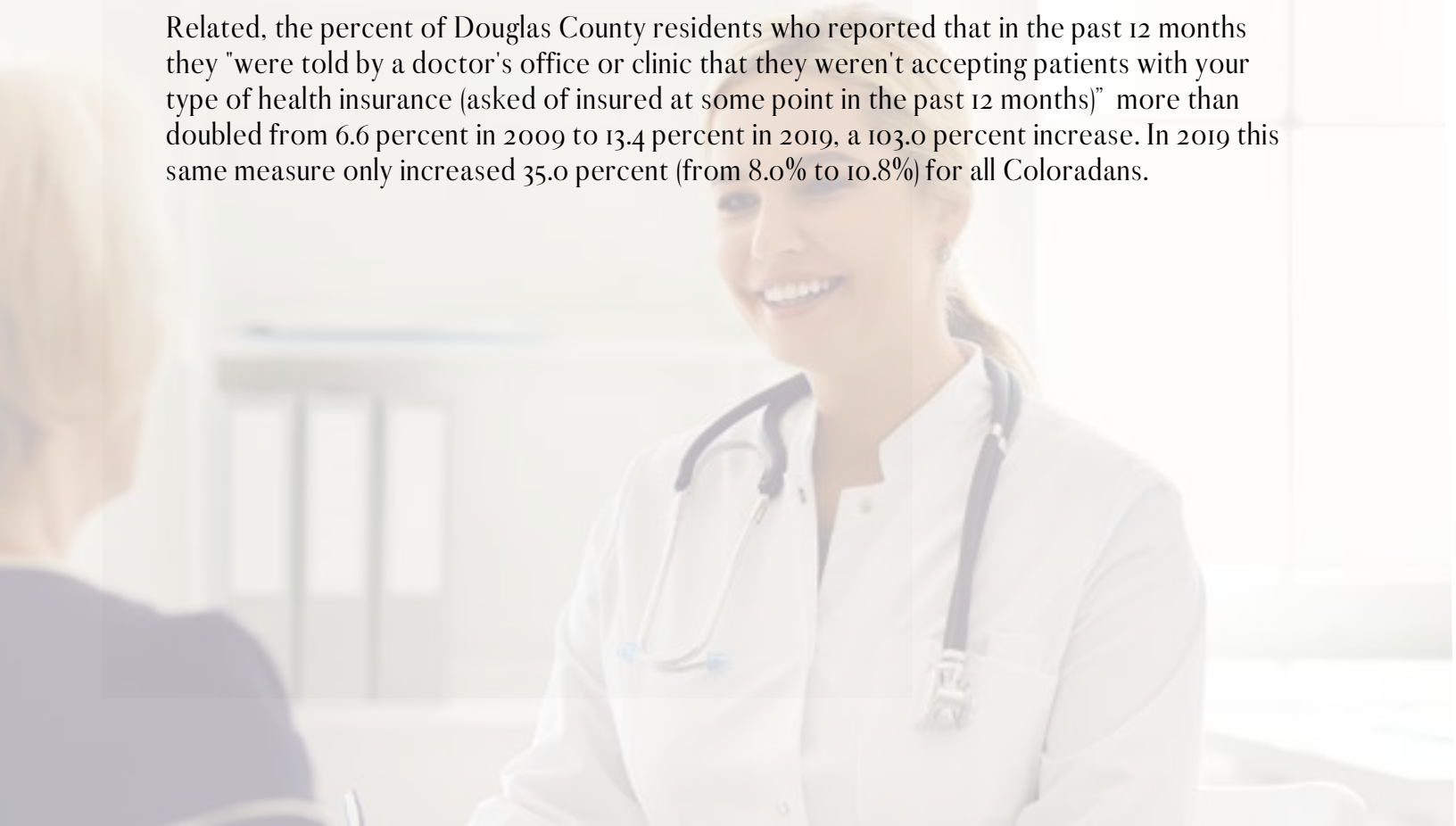
[1] Data USA, Douglas County. <https://datausa.io/profile/geo/douglas-county-co>

Less frequently reported barriers included not being eligible for services (1.34%), transportation issues (1.34%), services did not feel safe (1.06%), respondents couldn't find providers who look like them (0.92%), poor physical access to services (0.75%), complexity of application forms (0.59%), and language barriers (0.22%).

The Colorado Health Access Survey (CHAS) also offers data points on barriers to care for Douglas County residents and Coloradans. As shown in Table 4, in 2019, there were fewer Douglas County residents who reported an inability to get an appointment with a general doctor as soon as one was needed 67.5 percent compared to 72.1 percent in Colorado. In 2021, the inability to make an appointment as soon as one was needed decrease for both Douglas County and Colorado. Fewer Douglas County residents reported an inability to make an appointment because they could not take time off from work, 7.0 percent compared to 14.9 percent in Colorado in 2019. In 2021, this dropped to just 2.9 percent of residents in Douglas County and 10.5 percent in Colorado.

However, according to the CHAS, there were differences and/or worsening trends worth noting in Douglas County between 2009 and 2019. For example, in 2019 the percent of Douglas County residents who reported that in the past 12 months they "were unable to get an appointment at the doctor's office or clinic as soon as one was needed" increased by 41.4 percent, which is nearly one in five residents. For all Coloradans, the overall rate increased only 31.0 percent over a ten-year period (between 2009 and 2019). Also noteworthy is the challenge of accessing specialty care reported by Douglas County residents. Over half (54.6%) of residents reported they were unable to get an appointment with a specialty care doctor in 2019, compared to 46.9 percent of all Coloradans.

Related, the percent of Douglas County residents who reported that in the past 12 months they "were told by a doctor's office or clinic that they weren't accepting patients with your type of health insurance (asked of insured at some point in the past 12 months)" more than doubled from 6.6 percent in 2009 to 13.4 percent in 2019, a 103.0 percent increase. In 2019 this same measure only increased 35.0 percent (from 8.0% to 10.8%) for all Coloradans.



Lastly, another difference between Douglas County residents and residents of Colorado related to perceived discrimination. The percentage of Douglas County residents who are identified as minority, LGBTQ+ or other populations who reported experiencing discrimination is much lower than the state; however, the percent of Douglas County residents who reported they “have ever skipped care because of concern about unfair treatment or consequences” was higher at 7.7 percent compared to all Coloradans at 5.3 percent.

It is important to note that 2021 CHAS data suggests improvement in all these indicators in Douglas County and in Colorado, as shown in the table. However, these trends may be unstable as Coloradans need and access health care in different ways considering the ongoing pandemic.

Table 4 Colorado Health Access Survey (CHAS)

Primary & Specialty Care Access CHAS Results		Douglas County				Colorado			
		2009	2019	2021	% Change 2009 & 2019	2009	2019	2021	% Change 2009 & 2019
Has a usual source of care		91.9%	89.0%	85.5	-3.2%*	87.4%	87.6%	85.0%	+0.2%
In the past 12 months...	You were unable to get an appointment at the doctor's office or clinic as soon as one was needed	14.0%	19.8%	14.2%	+41.4%*	16.8%	22.0%	18.6%	+31.0%
	General doctor care	-	67.5%	41.0%	-	-	72.1%	53.9%	-
	Specialty care	-	54.6%	27.5%	-	-	46.9%	16.2%	-
	You were told by a doctor's office or clinic that they weren't accepting patients with your type of health insurance (asked of insured at some point in the past 12 months)	6.6%	13.4%	8.0%	+103.0%*	8.0%	10.8%	8.4%	+35.0%
	General doctor care	-	46.4%	-	-	-	53.7%	-	-
	Specialty care	-	52.5%	-	-	-	55.5%	-	-
	You were told by a doctor's office or clinic that they weren't accepting new patients	8.2%	9.3%	5.8%	+13.4%	8.0%	10.6%	6.6%	+32.0%
	General doctor care	-	63.4%	-	-	-	74.3%	-	-
	Specialty care	-	36.8%	-	-	-	38.5%	-	-
	You were unable to make an appointment because could not take off from work (employed adults ages 16 years and older)	-	7.0%	2.7%	-	-	14.9%	10.5%	-
	You have ever skipped care because of concern about unfair treatment or consequences	-	7.7%*	1.0%	-	N/A	5.3%	3.1%	-

*Percent change is calculated for 2009 and 2019 because 2021 may be an anomaly given the pandemic. - Indicates no available data. These measures were not collected in 2009.

Preventive Care

Services like screenings, dental check-ups, and vaccinations are key to keeping people of all ages healthy. However, for a variety of reasons, many people do not get the preventive care they need. Barriers include cost, not having a primary care provider, living too far from providers, and lack of awareness about recommended preventive services.[i] Therefore, assessing the extent to which preventive care is utilized is an indicator of the extent to which barriers to care exist in a community.

Overall, in Douglas County, preventive care is used at a greater extent than other Coloradans and utilization was increasing between 2015 and 2019 among children, adolescents, and adults.[ii] For example, patients age 20 years and older living in Douglas County who had an ambulatory or preventive case visit was at 82.0 percent in 2019 compared to 77.9 percent in Colorado overall. Both areas experienced a five-year increase in 2019. Similarly, 84.2 percent of children and adolescents in Douglas County had at least one visit with a primary care practitioner, compared to 81.8 percent in Colorado. The prevalence of well-child visits is relatively less in both Douglas County and Colorado. In Douglas County, one in two children (50.6%) and adolescents ages three to 21 had at least one comprehensive well-care visit with a PCP or an OB/GYN practitioner during the measurement year in 2019. This rate has increased 10.0 percent (from 46.0 percent in 2015) and is slightly higher than Colorado. Lastly, diabetes HBA1c testing is higher in Douglas County at 89.0 percent compared to Colorado at 85.3 percent and increased 10.6 percent between 2015 and 2019 (from 80.5 percent in 2015).

Table 5 Preventative Health Care

Preventive Care Indicator	Douglas County			Colorado		
	2015	2019	% Change	2015	2019	% Change
Access to care among Adults: Patients 20+ years who had an ambulatory or preventive case visit during the measurement year for Medicaid and Medicare, or during the measurement year and the two years prior to the measurement year for the commercially insured	78.9%	82.0%	+3.9%	75.9%	77.9%	+2.6%
Access to care among Children and Adolescents: Patients 12 months to 19 years of age who had at least one visit with a primary care practitioner (timeframe depends on age group)	83.0%	84.2%	+1.4%	80.1%	81.8%	+2.1%
Well-Child Visits: Patients ages 3 to 21 who had at least one comprehensive well-care visit with a PCP or an OB/GYN during the measurement year	46.0%	50.6%	+10.0%	40.40%	46.3%	+14.6%
Diabetes HBA1c testing	80.5%	89.0%	+10.6%	78.0%	85.3%	+9.4%

[i] Allen, E.M., Call, K.T., Beebe, T.J., McAlpine, D.D., & Johnson, P.J. (2018). Barriers to Care and Healthcare Utilization Among the Publicly Insured. *Med Care*, 55(3), 207-214.

[ii] CIVHC. Community Dashboard. Colorado All Payer Claims Database. Retrieved from <https://www.civhc.org/get-data/public-data/community-dashboard/>

Emergency Department Utilization

Preventable emergency department (ED) utilization may indicate poor care management, inadequate access to care, or poor choices on the part of patients.^[i] Colorado's Center for Improving Value in Health Care (CIVHC) shares a Community Dashboard that can be used by counties to understand how different aspects of health care – cost, utilization of services, access to care, use of preventive services and treatment for chronic conditions. One aspect of health care assessed by CIVHC is the rate of ED visits per 1,000 members (across all payers), which is detailed in Table 6.

Douglas County ED visits were 182 in 2019, lower than the rate of 322 per 1,000 members in Colorado.^[ii] However, the rate increased 4.6 percent from 174 per 1,000 members in 2015 compared to a 0.9 percent increase in Colorado, from 319 per 1,000 members in 2015.

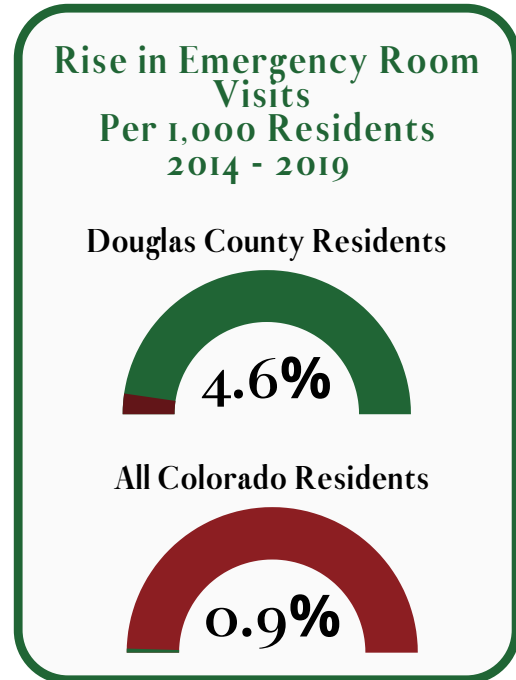


Figure 10 Emergency Room Visits 2014 - 2019

Table 6 Emergency Department Utilization, All Payers 2015 - 2019 ^[iii]

Emergency Department Use and Hospital Admissions	Douglas County			Colorado		
	2015	2019	% Change	2015	2019	% Change
All Emergency Department Visits Per 1,000	174	182	4.6%	319	322	0.9%
Potentially Preventable Emergency Department Visits per 1,000	71	69	-2.8%	144	126	-12.5%
Hospital Admissions: Potentially Preventable per 100,000 members	680	747	9.9%	995	921	-7.4%
Hospital 30 Day Readmissions per 1,000 members	6	9	50.0%	9	9	0.0%

^[i] Dowd, Karmarker, Swenson, et al. Emergency department utilization as a measure of physician performance. *Am J Med Qual* 2014;29(2):135-43.

^[ii] Emergency room visit is defined as unique patient and data of service combinations that have at least one claim with an emergency room revenue code, procedure code or place of service code, and are not precursors to subsequent inpatient hospital stays in the same period.

^[iii] CIVHC Community Dashboard, retrieved from <https://www.civhc.org/get-data/public-data/community-dashboard/>

Among these ED visits, 69 per 1,000 were potentially avoidable in Douglas County (or 37.9% of all ED visits) in 2019. In Colorado, potentially avoidable ED visits were 126 per 1,000 (or 39.1% of all ED visits). Since 2015, potentially avoidable ED visits decreased 2.8 percent from 71 to 69 per 1,000 in Douglas County while decreasing 12.5 percent in Colorado from 144 to 126 per 1,000 ED visits. Potentially preventable hospital admissions in Douglas County were lower than Colorado; however, the rate increased 9.9 percent between 2015 and 2019, from 680 per 100,000 members to 747 per 100,000 members while in Colorado, this rate decreased 7.4 percent to from 995 to 921 per 100,000. Hospital 30-day readmission increased in Douglas County from 6 to 9 per 1,000 members while in Colorado it remained the same at nine per 1,000 members.

ED visits and hospital admissions in Douglas County vary among members with different health insurance payers (Table 7). Overall, Medicaid members in Douglas County have higher rates of ED visits and hospital admissions compared to commercial members, including potentially preventable ED visits and hospital admissions. Both members on commercial and Medicaid health insurance experienced drops in both ED visits and hospital admissions between 2015 and 2020. ED visits among Medicaid members dropped 26 percent from 2015 to 2020, from 508 in 2015 to 376 ED visits per 1,000 in 2020. ED visits among commercial members dropped 15 percent from 2015 to 2020, from 109 ED visits per 1,000 to 93 ED visits per 1,000 in 2020.^[i]

Potentially preventable ED visits and hospital admissions also decreased in Douglas County. There was a greater decrease of 40 percent in potentially preventable ED utilization among Medicaid members (compared to 18% decrease among commercially insured). Among potentially preventable hospital admissions, the decrease was similar among both commercial and Medicaid members, at just over 40 percent. Hospital 30-day readmissions is higher among Medicaid members at seven readmissions per 1,000 members compared to three per 1,000 commercial members.^[ii]

Over this same time, Medicare Advantage members increased utilization of the ED and hospital, and effectively driving the increase in overall ED and hospital use seen in Douglas County between 2015 and 2019.

Table 7 Emergency Department Utilization By Payer Type 2015 - 2020

	Douglas County											
	All ED Visits per 1,000			Potentially Preventable ED Visits per 1,000			Hospital Admissions: Potentially Preventable per 100,000 members			Hospital 30 Day Readmissions per 1,000 members		
	2015	2020	% Change	2015	2020	% Change	2015	2020	% Change	2015	2020	% Change
Commercial Insurance	109	93	-15%	39	32	-18%	180	103	-43%	2	3	50%
Medicaid	508	376	-26%	259	155	-40%	932	541	-42%	7	7	0%
Medicare Advantage	124	195	57%	50	72	44%	949	1342	41%	9	16	78%
Medicare FFS (2019)	287	263	-8%	111	99	-11%	2,075	1,901	-8%	26	28	8%

[i] CIVHC Community Dashboard, retrieved from <https://www.civhc.org/get-data/public-data/community-dashboard/>

[ii] Ibid.

Table 8 describes the 2009 and 2019 CHAS survey responses on measures related to ED use. [i] Between 2009 and 2019, the likelihood that Douglas County residents "received care in a hospital ED one time in the past 12 months" increased 28.3 percent (from 9.2% to 11.8%) while the rate of increase was slower in Colorado at 8.7 percent. Despite the increase in Douglas County, the overall likelihood of receiving care in the ED more than once in the past 12 months decreased 75.0 percent (from 6.4% in 2009 to 1.6% in 2019) compared to a 9.1 percent decrease in Colorado. Lastly, ED use for a condition that could have been treated by a regular doctor increased slightly in Douglas County, from 33.3 percent to 33.7 percent between 2009 and 2019 (significance of the change is unknown) while the rate decreased 13.0 percent among all Coloradans.

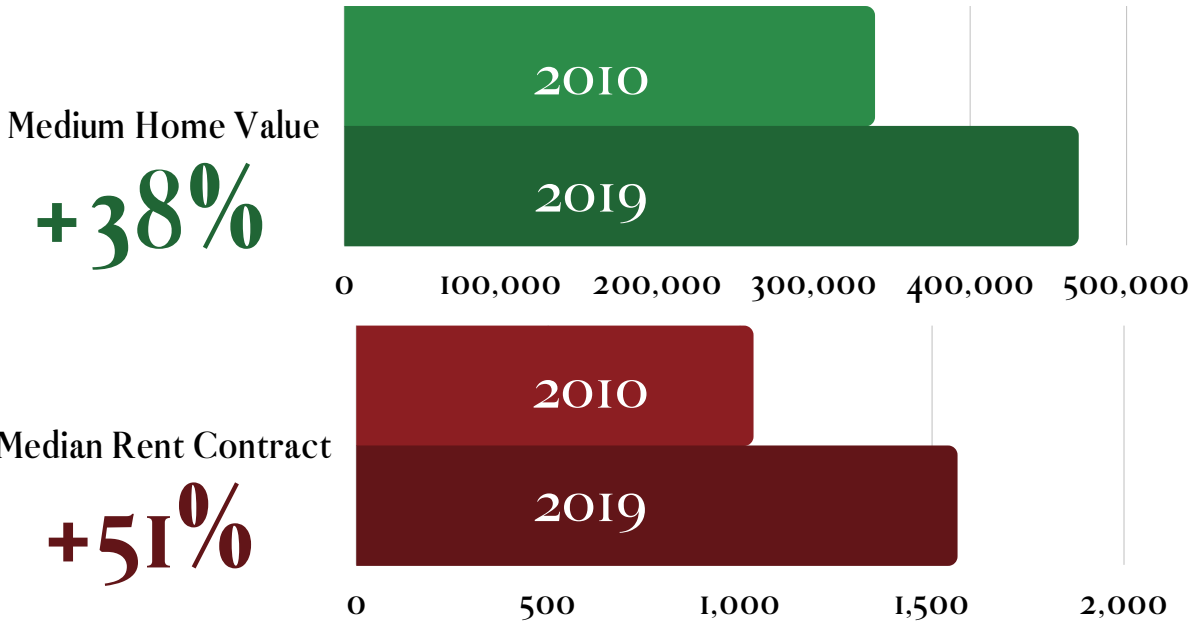
Table 8 Colorado Health Access Survey (CHAS)

Emergency Department CHAS Results Use	Douglas County			Colorado		
	2009	2019	% Change	2009	2019	% Change
Received care in a hospital emergency room one time in the past 12 months	9.2%	11.8%	+28.3%	12.6%	13.7%	+8.7%
Received care in a hospital emergency room multiple times in the past 12 months	6.4%	1.6%	-75.0%	7.7%	7.0%	-9.1%
Last visit was for an emergency	66.7%	66.3%	-0.6%	56.3%	62.0%	+10.1%
Last visit was for a condition that you thought could have been treated by a regular doctor	33.3%	33.7%	+1.2%	43.7%	38.0%	-13.0%

[i] These questions were not asked in CHAS 2021. Therefore, a 2021 update is not available.

BUILT ENVIRONMENT

Housing Costs in Douglas County 2010 and 2019



Rent Paid by Douglas County Residents, 2019

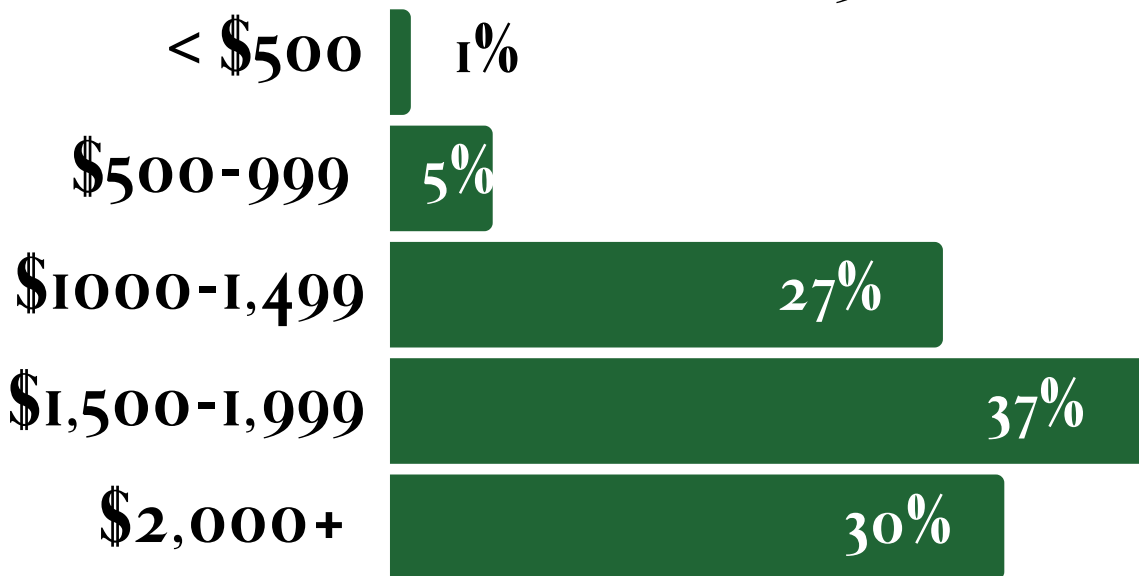


Figure 11 Housing Costs, Douglas County 2010 - 2019

BUILT ENVIRONMENT

As described in Part I, the built environment can drive a community's health in a multitude of ways. This section explores the built environment of Douglas County, specifically affordable and healthy housing, transportation, access to healthy food, opportunity for physical activity, and clean air and water.

Housing

Having safe and affordable housing leads to better physical and mental health and improves the wellbeing of individuals and families. Cost and location of housing can have an adverse impact on health. For example, high housing costs reduce a family's resources, when families have affordable and safe housing, they can spend their hard-earned income on healthy food, health care services, and physical activities, which leads to better health outcomes.

Additionally, the neighborhoods where homes are located also impact health. Neighborhoods with less wealth generally have higher crime, more pollution, more fast-food outlets and advertisements for tobacco and alcohol use along with having fewer safe places for play and physical activity. The neighborhood environment has consistently been linked to poor health outcomes.^[i]

Cost Burden

According to the National Low Income Housing Coalition an annual household income of \$57,208 is needed to afford a two-bedroom rental home at HUD's Fair Market Rent in Colorado.^[ii] Individuals and families in affordable housing experience less stress, leading to better mental health. Children in affordable homes have better health and education outcomes. The cost of housing for both homeowners and renters within Douglas County increased substantially for residents of Douglas County between 2010 – 2019. Figure 11 depicts the median home value and the median contract rent increase. Specifically, the median home value increased 38 percent up to \$468,700 while the rent increased even faster at 51 percent.^[iii]

Approximately 37 percent of all renters pay between \$1,500 and \$1,999 a month, the largest cohort. The next largest rent cohort is \$2,000 or more with 30 percent of renters falling in this range. Cost burden is a common trend in many communities across the state and nation today and is the most significant housing issue in the County. According to the 2015-2019 American Community Survey, 24.3 percent of residents experience housing cost burden.

[i] Edmonds A, Braveman P, Arkin E, Jutte D. How do Neighborhood Conditions Impact Health?

[ii] National Low Income Housing Coalition. 2021 Colorado Housing Profile. Last reviewed on 7/19/2021.

[iii] ACS, 2019. As in Douglas County Community Development Program, 2021-2025 Consolidated Plan.

Table 9 Burden of Housing Costs 2015 - 2019

Impact of Housing Costs	Douglas County			Colorado		
	2015	2019	% Change	2015	2019	% Change
Cost burdened: Percent of occupied housing units spending more than 30% of income on housing (rent and own)	26.0%	24.3%	-6.5%	33.7%	31.6%	-6.2%
Severely cost burdened: Percent of occupied housing units spending more than 50% of income on housing (rent and own)	10.0%	9.4%	-6.0%	14.7%	13.7%	-6.8%
Cost burdened: Percent of occupied housing units spending more than 30% of income on rent	38.5%	42.4%	+10.1%	47.9%	46.0%	-4.0%
Severely cost burdened: Percent of occupied housing units spending more than 50% of income on rent	17.0%	17.6%	+3.5%	23.8%	22.9%	-3.8%

*Indicates a rate and/or trend is worsening and/or worse in comparison to Colorado. However, tests of significance are not possible with available data.

Households who are renting are faced with more burden than owners. Approximately 42 percent of renters are cost burdened, with nearly 18 percent severely cost burdened.^[i] While the cost burden is trending down among all households, among households that are renting, the burden is increasing over the last five years in Douglas County (while it is decreasing in Colorado). This financial burden puts significant pressure on households and increases the likelihood of less-than-optimal living arrangements. Some census tracts show over 25 percent of homeowners and 60 percent of renters are cost burdened.

Priority Population: Individuals Living with Disability(ies)

Residents with disabilities are particularly vulnerable to housing problems. According to the 2015-2019 American Community Survey data, there are 22,459 residents with disabilities in Douglas County, making up approximately seven percent of the population. Approximately 2,075 of these residents are under the age of 18. The most common disability is ambulatory difficulty and over 8,100 report this difficulty. Residents with disabilities and families with children with disabilities face significant barriers to affordable housing. Most homes require expensive modifications to accommodate the needs of residents. An exact count of those in need of housing assistance is difficult to determine but it is likely most residents with a disability either need housing assistance through financial support or access to homes that meet their needs.

Housing Problems

Household income is correlated with the likelihood of experiencing housing problems, particularly for renters. Residents with lower incomes have increased rates of cost burden and other substandard living conditions. The following table, provided in the Douglas County's Department of Community Development 2021-2025 Consolidated Plan, summarizes the disparities that exist in Douglas County based on income level and race/ethnicity.

[i] As in Douglas County Community Development Program, 2021-2025 Consolidated Plan.

Affordable Housing

An important housing demographic is commonly called "the missing middle." Generally, buildings with between four and 20 units are part of this group and they are uncommon in many communities. This type of housing is important because the production cost is much lower than single family units and can provide affordable housing options. In Douglas County, approximately eight percent of the housing stock is made up of missing middle units for a total of 10,087 housing units. The largest housing type is single-family making up approximately 85 percent of total units. Since 2010 the missing middle has grown slightly in the County.^[i]

Table 10 Douglas County Housing Costs 2010 - 2019

Unit by Type	2010		2019		Change	
	#	%	#	%	#	%
Single Family	89,557	86.8%	105,676	84.6%	+16,119	-2.2%
Missing Middle	8,006	7.7%	10,087	8.1%	+2,018	+0.4%
Large Multifamily	5,338	5.2%	8,571	6.9%	+3,233	+1.7%
Other	328	0.3%	437	0.4%	+109	+0.1%

Healthy Housing

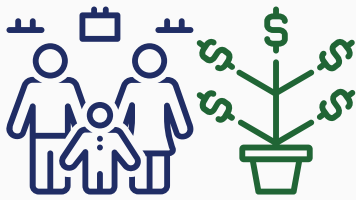
The greatest potential for lead-based paint (LBP) and other environmental and safety hazards is in homes built before 1980. Within the County there are just over 11,000 housing units built before 1980. Data about the presence of children in these units was not available. CDPHE's Disease Control and Environmental Epidemiology Division is responsible for overseeing lead-based paint abatement, pre-renovation notification, and the certification of lead professionals in the state of Colorado. In 2018, CDPHE tested blood lead levels for 27,569 children ages six years and under from throughout the state. Out of the 27,569 children tested, a total of 564 had blood lead levels greater than or equal to 5 ug/dL. Tests were conducted on 712 Douglas County children under six years of age in 2018. Eight cases of blood lead levels were greater than or equal to 5 ug/dL from the age group tested. The CDPHE recommends different types of follow up based on the results of their lead level. An important role of a public health department is to perform home investigations on children with confirmed elevated blood lead levels.

Housing units with potential for LBP hazards are rare in Douglas County. To estimate the number of housing units in the County by low- or moderate-income families (LMI) that may contain LBP hazards, Douglas County assumed that homes by year built are distributed evenly across income categories, as no local data exists to describe otherwise. According to Comprehensive Housing Affordability Strategy, approximately 28 percent of all households are LMI, which means an estimated 3,025 LMI families are in units with potential LBP Hazards.^[i]

[i] 2011-2015 ACS (Total Units) 2011-2015 CHAS (Units with Children present), as reported in the Douglas County 2021-2025 Consolidated Plan.

Priority Population: Individuals Experiencing Homelessness

In Douglas County, the needs of people and families facing homelessness are tracked regularly through a central reporting system when assistance is provided with grants managed by the County. The seven-county Metro Denver Continuum of Care (CoC) is a regional system that coordinates services and housing for people experiencing homelessness, which includes Douglas County. In the 2020 Point-in-Time Count, there were 53 residents experiencing homelessness in Douglas County, the majority of which were in shelters. Nearly half of all persons experiencing homelessness are in households with adults and kids. White residents make up the largest group of residents experiencing homelessness. Thirty-seven of the 50 persons who reported race are White and three who reported ethnicity are Hispanic. Most residents experiencing homelessness in the County are sheltered. Only 13 of the 53 residents are unsheltered and they are all in households without children. Lastly, the Douglas County School District tracks the numbers of students that are homeless as defined by McKinney-Vento. The district has 557 homeless students enrolled in the 2020-2021 school year.



Likelihood of Housing Problems

Extremely Low- Income

Approximately 82% of all households in this income group have a housing problem. There is one group that reports a disproportionate rate. Over 93% of Hispanic households in this group report a housing problem.

Very Low- Income

Approximately 80% of households in this income group have a housing problem. While there are no groups with a disproportionately high rate, there are 67% Black or African American households who reported a housing problem. In the higher income categories, Black or African American households have a disproportionately high percentage of housing problems. However, it should be noted that there are only 30 households in this group.

Low- Income

Approximately 65% of households in this income group have a housing problem. One hundred percent of Black or African American households report a housing problem and are disproportionately impacted. It is also noted that Black or African American households is a small percentage of the total population makeup.

Moderate -Income

Approximately 41% of households in this income category report a housing problem. Black or African American households report a housing problem at a rate of 57% and are the only group disproportionately impacted.

Figure 13 Likelihood of Housing Problems

TRANSPORTATION

Transportation impacts health in a myriad of ways, including through increased air pollution, traffic crashes, and decreased physical activity.^[i] The September 2017 Douglas County Needs Assessment identified transportation as a priority health area. This area looks at traffic and individual mobility, including commuting to school and work.

A measure of proximity to vehicle traffic or “traffic intensity” is defined as the annual average of the daily count of vehicles within 500 meters, divided by their distance in meters. Higher values indicate higher exposure to heavy traffic. In Douglas County, traffic intensity in 2020 was 78.53, higher than Colorado at 53.02 (and higher than the United States at 44.56). Since 2018, the traffic intensity in Douglas County has increased faster (48.1% increase) than in Colorado from 53.07 in 2016 (compared to a 17.5% increase from 45.1 in Colorado). The mean travel time for residents to commute to work however has remained stable over the last five years.^[ii]^[iii] Additionally, children and youth are more likely to commute to school by bike, walking, or skateboarding, increasing 11.7 percent to 14.4 percent of children in 2019.^[iv] Lastly, the percent of households with no vehicles has increased slightly to 2.1 percent in 2019, suggesting that there are more households reliant upon public transportation.^[iv]

Table II Transportation Factors Influencing Health

Transportation	Douglas County			Colorado		
	2015	2019	% Change	2015	2019	% Change
Traffic intensity (2016 to 2020)	53.0	78.5	+48.1%	45.1	53.0	+17.5%
Mean travel time to work (in minutes)	27.7	27.8	+0.4%	24.8	25.8	+4.0%
Percent of children that commute to school by biking, walking, or skateboarding at least one day a week (2013)	12.8%	14.3%	+11.7	19.9%	16.2%	-18.6%
Occupied households with no vehicles available	1.8%	2.1%	+16.7%	5.6%	5.1%	-8.9%

^[i] Robert Wood Johnson Foundation (RWJF). How does transportation impact health? Princeton: Robert Wood Johnson Foundation (RWJF); 2012. Health Policy Snapshot Public Health and Prevention Issue Brief.

^[ii] American Community Survey 5 year combined estimates (Table S0801).

^[iii] Indicator definition is “Average time in minutes it takes to travel to work, for workers 16 and over who do not work at home. The daily round-trip commute time would be roughly twice this number.”

^[iv] American Community Survey 5 year combined estimates (Table B25044).

HEALTHY EATING

FOOD INSECURITY

From 2018 - 2020 the rate of food insecurity rose in Douglas County by 81.4% which is higher than the state's growth rate of 78.7% from 2018 to 2020.

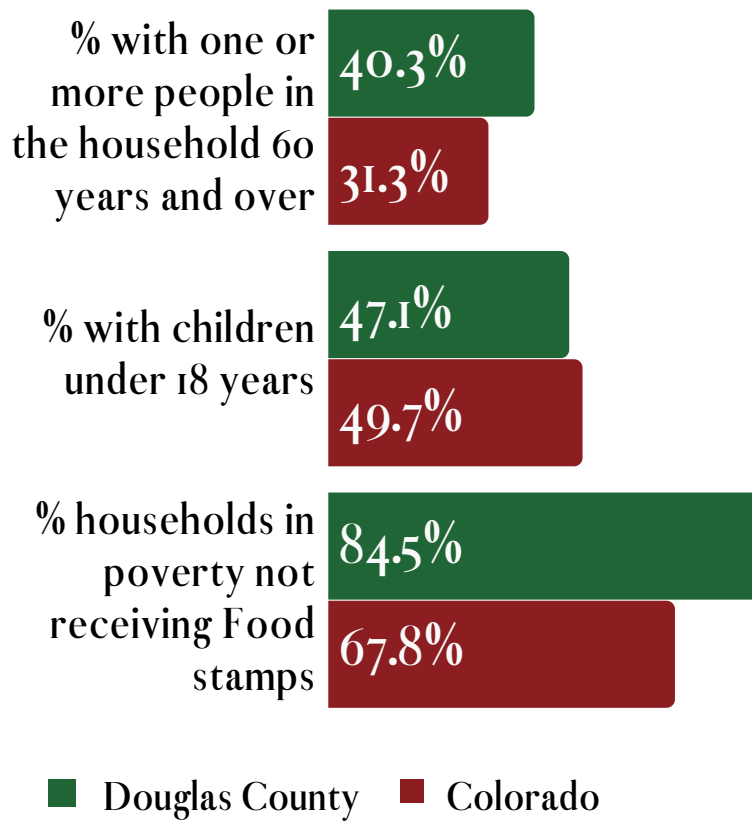


Figure 14 Douglas County, Food Insecurity



Access to Healthy Food

In Douglas County, one in ten residents (10.7%) experience food insecurity^[i] in 2020 (compared to 15.3% among all Coloradans).^[ii] The rate has nearly doubled (81.4% increase) from 5.9 percent in 2018. The food insecurity rate is higher among children, ages 0-17 years, at 16.1 percent in 2020 (and up from 7.7% in 2018). A similar trend occurs in Colorado with 21.8 percent of children experiencing food insecurity, a 78.7 percent increase from 12.2 percent in 2018.

According to Map the Meal Gap, \$12,681,872 of additional money is needed for Douglas County residents that are food-insecure to buy enough food for their household.^[iii] ^[iv] This amount can be interpreted as the amount of food benefits that would be needed to ensure nobody goes to bed hungry.

Healthy dietary behaviors are supported by access to healthy foods, and grocery stores are a major provider of these foods. There are 29 grocery establishments in Douglas County, a rate of 1.02 per 10,000 population^[v] and no reported food deserts as defined by the USDA.^[vi] ^[vii]

Also, an important social and economic resource factor in addition to being influenced by the built environment, the national Supplemental Nutrition Assistance Program (SNAP) provides nutrition benefits to supplement the food budget of needy families so they can purchase healthy food and move towards self-sufficiency. The percentage of Douglas County residents receiving SNAP is 1.79 percent (compared to Colorado at 7.5%). The rate per 10,000 retailers which are SNAP-Authorized is lower than Colorado at 3.92 (compared to 5.66 in Colorado).^[viii] ^[ix] More than half of the households receiving SNAP are households with one or more people 60 years and over (40.3%) or with children under 18 years (47.1%). In 2020, 10.5 percent (6,812) or just over 1 in 10 students were eligible for free or reduced lunch.^[x] Lastly, the percent of households in poverty not receiving food assistance is higher in Douglas County at 84.9 percent compared to Colorado at 67.8 percent. ^[xi]

[i] Percentage of the population experiencing food insecurity at some point. Food insecurity is the household-level economic and social condition of limited or uncertain access to adequate food, as represented in USDA food-security reports. 2020 data is a projection based on 11.5% national unemployment and 16.5% national poverty rate. Source: Feeding America (Map the Meal Gap 2020).

[ii] Feeding America (Map the Meal Gap 2020).

[iii] Ibid.

[iv] Calculated using the weekly food budget shortfall of people reporting food insecurity, weighted by the time spent food-insecure.

[v] Grocery stores are defined as supermarkets and smaller stores engaged in retailing a general line of food, such as canned and frozen foods; fresh fruits and vegetables; and fresh and prepared meats, fish, and poultry. Delicatessen-type stores are also included. Convenience stores and large general merchandise stores that also retail food, such as supercenters and warehouse club stores, are excluded.

[vi] The USDA Food Access Research Atlas defines a food desert as any neighborhood that lacks healthy food sources due to income level, distance to supermarkets, or vehicle access.

[vii] Data US Department of Agriculture, Food and Nutrition Service, SNAP Retailer Locator. Additional data analysis by CARES. 2019. Source geography: Tract.

[viii] SNAP-authorized stores include grocery stores as well as supercenters, specialty food stores, and convenience stores that are authorized to accept SNAP (Supplemental Nutrition Assistance Program) benefits.

[ix] Data US Department of Agriculture, Food and Nutrition Service, USDA - SNAP Retailer Locator. Additional data analysis by CARES. 2019. Source geography: Tract.

[x] Colorado Department of Education.

[xi] ACS, Table S2201, 2015-2019 5 Year combined estimates.

SENIORS

40.3% of households in Douglas County have one or more people in the household 60 years and over who receive SNAP benefits compared to 31.3% in the state.

Kids

Food insecurity rates among children in Douglas County rose from 109.1% from 2018 to 2020.

PHYSICAL ACTIVITY

Opportunity for Physical Activity

Ninety-three percent of Douglas County residents, slightly higher than Colorado at 90 percent, have adequate access to locations for physical activity, including walkable streets and access to parks and recreation facilities.^[1] Open space is generally thought of as space for recreation, such as hiking or mountain biking. In the 2021 Douglas County Poll, 84 percent of Douglas County respondents report being very satisfied (46%) or somewhat satisfied (38%) with open space and land conservation services provided by Douglas County. Additionally, 79 percent of respondents felt they strongly agreed (23%) or somewhat agreed (56%) that Douglas County is working effectively with state and municipal officials and conservation groups to ensure adequate natural open space and land conservation for the public's benefit.

Access to recreation and fitness facilities encourages physical activity and other healthy behaviors. Douglas County includes 63 establishments primarily engaged in operating fitness and recreational sports facilities featuring exercise and other active physical fitness conditioning or recreational sports activities, such as swimming, skating, or racquet sports for a rate of 2.21 per 10,000 people (Colorado comparison is not available).

Table 12 describes various scores available to assess opportunities for physical activity in the community, including ability to bike, walkability, and access to parks. The Trust for Public Land's ParkScore® index, which is a comprehensive rating system developed to measure how well the 100 largest U.S. cities are meeting the need for parks, reveals that among the four cities with ParkScore® data, three locations (Castle Rock, Parker, and Highlands Ranch) have a higher percentage of residents who live within a 10-minute walk of a park (compared to the United States). Only Roxborough Park exceeded the national rate for the percent of city land used for parks and recreation at 42 percent (compared to 15% for the United States). ParkScore® data also show whether access to a park differs among residents of different income levels. Parker was the only city where data suggest that low-income residents are more likely to be within a 10-minute walk of a park. Lastly, the four cities with data suggest that all had low walkability and were car dependent for errands and somewhat bikeable.

[1] Defined as 2010 household population living in census blocks with adequate access to at least one location for physical activity. Adequate access is defined as census blocks where the border is a half-mile or less from a park, or 1 mile or less from recreational facility in urban census blocks and 3 miles or less in rural census blocks in 2010.





Table 12 Opportunities for Physical Activity

Geography	Bike Score ¹	Walk Score ²	% Residents Lived within 10-minute walk of a park	% of City Land Used for Parks and Recreation	% of high income residents within 10 minute walk of a park	% of middle income residents within 10 minute walk of a park	% of low income residents within 10 minute walk of a park
United States	n/a	n/a	55%	15%			
Castle Rock	40 (Somewhat bikeable)	12 (Car Dependent)	67%	12%	69%	66%	61%
Roxborough Park	n/a	0 (Car Dependent)	50%	42%	n/a	n/a	n/a
Parker	n/a	22 (Car Dependent)	74%	11%	74%	79%	84%
Highlands Ranch	50 (Bikeable)	27 (Car Dependent)	62%	4%	62%	56%	55%

¹ Bike Score is calculated by measuring bike infrastructure (lanes, trails, etc.), hills, destinations and road connectivity, and the number of bike commuters. For more on the methodology, visit <https://www.walkscore.com/methodology.shtml>

² Walk score is calculated by measuring pedestrian friendliness by analyzing population density and road metrics such as block length and intersection density and proximity to amenities. For more on the methodology, visit <https://www.walkscore.com/methodology.shtml>

ENVIRONMENTAL FACTORS

Environmental Factors

Environmental issues are responsible for injury, acute health conditions, chronic health conditions, developmental problems in children and death. For example, extremely hot days make it dangerous for populations more likely to be adversely affected by heat—such as children, older adults, and our outdoor workforce. Extreme heat causes dehydration, exhaustion and heat stroke. Modeling studies predict the number of extreme heat days to increase steadily over the next 65 years.

Drought and extreme heat make wildfires (forest fires) increasingly likely, and their smoke will worsen air quality in our neighborhoods and put those in our mountain regions at immediate risk. Wildfires increase air pollution and the effects of smoke from wildfires can range from eye and respiratory tract irritation to more serious health issues including asthma and chronic obstructive pulmonary disease (COPD), which can result in premature death. Children, pregnant women, and the elderly are especially vulnerable to smoke exposure. Emissions from wildfires are known to cause increased visits to hospitals and clinics by those exposed to smoke.

Due to their age, health conditions, and limited ability to mobilize to shelters, cooling, and medical resources, the infirm, young, and elderly are particularly vulnerable to drought and extreme temperatures, sometimes associated with drought conditions. The determinants of vulnerability are outlined in Figure 13.^[1]

[1] Turner BL 2nd, Kasperson RE, Matson PA, McCarthy JJ, Corell RW, Christensen L, Eckley N, Kasperson JX, Luers A, Martello ML, Polsky C, Pulsipher A, Schiller A. A framework for vulnerability analysis in sustainability science. *Proc Natl Acad Sci U S A*. 2003 Jul 8;100(14):8074-9.



Air and Water Pollution

Two types of air pollution are notable in Colorado and in Douglas County. One air pollutant is Atmospheric Ozone at the ground-level which forms from the combination of Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NOx). Heat and sunlight trigger this combination, leading to higher ozone levels in summer months.

Ozone can lead to many adverse effects, including shortness of breath, eye irritation, the triggering of asthma symptoms, and chronic obstructive pulmonary disease.[i] Ozone is one of the biggest contributors to poor air quality and comes from mobile emission sources such as cars, trucks, and buses.[ii] The second type of air pollutants are particulate matter, which is a mixture of solid particulars and liquid droplets found in the air. [iii] Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope. Some are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks, or fires. Most particles form in the atmosphere because of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industries, and automobiles. Particulate matter contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems.

As shown in Table 13, both Douglas County and Colorado have decreasing atmospheric ozone levels while increasing particulate matter concentration; however, Douglas County has higher ozone levels compared to Colorado and the rate of increase (13.7%) in particulate matter between 2015 and 2020 is growing faster in Douglas County than in Colorado (9.3%). [iv]

Water pollutants can have human health or adverse ecological effects, depending on concentration in the water, exposure to the water, toxicity of the chemical and other factors. There are approximately 6,700 major direct dischargers in the United States. These facilities discharge around 50 billion pounds of pollutants each year directly into the nation's streams and rivers (including conventional pollutants such as nitrogen and phosphorus). The proximity to water polluting sites in Douglas County is slightly higher compared to Colorado and has been fairly stable between 2015 and 2020.[v][vi] In Douglas County, in 2020, residents were 0.513 distance-weighted facilitated from water polluting sites, which is significantly lower than the average distance in the country at 26.1.

Table 13 Atmospheric Factors Influencing Health

Atmosphere	Douglas County			Colorado		
	2015	2020	% Change	2015	2020	% Change
Atmospheric ozone (Summer seasonal daily average, maximum 8-hour concentration in air - ppb)	56.9	54.3	-4.6%	53.8	49.3	-8.4%
Particulate matter (PM 2.5) concentration (µg/m ³)	5.1	5.8	+13.7%	5.4	5.9	+9.3%

[i] EPA. Health Effects of Ozone Pollution, retrieved from <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>

[ii] EPA. Hazardous Air Pollutants: Sources and Exposure, retrieved from <https://www.epa.gov/haps/hazardous-air-pollutants-sources-and-exposure>

[iii] EPA. Particulate Matter (PM) Basics, Retrieved from <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>

[iv] EPA. EJSCREEN, 2020.

[v] A measure of proximity to water polluting facilities, defined as the count of National Pollutant Discharge Elimination System major facilities within 5km (or the closest one further than 5km), each divided by distance in km. Higher values indicate closer proximity to major discharge sites.

[vi] Environmental Protection Agency (EPA) (EJSCREEN, via the EPA's PCS/ICIS database).

Drought

Drought conditions can affect public health and safety, including reduced local firefighting capabilities, health problems related to low water flows and poor water quality, and health problems related to dust. If droughts are severe enough, these health problems can lead to loss of human life. Other possible impacts include recreational risks; effects on air quality; diminished living conditions related to energy, air quality, and sanitation and hygiene; compromised food and nutrition; and increased incidence of illness and disease. Some drought related health effects are short-term, while others can be long term.[i] In Douglas County, 23.48 percent of weeks during the 2017-2019 period were spent in drought (any level). An additional 36.45 percent of weeks were categorized as spent in "abnormally dry conditions" (Do) indicating that drought could occur, or that the area is recovering from drought but is not yet back to normal.[ii]

Table 14 Drought Conditions in Douglas County & Colorado

Report Area	Time Period	Weeks in Do (Abnormally Dry)	Weeks in D1 (Moderate Drought)	Weeks in D2 (Severe Drought)	Weeks in D3 (Extreme Drought)	Weeks in D4 (Exceptional Drought)	Weeks in Drought (Any)
Douglas County	2017-2019	36.45%	22.81%	0.67%	0.00%	0.00%	23.48%
Colorado	2017-2019	31.71%	17.36%	5.48%	2.17%	0.72%	25.73%

Extreme Heat

The increasing frequency and severity of extreme weather events like extreme heat can have dramatic effects on population health. Understanding the connection between our natural environment, our manmade systems, and our health is important to both help reduce the effects of a changing climate and prepare for outcomes of future events. These events could not only affect water availability integral to recreation, agriculture, and household needs, but also water quality and ecosystems.[iii]

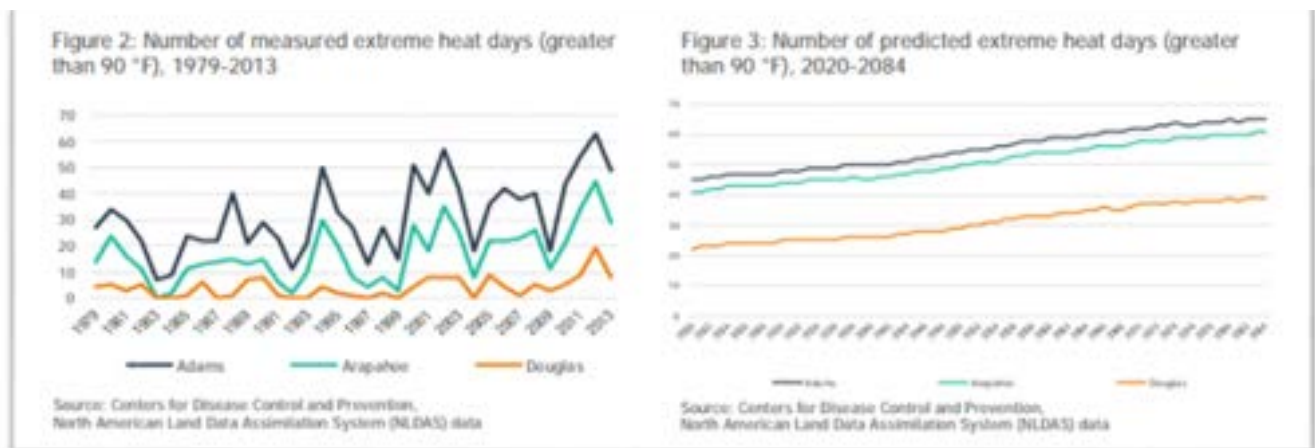



Figure 16 Environmental Vulnerability & Health Impacts

[i] As reported in Douglas County Risk Mitigation Plan, 2021.

[ii] US Drought Monitor, 2017-2019. Source geography: Tract.

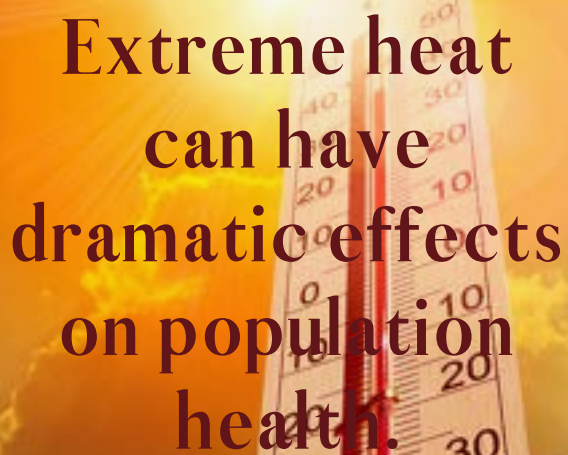
[iii] As reported in the 2018 TCHD Community Health Assessment.



Severe drought
can lead to loss
of human life.



Drought and
extreme heat
make wildfires
increasingly
likely



Extreme heat
can have
dramatic effects
on population
health.

Environmental Factors that Influence Vulnerability

EXPOSURE

Exposure is contact between a person and one or more biological, psychosocial, chemical or physical stressors, including stressors affected by changes in climate.

SENSITIVITY

Sensitivity is the degree to which people or communities are affected, either adversely or beneficially, by changes or variables related to their climate.

ADAPTIVE CAPACITY

Adaptive capacity is the ability of communities, institutions, or people to adjust to potential hazards, to take advantage of opportunities, or to respond to consequences.

HEALTH IMPACTS

Injury, acute and chronic illness including behavioral health related illness and disorders, developmental issues, and death.

Source: A framework for vulnerability analysis in sustainability science. Proc Natl Acad Sci U S A. 2003 Jul 8;100(14):8074-9. doi: 10.1073

COMMUNITY CONNECTEDNESS

Community connectedness relates to a person's sense of belonging within a community. It is closely linked to quality of life and general well-being. Specific to youth, connectedness refers to a sense of being cared for, supported, and belonging, and can be centered on feeling connected to school, family (i.e., parents and caregivers), or other important people and organizations in their lives. Youth who feel connected at school and home are less likely to experience negative health outcomes related to sexual risk, substance use, violence, and mental health.[i] The 2019 HKCS data suggests that among high school youth who responded to the survey in Douglas County, 83.7 percent of students could ask their parents or guardians for help with a personal problem and 88.4 percent have parents or guardians who know if they are not home on time. These rates are not different than Colorado. The percentage of students who think their teacher notices when they do a good job and lets them know about it is significantly lower in Douglas County at 41.9 percent compared to Colorado at 49.3 percent.[ii]

The CHA community survey (Figure 14) asked Douglas County residents to what extent they agreed with 13 measures of community connectedness. Overall, survey respondents agreed with 12 of the 13 measures, indicating that residents feel a sense of community connectedness. Examples of connectedness measures where survey respondents mostly agreed included "the community is a good place to raise children," "I am satisfied with the quality of life in my community," "the community is a safe place to live," and "I am satisfied with the health care in my community." Similarly, the Douglas County Poll in 2021 also found agreement with measures such as "a good place to raise a family" (95% of poll respondents felt that the measure very or somewhat accurately described Douglas County), "a safe place to live and work (97%), "a good place to retire" (70%), and "is a friendly place" (88%).

In the CHA Community Survey, one measure did stand out. Respondents were least likely to agree with the measure, "the level of mutual trust and respect is increasing among community members", and we participate in collaborative activities to achieve shared community goals."

TABLE 15 CONNECTEDNESS AMONG HIGH SCHOOL YOUTH

Connectedness Among High School Youth	Douglas County	Colorado
Percentage of students who could ask their parents or guardians for help with a personal problem	83.7	82.3
Percentage of students who have parents or guardians who know if they are not home on time	88.4	88.5
Percentage of students who think their teacher notices when they do a good job and lets them know about it	41.9	49.4

[i] CDC. Adolescent and School Health. Last reviewed on October 8, 2020. Retrieved from <https://www.cdc.gov/healthyyouth/protective/youth-connectedness-important-protective-factor-for-health-well-being.htm>

[ii] Colorado Health Kids Survey, 2019.

CHA Community Survey: Community Connectedness

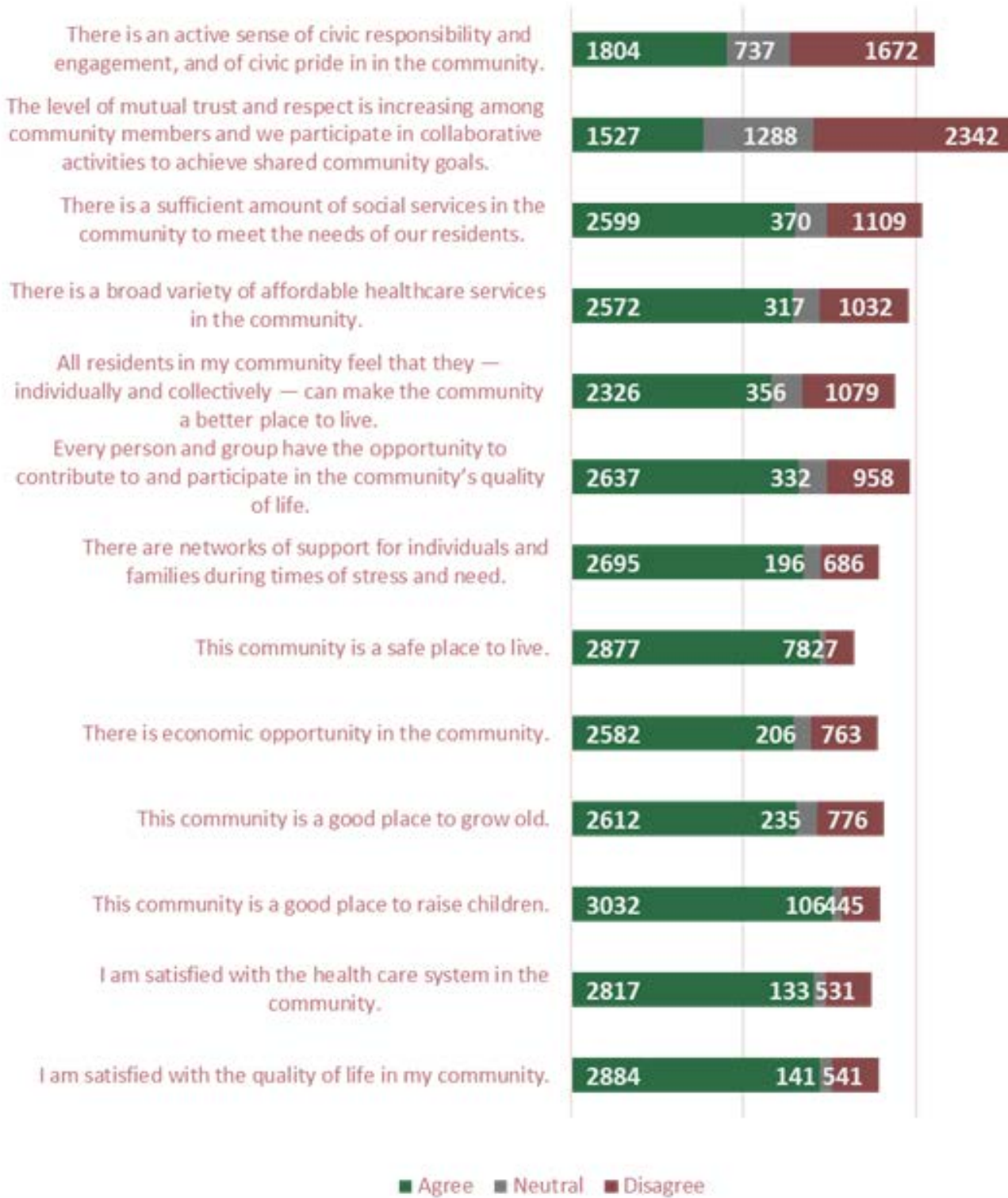


Figure 17 Community Survey: Community Connectedness

Violent Crime

Community connectedness considerably reduces murders, rapes, robberies, assaults, burglaries, and motor vehicle theft.[i] The pandemic year brought an uptick in violent crime across the nation, and similarly in Colorado.[ii] In Colorado, violent crime increased by 6.52 percent between 2019 and 2020, with a 29.0 percent increase in murder, a 17.0 percent increase in aggravated assault and 6.5 percent increase in robbery.

According to the Douglas County Sheriff's Office, there were 372 violent crime offenses in 2020, a 64 percent increase from 2015 when there were 227 violent crime offenses.[iii] All types of violent crime increased between 2015 and 2020 in both Douglas County and Colorado. In 2020, the leading type of violent crime in Douglas County was assault (61.8% or 230), which has increased 135 percent since 2015 (98). Additionally, assault took over the leading type of crime, surpassing non-consensual sex offenses, which increased at a slower rate at six percent, from 119 in 2015 to 126 in 2020. Robbery offenses nearly doubled from nine in 2015 to 13 in 2020. There were also more murder offenses in 2020 (3) as compared to 2015 (1). In Douglas County, the age adjusted rate for assault (homicide) deaths are lower at 1.7 per 100,000 residents in 2020 compared to Colorado at 5.8 per 100,000. Douglas County's rate has remained stable while Colorado's rate for assault deaths significantly increased.

TABLE 16 VIOLENT CRIME, DOUGLAS COUNTY & COLORADO, 2015 - 2020

Violent Crime Statistics	Douglas County			Colorado		
	2015	2020	% Change	2015	2020	% Change
Number of violent crime offenses	227	372	+64%	20,041	27,109	+35.3%
% of Crimes cleared	35%	55%	-	48%	47%	
Crimes by Type						
Assault	43.2% (98)	61.8% (230)	+135%	52.9%	61.9%	+58.3%
Non-consensual sex offenses	52.4% (119)	33.9% (126)	+6%	29.7%	22.3%	+1.8%
Robbery	4.0% (9)	3.5% (13)	+44%	16.6%	14.7%	+19.7%
Murder	0.4% (1)	0.8% (3)	+200%	0.9%	1.1%	+73.0%
Violent Crime - by Weapon Used						
Personal weapons (hands, fist, feet, arms, teeth, etc.)	48.0% (109)	45.2% (168)	+54%	43.8%	36.0%	+11.4%
Firearm	16.3% (37)	29.8% (111)	+200%	23.8%	28.9%	+64.5%
Dangerous weapon	20.7% (47)	13.5% (54)	+15%	23.0%	21.9%	+29.0%
Unknown	7.0% (16)	2.2% (7)	-56%	3.0%	3.6%	+60.2%
Fire/Explosives	0.4% (1)	1.6% (6)	+500%	0.1%	0.5%	+320.7%
All others ¹⁰³	4.8% (11)	8.9% (33)	+200%	8.5%	11.9%	+88.7%

¹⁰³All others include motor vehicle/vessel, asphyxiation, poison/drugs, or none.

[i] Bryan A. Stuart, Evan J. Taylor: The Effect of Social Connectedness on Crime: Evidence from the Great Migration. The Review of Economics and Statistics 2021; 103 (1): 18-33.

[ii] Summers, DJ. (2021, March 17) Aurora overtakes Colorado Springs as 2nd most violent city in Colorado. KDVR.

[iii] Colorado Bureau of Investigation. Colorado Crime Stats. Retrieved on 10/13/21 from <https://coloradocrimestats.state.co.us/>

SOCIAL AND ECONOMIC RESOURCES

Employment

According to the Federal Reserve Economic Data (FRED) employed persons include “ all persons who, during the reference week (the week including the 12th day of the month), (a) did any work as paid employees, worked in their own business or profession or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of their family, or (b) were not working but who had jobs from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs.”^[i]

FRED defines unemployed persons as “all people who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the four week-period ending with the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.”^[ii]

One noteworthy aspect of employment data is that each employed person is counted only once, even if they hold more than one job. A report published by the US Census Bureau in May 2019 about multiple job holders indicates that women were more likely than men to work part-time at all jobs (35.8 percent compared with 23.0 percent), which has an impact on access to health insurance and needs for childcare services.

The pandemic continues to impact employment in the County. Between January 2020 and April 2020, the unemployment rate increased from 2.4 percent to 10 percent. While the economy has begun to recover as of August 2021 the County’s unemployment rate is 4.2 percent, which is higher than pre-pandemic levels. However, looking at unemployment over time, Douglas County typically fares better than the state.^[iii] Figure 11 details the percent change in unemployed persons in Douglas County from 1991 to January 2021.



Figure 18 Douglas County Unemployment,
1991 - 2021

[i] U.S. Bureau of Labor Statistics, Unemployed Persons in Douglas County, retrieved from FRED, Federal Reserve Bank of St. Louis, December 3, 2021.

[ii] Risky driving, NHTSA. (n.d.). Retrieved December 3, 2021, from <https://www.nhtsa.gov/risky-driving>

[iii] County Health Rankings & Roadmaps. (n.d.). Retrieved December 1, 2021, from <https://www.countyhealthrankings.org/app/colorado/2021/measure/factors/23/data>

Household Income

Single adult residents of Douglas County need to make \$4,328 every month to maintain a modest standard of living, making it the most expensive place in Colorado to live, according to an analysis from 24/7 Wall St, as determined by the Economic Policy Institute's Family Budget Calculator.[i]

The median household income in Douglas County increased \$16,766 between 2015 and 2019, as it did in Colorado (\$11,702). In Douglas County there are racial and ethnic differences in median household income as shown in Figure 16. In 2019, among the known race and ethnicity groups, the lowest median household income in the County was among American Indian/Alaska natives at \$94,274, followed by Black or African Americans (\$101,302) and Hispanic or Latino (\$106,360).[ii]

Overall, poverty decreased in Douglas County among all age groups, from 3.4 percent in 2015 to 3.1 percent in 2019. Adults ages 18-64 in Douglas County experienced a decrease in poverty from 2015 to 2019, from 3.9 percent in 2015 to 3.2 percent in 2019. Child poverty dropped 33.3 percent (from 4.2% to 2.8%) in Douglas County, as did poverty among older adults over 65 years, which dropped 3.5 percent to 2.9 percent in 2019. While the percentages are low and poverty is decreasing, in Douglas County, Table 17 demonstrates that there are still 10,275 people experiencing poverty. Of note, while the percent of adults over age 65 experiencing poverty decreased, the number of older adults has increased.



[i] The Center Square. (2020, September 27). The \$4,328 monthly cost of living in Douglas County is the highest in Colorado. The Center Square. Retrieved September 8, 2022, from https://www.thecentersquare.com/colorado/the-4-328-monthly-cost-of-living-in-douglas-county-is-the-highest-in-colorado/article_5d05e158-fe01-nea-a34c-ff15a8106b7b.html.

[ii] American Community Survey, 2015-2019 5-year estimates (Table B1013).

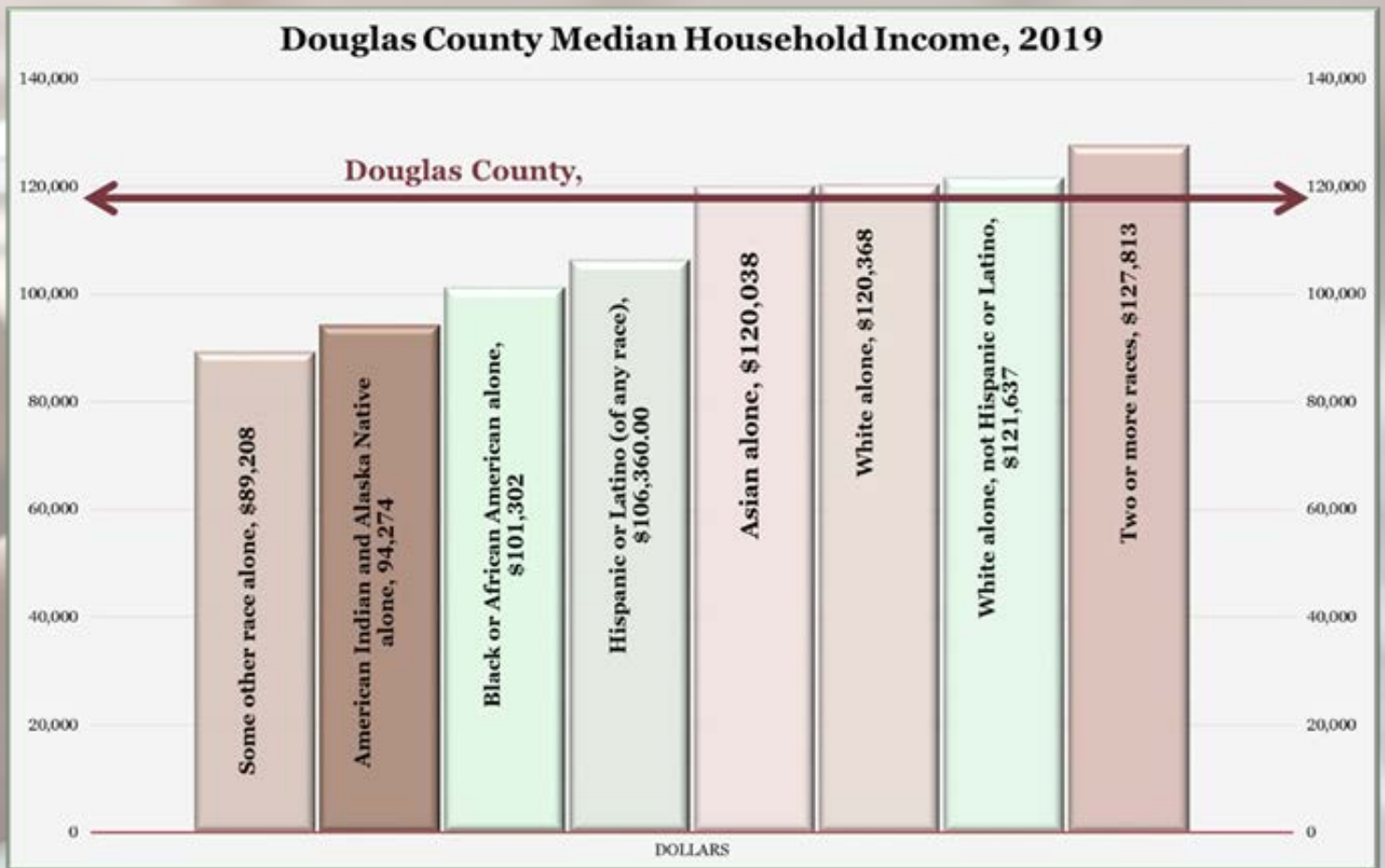


Figure 19 Douglas County Median Household Income by Race & Ethnicity, 2019

TABLE 17 POVERTY RATE IN DOUGLAS COUNTY & COLORADO

Percent In Poverty	Douglas County			Colorado		
	2015	2019	% Change	2015	2019	% Change
Overall	3.4%	3.1%	-8.8%	12.7%	10.3%	-18.9%
Children < 18	4.2% (3,666)	2.8% (2,510)	-33.30%	16.6% (203,466)	12.6% (156,239)	-24.10%
Adults age 18-64	3.9% (7,451)	3.2% (6,675)	-18.00%	12.2% (404,069)	10.1% (353,327)	-17.20%
Adults > 65	3.5% (993)	2.9% (1,090)	-17.10%	7.4% (46,434)	7.4% (56,307)	0.00

Economic Opportunity

One measure of interest to gauge economic opportunity is the Gini index. The Gini index measures perfect equality (every household has the same income and valued at “0”), and perfect inequality (one household has all the income and valued at “100”). Typical Gini values for the United States are about 0.47. For Douglas County, the Gini index is a 0.399 and for Colorado, it was 0.457 in 2019.^[i] Since 2009, the Gini index has increased in Douglas County, from 0.372 to 0.399, representing a faster rate of increase than Colorado (0.452 in 2009 to 0.457 in 2019). This increase of the Gini index may be interpreted as greater income diversity within Douglas County, and therefore less equality in income.

The Hardship Index (Figure 21) is another measure of interest and represents a composite score reflecting hardship in the community (higher values indicate greater hardship). It incorporates unemployment, age dependency, education, per capita income, crowded housing, and poverty into a single score that allows comparison between geographies. It is highly correlated with other measures of economic hardship, such as labor force statistics, and with poor health outcomes.^[ii] The Hardship Index suggests less economic hardship in Douglas County compared to Colorado. In 2015-2019, the hardship index was 8.5 compared to Colorado at 35.7 (a slight decrease from 2011-2015 at 9.1 for Douglas County and 37.0 for Colorado). However, as the map indicates, there is geographic differences in Douglas County which includes areas that have hardship scores as high as 51.6.

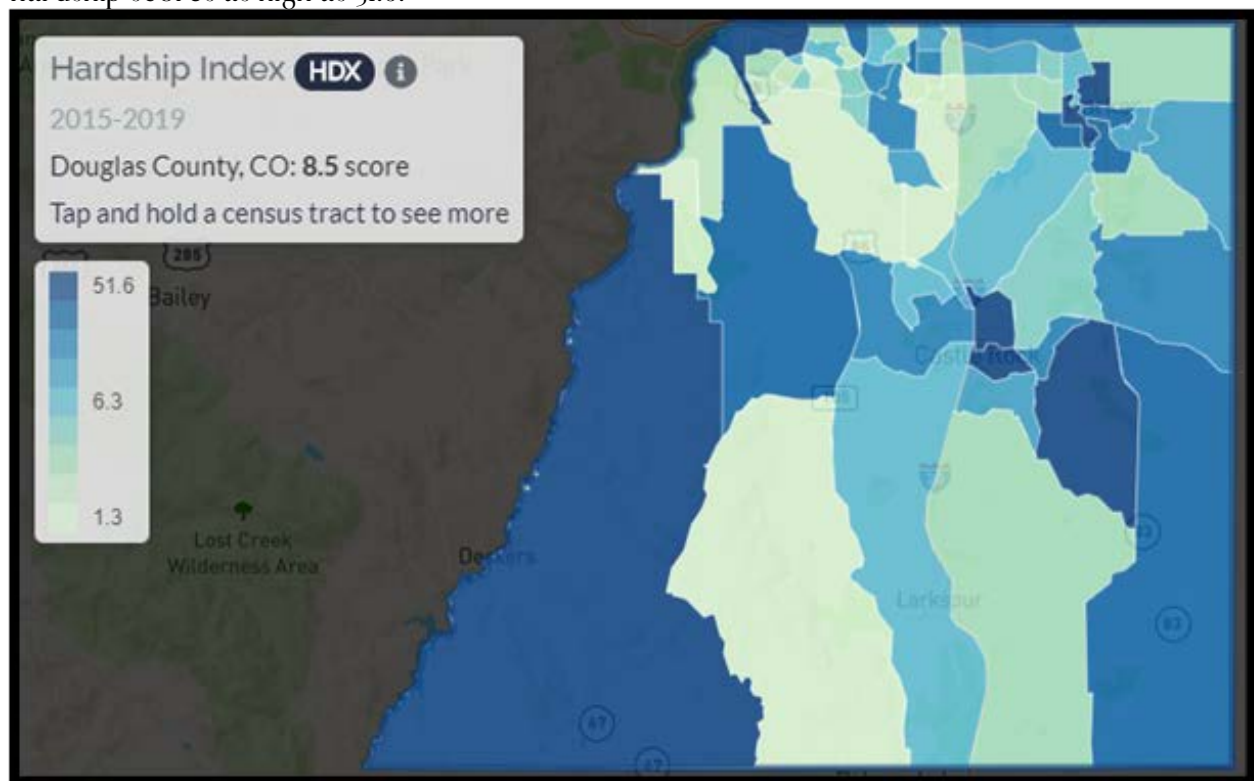


Figure 20 Hardship Index 2015-2019

[i] American Community Survey, 2015-2019 5-year estimates (Table B19083).

[ii] American Community Survey. Index calculated by Metopio and developed by Nathan, R. P., & Adams, C. (1976). Understanding Central City Hardship. *Political Science Quarterly*, 91(1), 47-62.

Long-term, a child's academic success is heavily dependent upon their readiness for kindergarten. Children who enter school with early skills, such as basic knowledge of math and reading concepts as well as communication, language, social competence and emotional maturity, are more likely than their peers without such skills to experience later academic success, attain higher levels of education and secure employment.[i] Factors that influence kindergarten readiness include family and community supports and environments, as well as children's early development opportunities and experiences including enrollment in preschool. In Douglas County, 60.4 percent of toddlers three and four years of age were enrolled in preschool, which is a similar rate to 2009 (59.7%).[ii] Overall, this rate is higher than in Colorado where one in two (50.1%) toddlers were enrolled in preschool, which increased slightly from 45.1 percent in 2009.

Compared to high school graduates, dropouts earn lower wages, resulting in lower tax contributions and more utilization of welfare programs. They are also at higher risk for criminal involvement and health problems.[iii] While overall, Douglas County had high school dropout rates lower than Colorado 1.8 percent or 8,561 students, there are groups of students who do not experience the same chance for success. Of note are students who experience homelessness, youth in foster care, youth who are poor, and/or students of color which all experience higher rates of drop out proportionately to their population cohort in Douglas County overall. In 2019/20, there were 187 dropouts, including 115 students of color.[iv]

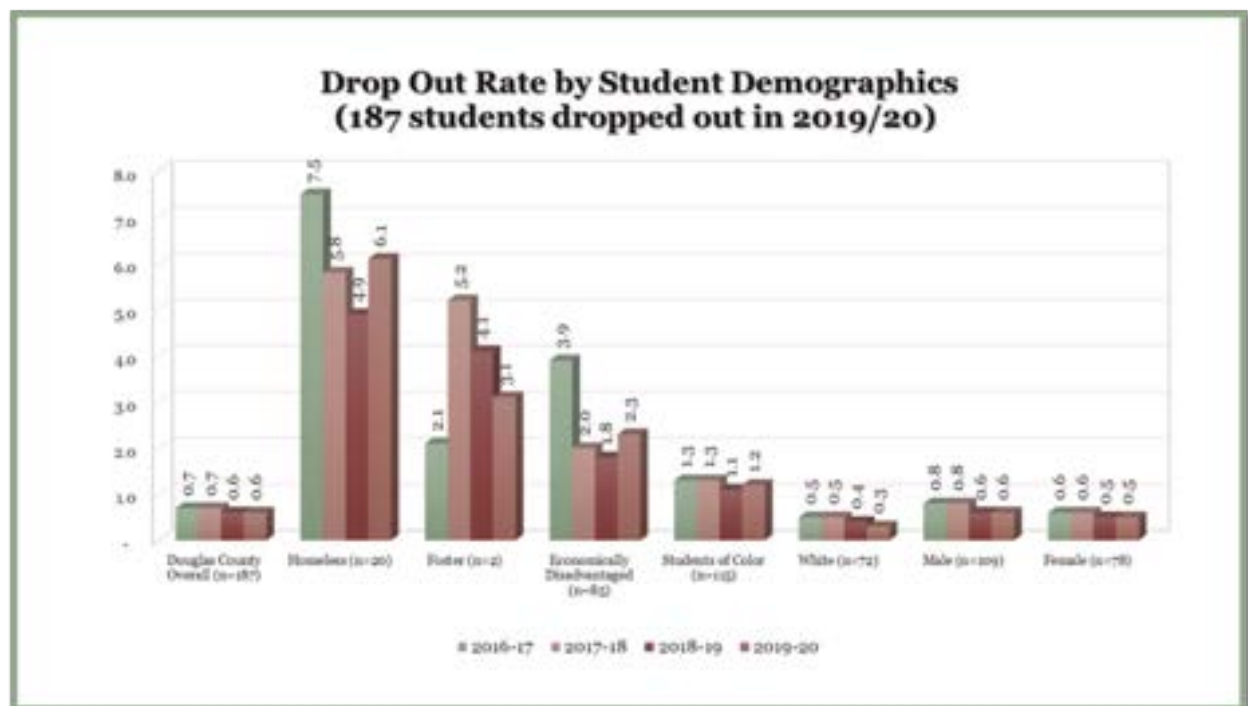


Figure 21 Drop Out Rate by Demographic Categories

Note: Dropout rate is the number of dropouts during a school year divided by total number of students that were part of the same membership base at any time during that school year. Program types are not mutually exclusive.

[i] Duncan, G. J., Dowsett, C. J., and Claessens, A. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428-1446.

[ii] American Community Survey, 2015-2019 5-year estimates (Table B14003).

[iii] Belfield, C. R., & Levin, H. M. (2007). The economic losses from high school dropouts in California (Vol. 1). California Dropout Research Project.

[iv] Dropout statistics. CDE. (2022, January 11). Retrieved September 8, 2022, from <https://www.cde.state.co.us/cdereval/dropoutcurrent>



**HEALTH BEHAVIORS
DOUGLAS COUNTY**

Health Behaviors

Health behaviors are the behaviors people engage in that affect their health. They include actions that improve health, such as eating well and being physically active. They also include actions that increase the risk of negative health outcomes like disease, such as smoking, excessive alcohol intake, and risky sexual behavior. Many of the leading causes of death and disease are attributed to unhealthy behaviors. For example, poor nutrition and a lack of physical activity are associated with higher risk of cardiovascular disease, type 2 diabetes, and obesity.[i] Tobacco use is associated with heart disease, cancer, and poor pregnancy outcomes if the mother smokes during pregnancy.[ii] Excessive alcohol use is associated with injuries, certain types of cancers, and cirrhosis.[iii]

Sexual Behaviors

The World Health Organization defines sexual health as a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination, and violence.[iv]

People engage in sexual risk behaviors and experiences that can result in unintended health outcomes. The HKCS data includes nine indicators regarding the sexual activity of high school youth. Overall, high school youth who responded to the survey were significantly less likely to self-report they have ever had sexual intercourse. In Douglas County, 28.1 percent of high school students reported ever having had sexual intercourse, lower than 34.6 percent of high school students in Colorado. However, in both Douglas County and Colorado, this rate was increasing. Between 2013 and 2019, the percent of high school students who had ever had sexual intercourse increased 18.1 percent from 23.8 percent in Douglas County. In Colorado, there was only a 4.5 percent increase (from 33.1% to 34.6%).

In 2019, among Douglas County students who responded that they had sexual intercourse during the previous three months, 82.0 percent reported they used any form of birth control to prevent pregnancy the last time they had sexual intercourse. This is higher than Colorado at 79.2 percent. The use of condoms slightly increased 2.1 percent (from 66.5% to 67.7%) in 2019 in Douglas County while the use of other birth control decreased 14.9 percent (from 34.8% in 2013 to 29.6% in 2019). Lastly, among students who had sexual intercourse during the previous three months, the percentage of students who drank alcohol or used drugs before the last time they had sexual intercourse decreased 11.2 percent (from 27.6% in 2013 to 24.5% in 2019).

[i] Mokdad, A. H., Ford, E. S., Bowman, B. A., Dietz, W. H., Vinicor, F., Bales, V. S., & Marks, J. S. (2003). Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001. *Jama*, 289(1), 76-79.

[ii] Centers for Disease Control and Prevention (CDC). Smoking & tobacco use. Last reviewed October 6, 2021. Accessed October 20, 2021.

[iii] National Center for Chronic Disease Prevention and Health Promotion. (2022, June 6). Excessive alcohol use. Centers for Disease Control and Prevention. Retrieved September 8, 2022, from <https://www.cdc.gov/chronicdisease/resources/publications/factsheets/alcohol.htm>

[iv] World Health Organization working definition, 2002.

TABLE 18 ADOLESCENT SEXUAL BEHAVIORS, DOUGLAS COUNTY & COLORADO

Behaviors	Douglas County			Colorado		
	2013	2019	% Change	2013	2019	% Change
Percentage of students who have ever had sexual intercourse	23.8	28.1*	+18.1%	33.1	34.6	+4.5%
Percentage of students who had sexual intercourse for the first time before age 13	2.7	2.2	-18.5%	3.4	3	-11.8%
Percentage of students who have had sexual intercourse with four or more people during their life	5.8	8.1	+39.7%	9.1	8.5	-6.6%
Percentage of students who have had sexual intercourse with one or more people during the previous three months	16.9	21.9*	+29.6%	23.3	24.6	+5.6%
Percentage of students who drank alcohol or used drugs before the last time they had sexual intercourse, among students who had sexual intercourse during the previous three months	27.6	24.5	-11.2%	22.5	21.5	-4.4%
Percentage of students who used a condom during the last time they had sexual intercourse, among students who had sexual intercourse during the previous three months	66.3	67.7*	+2.1%	63.7	59.4	-6.8%
Percentage of students who used any form of birth control to prevent pregnancy the last time they had sexual intercourse, among students who had sexual intercourse during the previous three months	n/a	82.0	n/a	n/a	79.2	n/a
Percentage of students who used birth control pills to prevent pregnancy the last time they had sexual intercourse, among students who had sexual intercourse during the previous three months	34.8	29.6*	-14.9%	21.9	22.4	+2.3%

Unsafe Driving Behaviors

Unsafe driving behaviors are directly responsible for most motor vehicle injuries and fatalities. Unsafe driving behaviors include driving while drunk or under the influence of drugs, drowsy driving, distracted driving, speeding, aggressive driving and not wearing a seatbelt or properly restraining children in the vehicle. According to the National Highway Traffic Safety Administration (NHTSA), every day about 28 people die in the United States because of a drunk driving crash and 56 percent of drivers involved in serious injury and fatal crashes tested positive for at least one drug. In 2019 in the United States 3,142 people were killed by a distracted driver and another 697 were killed by a drowsy driver. In 2019, speeding killed 9,978 people and for decades speeding has been involved in about one-third of motor vehicle fatalities.^[i]

In Douglas County, there were 4,321 crashes in 2020, which was a 21.3 percent decrease since 2016.^[ii] Of these crashes, 74.1 percent only resulted in property damage. The remaining 26 percent resulted in either a possible, minor, serious, or fatal injury. Careless driving was a contributing driver action for 2,737 crashes in 2020, followed by following too closely (890), and failed to yield (444). Lane violation a contributing driver action for 420 crashes. While the number of vehicle crashes is decreasing in Douglas County, the proportion of those crashes resulted in an injury is increasing slightly from 21.6 percent of crashes in 2016 to 25.9 percent of crashes in 2020.

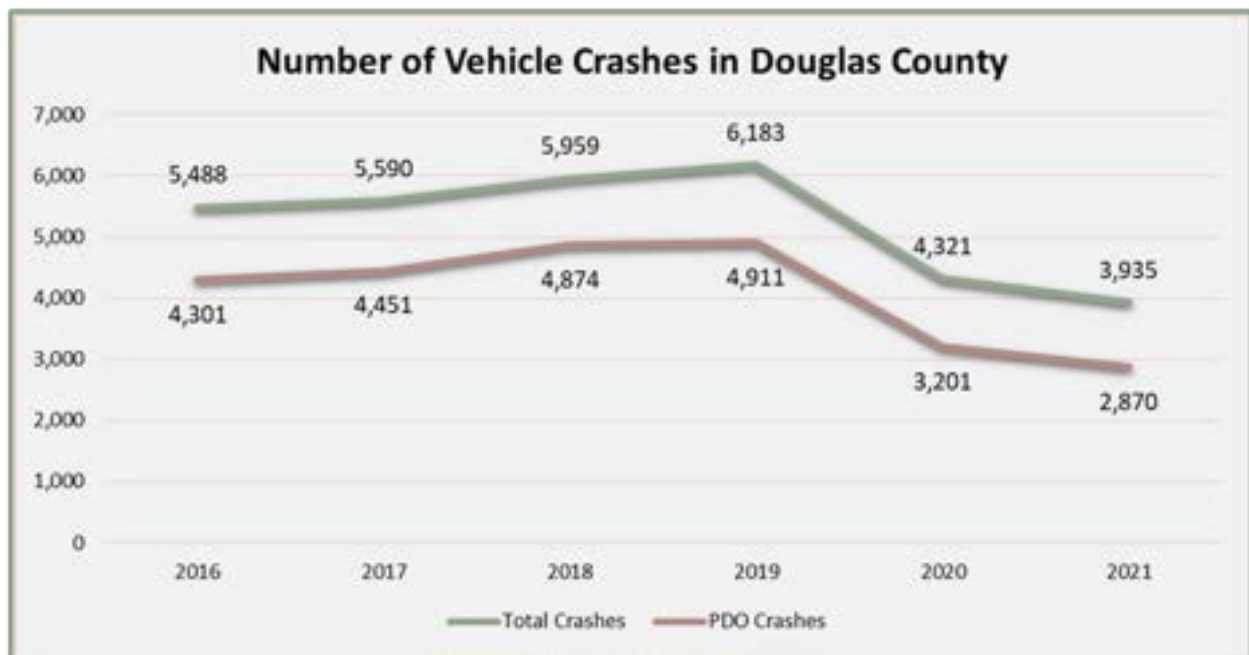


Figure 22 Vehicle Crashes in Douglas County

Note: Only includes the annual count of crashes in 2021 as of 11/16/2021. Therefore, trend analysis used 2020 data.

[i] Risky driving. NHTSA. (n.d.). Retrieved September 8, 2022, from <https://www.nhtsa.gov/risky-driving>

[ii] Crash data. Colorado Department of Transportation. (2022, June 24). Retrieved September 8, 2022, from <https://www.codot.gov/safety/traffic-safety/data-analysis/crash-data>

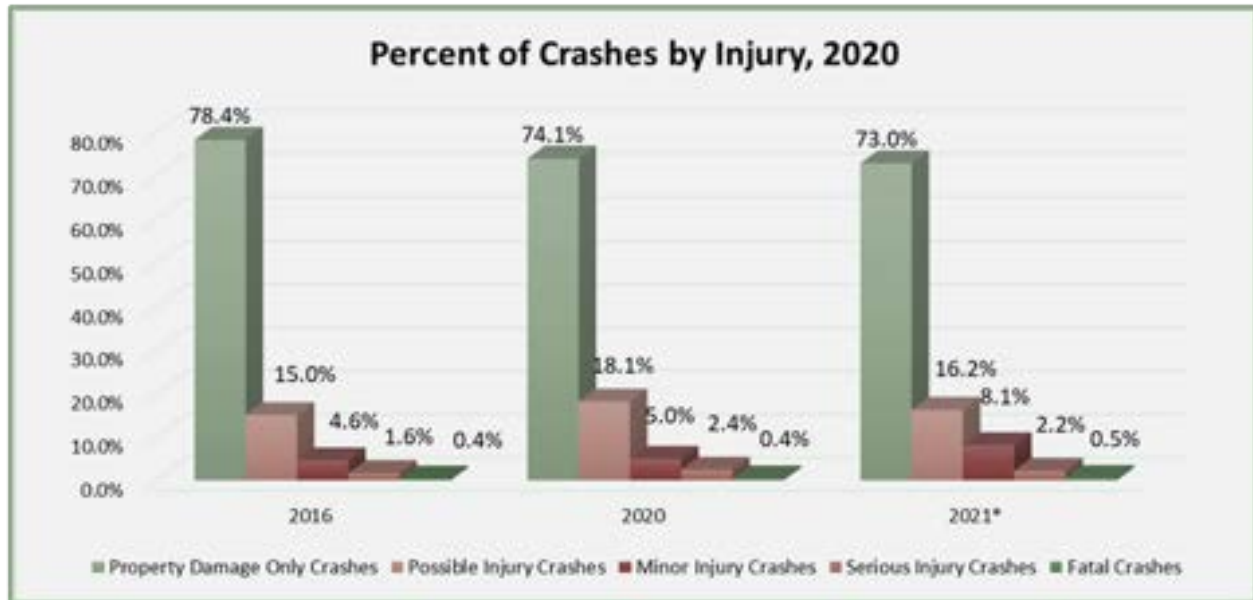


Figure 23 Crashed by Injury

Distracted and Impaired Driving

Distracted driving is one of the biggest threats to safety on Colorado's roads, causing over 15,000 crashes each year in the state or 42 crashes per day.^[i] According to data from CDOT, crashes involving distracted drivers have been on the rise, increasing from 13,332 in 2012 to 15,143 in 2019. Of those crashes in 2019, 4,361 people were injured and 39 people lost their lives. Despite the rising occurrence of crashes, a 2020 survey of Colorado drivers shows that 92 percent admitted to driving distracted weekly, an increase from the 90 percent who reported driving distracted in 2019.

In Douglas County, among the 6,186 crashes in 2019, 1,203 (19.5%) were due to a distracted driver.^[ii] Compared to Colorado, this proportion of crashes due to distracted driving in Douglas County was slightly higher. In Colorado, 12.4 percent of 2019 crashes involved a distracted driver. In Douglas County, the proportion of crashes due to distracted driving increased 23.0 percent between 2016 and 2019, while it remained the same for Colorado. According to the 2019 HKCS, among students who drove a car or other vehicle during the past 30 days, the percentage who texted or e-mailed while driving on one or more of the days was 37.8 percent in Douglas County, which is like Colorado at 37.2 percent.^[iii]

Relative to distracted driving, impaired driving is a smaller contributing factor in crashes in Douglas County and Colorado. Among 2019 crashes, 3.2 percent (199) involved impaired driving compared to 5.0 percent (6,031) in Colorado. Impaired driving includes Driving Under the Influence (DUI), Driving While Ability Impaired (DWAI), driving under the influence of drugs (DUID).

[i] 42 crashes per day involve distracted drivers in Colorado. (2021, March 30). News. Retrieved from <https://www.codot.gov/news/2021/march-2021/42-crashes-distracted-driving>.

[ii] Crash data. Colorado Department of Transportation. (2022, June 24). Retrieved September 8, 2022, from <https://www.codot.gov/safety/traffic-safety/data-analysis/crash-data>

[iii] Colorado Health Kids Survey, 2019.

TABLE 19 DISTRACTED & IMPAIRED DRIVING, DOUGLAS COUNTY & COLORADO, 2016 - 2019

	Douglas County			Colorado		
	2016	2019	% Change	2016	2019	% Change
Distracted Driving	15.8%	19.5%	23.0%	12.7%	12.4%	-1.8%
Impairment	3.3%	3.2%	-2.4%	4.7%	5.0%	6.5%

*Percent change is calculated for 2016 and 2019 because 2020 may be an anomaly given the pandemic and 2021 is incomplete data.

The percent of driving deaths that occur within Douglas County with alcohol involvement is 35 percent, or just over one in three driving related deaths.^[1] Since 2015, there has been no significant trend found in Douglas County regarding alcohol-impaired driving deaths. However, while total fatalities per 100,000 among all crashes has dropped since 2016, the fatalities due to alcohol-impacted driving remained stable.

Among high school students in Douglas County, respondents to the HKCS reported they were significantly less likely to ride in a vehicle driven by someone who had been using marijuana (14.1%) or following their own use of marijuana (8.9%). There was little difference in the prevalence of impaired driving due to their own use of alcohol (7.1%) or riding in a vehicle with someone who had been drinking alcohol (15.6%); however, the latter was higher than the rate in Colorado at just 5.9 percent.

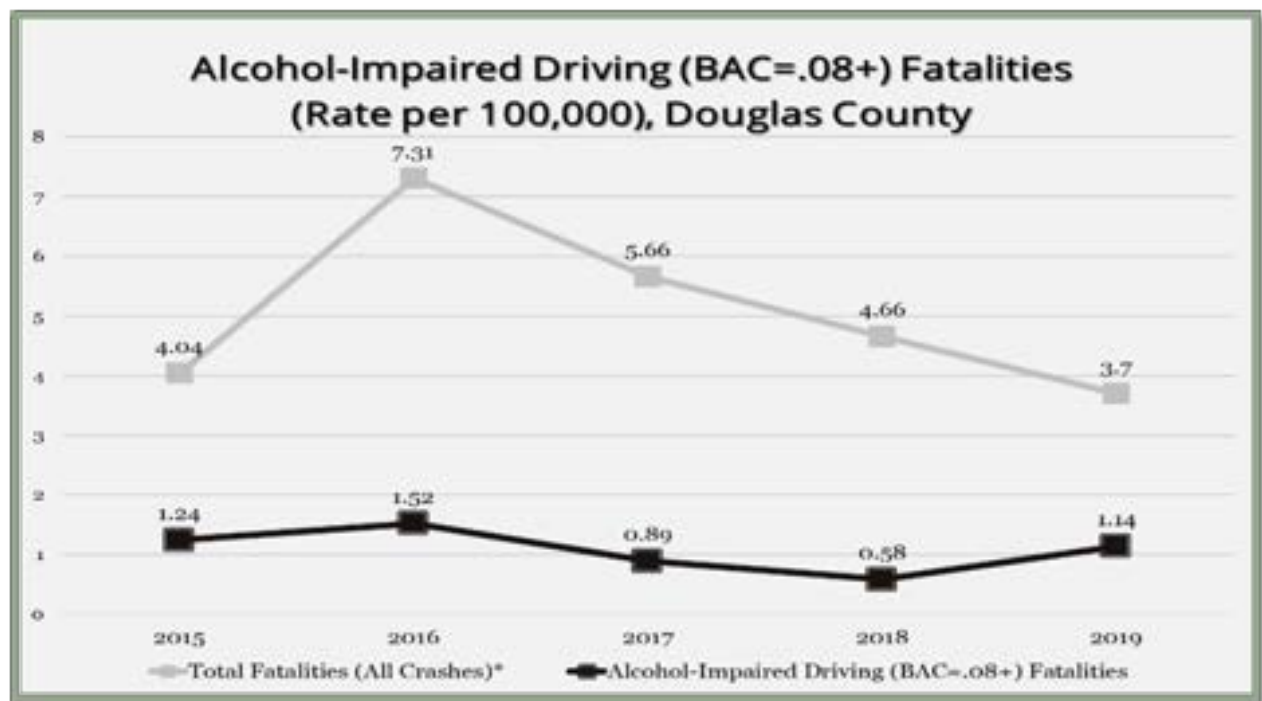


Figure 24 Alcohol-Impaired Driving

[1] Alcohol-Impaired Driving Deaths are reported for the county of occurrence. This is because it is more likely that the drinking behavior that led to the driving crash happened where the accident occurred rather than in the county where the people involved in the crash reside.

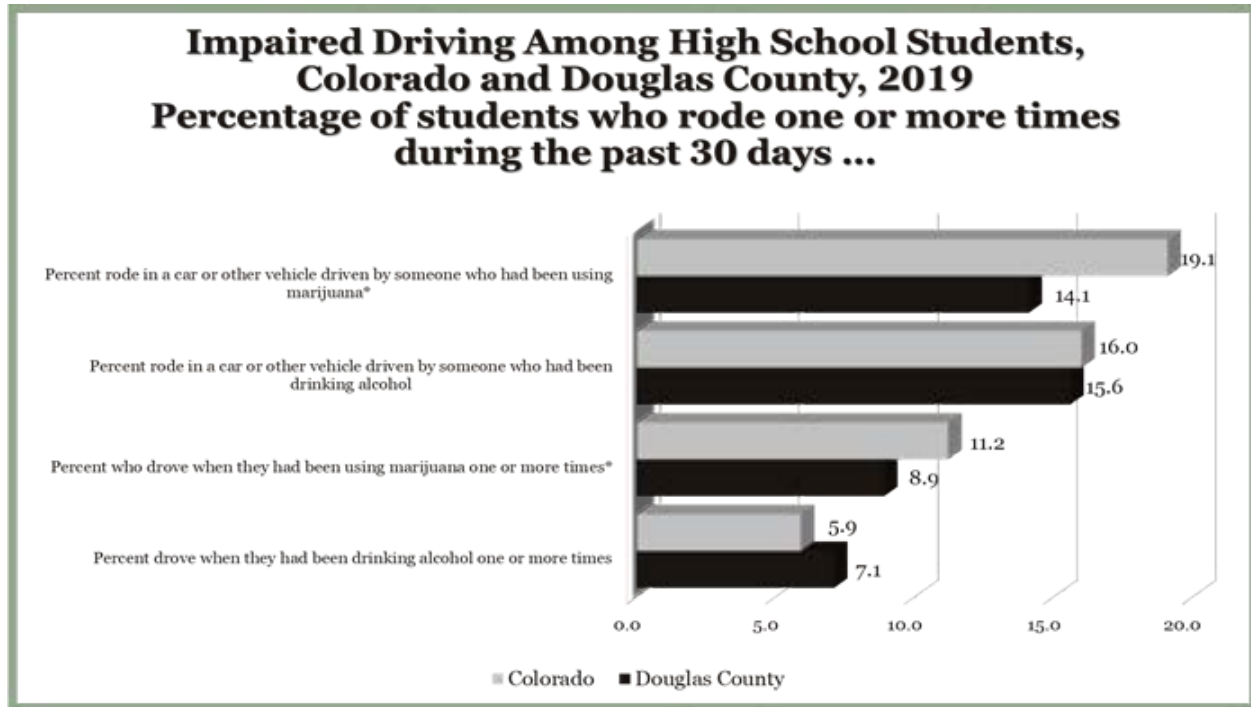


Figure 26 Impaired Driving, High School Students, Douglas County & Colorado, 2019

*Indicates a significant difference in trend or comparison between Colorado and Douglas County.

Alcohol and Other Drug Use

Douglas County high school students have similar rates of alcohol use compared to Colorado. In 2019, 29.2 percent of students in Douglas County and 29.6 percent of students in Colorado had at least one drink of alcohol on one or more of the past 30 days. While not a significant change, the rate increased between 2013 and 2019, increasing 9.8 percent (from 26.6% to 29.2%). Students who reported binge drinking is similar when comparing Douglas County to Colorado; however, Colorado experienced a significant decrease of 14.5 percent between 2013 (16.6%) and 2019 (14.2%) in 2019. The rate has been stable in Douglas County. Lastly, the percentage of students who think their parents would feel it is wrong/very wrong if they drank alcohol regularly (once or twice per month) is significantly lower in Douglas County than in Colorado, at 79.0 percent in 2019 compared to 82.1 percent in Colorado.[i]

Douglas County high school students have significantly lower rates of tobacco use, including electronic vapor products compared to Colorado. In 2019, 4.3 percent of students in Douglas County and 5.7 percent of students in Colorado smoked cigarettes on one or more of the past 30 days. Both Douglas County and the state had a significantly decreasing trend between 2017 and 2019, decreasing 28.3 percent from 20.8 percent, respectively. Use of electronic vapor products is also significantly decreasing in both Douglas County and Colorado.[ii]

TABLE 20 ALCOHOL USE, DOUGLAS COUNTY & COLORADO, 2013 - 2019

Alcohol Use	Douglas County			Colorado		
	2013	2019	% Change	2013	2019	% Change
Percentage of students who had at least one drink of alcohol on one or more of the past 30 days	26.6	29.2	+9.8%	31.0	29.6	-4.5%
Percentage of students who had five or more drinks of alcohol in a row, that is, within a couple of hours, on one or more of the past 30 days (<i>binge drinking</i>)	13.8	13.5	-2.2%	16.6	14.2	-14.5%*
Among students who reported current alcohol use, the percentage who usually got the alcohol they drank from someone who gave it to them during the past 30 days	42.9	40.4	-5.8%	40.1	39.7	-1.0%
Percentage of students who think their parents would feel it is wrong/very wrong if they drank alcohol regularly (once or twice per month)	80.9	79.0*	-2.3%	83.7	82.1	-1.9%

*Indicates a significant difference in trend or comparison between Colorado and Douglas County.

[i] Colorado Healthy Kids Survey, 2019.

[ii] Ibid.

TABLE 21 TOBACCO USE, DOUGLAS COUNTY & COLORADO 2017 - 2019

Tobacco Use	Douglas County			Colorado		
	2017	2019	% Change	2017	2019	% Change
Percentage of students who smoked cigarettes on one or more of the past 30 days	6.0	4.3*	-28.3%*	7.2	5.7	-20.8%*
Percentage of students who used an electronic vapor product in the past 30 days	30.0	20.8*	-30.7%*	27.0	25.9	-4.1%

*Indicates a significant difference in trend or comparison between Colorado and Douglas County.

Regarding other drugs, Douglas County high school students used prescription drugs without a doctor's prescription, any form of cocaine, ecstasy, heroin, and methamphetamines at similar rates to Colorado high school students. Unauthorized prescription drug use remained stable in Douglas County between 2013 and 2019, while it had significantly increased 4.4 percent in Colorado. Heroin and methamphetamine use had significantly decreased in Colorado while it remained stable in Douglas County. Lastly, the percent of high school students using ecstasy has significantly decreased between 2013 and 2019 for both Douglas County and Colorado, dropping 44.9 percent (to 3.8%) and 38.8 percent (to 4.1%) respectively.[i]

TABLE 22 OTHER DRUG USE, DOUGLAS COUNTY & COLORADO 2013 - 2019

Other Drug Use	Douglas County			Colorado		
	2013	2019	% Change	2013	2019	% Change
Percentage of students who have taken a prescription drug (such as OxyContin, Percocet, Vicodin, codeine, Adderall, Ritalin, or Xanax) without a doctor's prescription one or more times during their life	12.8	14.8	15.6%	13.6	15.2	4.4%*
Percentage of students who used any form of cocaine, including powder, crack, or freebase, one or more times during their life	5.5	4.9	-10.9%	5.8	5.2	-10.3%
Percentage of students who used ecstasy one or more times during their life	6.9	3.8	-44.9%*	6.7	4.1	-38.8%*
Percentage of students who used heroin one or more times during their life	2.9	2.5	-13.8%	2.7	2.0	-25.9%*
Percentage of students who used methamphetamines one or more times during their life	3.7	3.0	-18.9%	3.2	2.3	-28.1%*

*Indicates a significant difference in trend.

[i] Colorado Healthy Kids Survey, 2019.

Among adults, BRFSS data allows for an assessment of alcohol use, including binge drinking and heavy drinking. There are similar rates among adults (18 years and older) who report binge drinking in Colorado (18.5%) and Douglas County (15.8%) in 2018-2020.^[i] In both Colorado and Douglas County, the rates have remained stable.

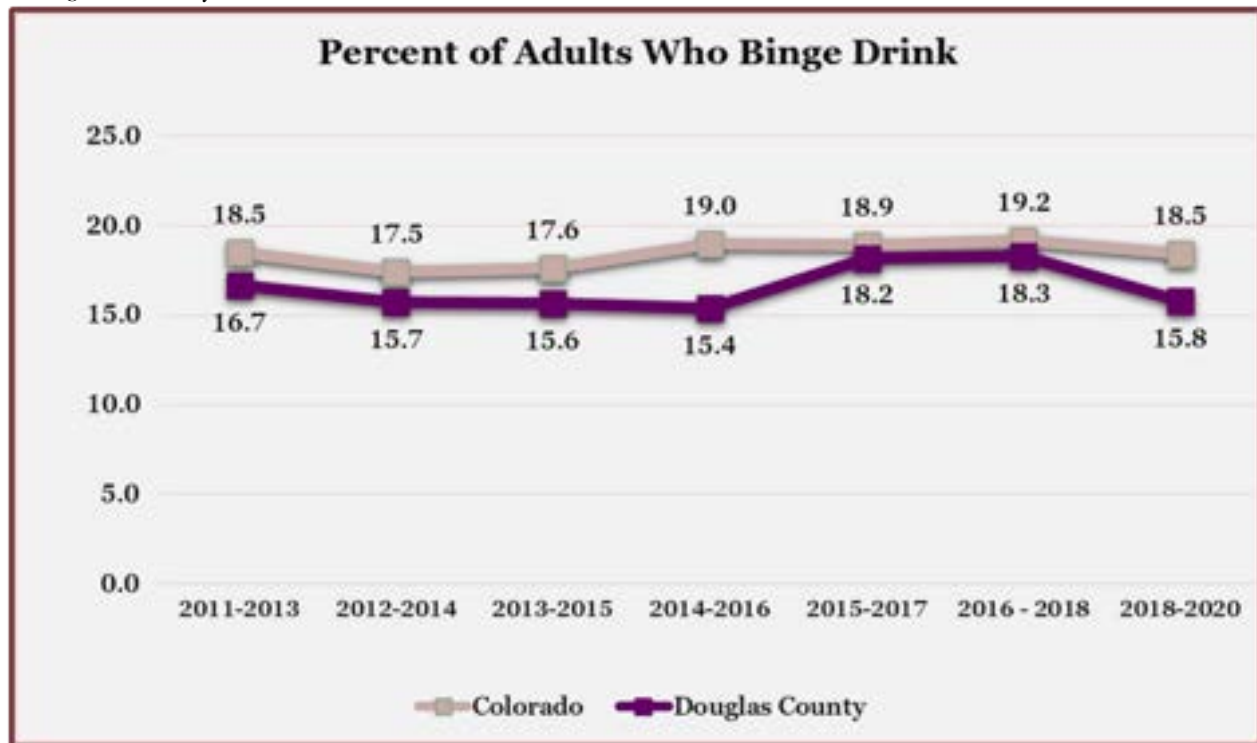


Figure 26 Adult Binge Drinking

Another measure regarding substance use in Douglas County is an assessment of ED visits per year for overdose, which sheds light on other drug use in Douglas County. In addition to illicit drugs, the rate of ED visits for overdose includes adverse effects of and underdosing of drugs, substances used in therapy and biological substances, which includes infectious substances that cause permanent disability or a life-threatening or fatal disease in humans. In 2020, Douglas County had lower rates of ED visits per 100,000 residents for overdose compared to Colorado. Douglas County experienced a rate of 147.4 per 100,000 for drug overdose involving all drugs and 48.1 per 100,000 for drugs with potential for abuse, lower than 194.7 per 100,000 and 83.5 per 100,000, respectively, in Colorado.^[ii] ED utilization for drug overdose is increasing since 2016 in both Douglas County and Colorado.

[i] Colorado Behavioral Health Risk Surveillance System, 2018-2020.

[ii] Opioid Overdose Prevention Program, Colorado Department of Public Health and Environment. Drug Overdose Dashboard. Accessed 10/2021.

TABLE 23 EMERGENCY DEPARTMENT VISITS PER 100,000 RESIDENTS

Age adjusted rates	Douglas County			Colorado		
	2016	2020	% Change	2016	2020	% Change
Overdose involving all drugs	118.5	147.4	+24.4	166.3	194.7	+17.1%
Drugs with potential for abuse	40.6	48.1	+18.5%	63.5	83.5	+31.5%

In Douglas County, youth ages 15 to 34 years and children one to four years have higher rates of ED visits for overdose compared to the county rate overall. When assessing for ED visits for overdose including drugs with potential for abuse, the age group 15-34 have higher rates than the County overall.[i]

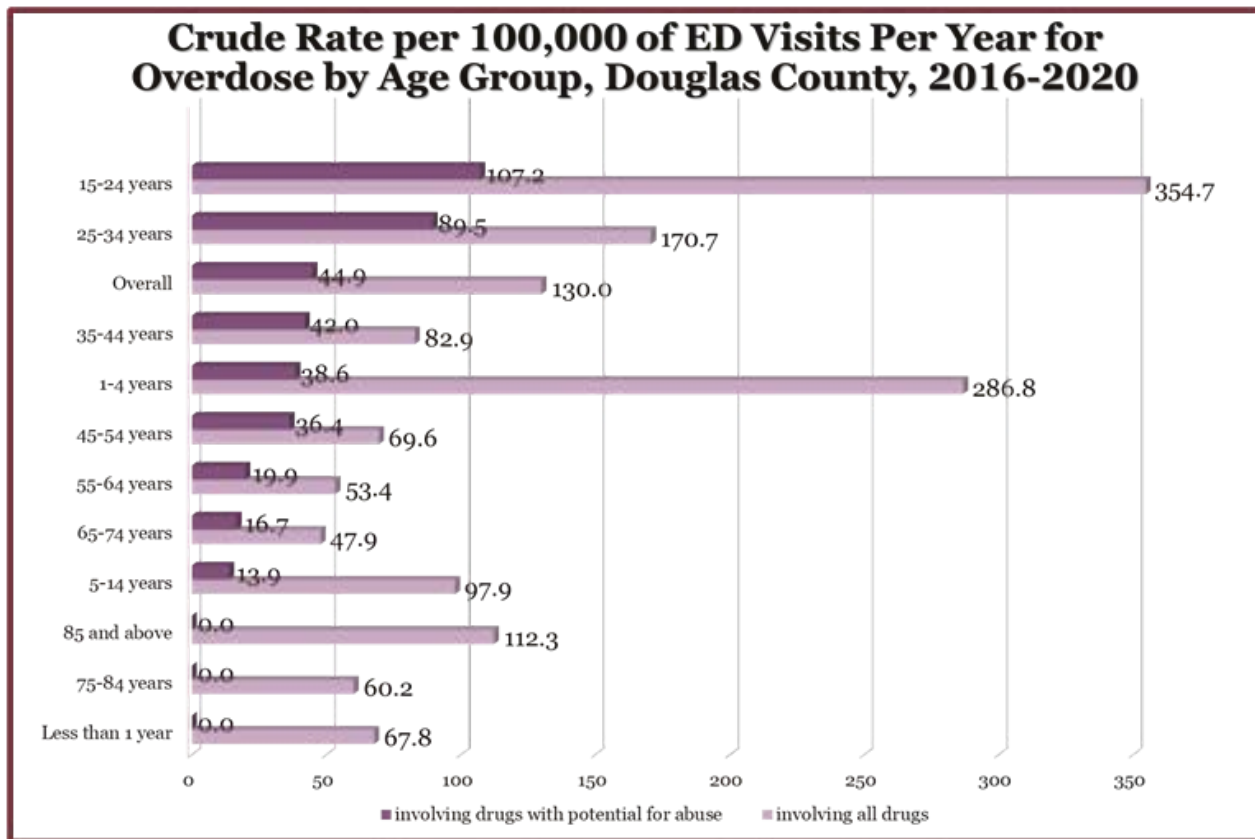


Figure 27 Overdose ED Visits by Age Group, Douglas County

Note: The crude rate of ED visits for overdose by age group in Douglas County is the sum of the number of ED visits for the category divided by the sum of the resident population by age group in Douglas County. Crude Rates are not comparable to other geographies.

[i] Opioid Overdose Prevention Program. Colorado Department of Public Health and Environment. Drug Overdose Dashboard. Accessed 10/2021.

Suicidality

Suicidality covers suicidal ideation (serious thoughts about taking one's own life), suicide plans and suicide attempts. In Douglas County, suicidality among high school students has remained stable 2013 and 2019 and significantly lower than Colorado. The percent of students who seriously considered attempting suicide during the past 12 months was at 15.7 percent in 2019 in Douglas County, lower than 17.5 percent for students in Colorado. Approximately one in 10 students (11.2%) in Douglas County had planned how they would attempt suicide during the past 12 months in 2019 (compared to 13.4% in Colorado) and one in twenty (5.3%) students reported having actually attempted suicide one or more times during the past 12 months, compared to 7.6 percent in Colorado.^[i]

TABLE 24 DOUGLAS COUNTY HIGH SCHOOL STUDENTS & SUICIDALITY

Suicidality	Douglas County			Colorado		
	2013	2019	% Change	2013	2019	% Change
Percentage of students who seriously considered attempting suicide during the past 12 months	14.1%	15.7%*	+11.3%	14.5%	+17.5%	20.7%**
Percentage of students who planned about how they would attempt suicide during the past 12 months	10.6%	11.2%*	+5.7%	12.0%	+13.4%	11.7%**
Percentage of students who actually attempted suicide one or more times during the past 12 months	5.3%	5.3%*	0.0%	6.6%	+7.6%	15.2%**

*Indicates a significant difference in comparison between Colorado and Douglas County. **Significant change.

The ED and hospitalization data can also help to tell the story of suicidality among residents. The average annual age adjusted rate of ED visits mentioning intentional self-harm injuries per 100,000 residents was 141.8 per 100,000 in Colorado, higher than in Douglas County at 116.3.^[ii] Both rates have remained stable between 2016 and 2020.

TABLE 25 ED VISITS INVOLVING SELF-HARM INJURIES, DOUGLAS COUNTY & COLORADO, 2016 - 2020

Age-adjusted rates at acute care hospitals in Colorado	Douglas County	Colorado
Overall 2016-2020	116.3*	141.8
Female	159.9*	186.7
Male	73.6*	99.7

*Indicates a significant difference in comparison between Colorado and Douglas County.

Age-adjusted rates of hospitalizations mentioning intentional self-harm injuries at acute care hospitals (by county of residence) shows that overall, rates were significantly lower in Douglas County at 44.6 compared to Colorado at 62.1 per 100,000. However, there was significant increase in Douglas County (as in Colorado) between 2016 and 2020 from 35.2 per 100,000 to 44.6 per 100,000.^[iii]

[i] Colorado Healthy Kids Survey, 2019

[ii] Injury Epidemiology Program, CDPHE. Injuries in Colorado Dashboard. Combined 2016-2020 Estimates.

[iii] Ibid.

Bullying

Bullying is unwanted, aggressive behavior among school aged children that involves a real or perceived power imbalance. The behavior is repeated, or has the potential to be repeated, over time. Both kids who are bullied and who bully others may have serious, lasting problems. Douglas County and Colorado had similar rates of bullying in 2019. There is no difference in the prevalence of being bullied on school property or electronically in 2019 in Douglas County. However, in Colorado, students were more likely to report being bullied on school property. Since 2013, rates of both types of bullying have decreased in Colorado. In Douglas County, only rates for bullying on school property have significantly decreased while the prevalence of electronic bullying remained stable.[1]

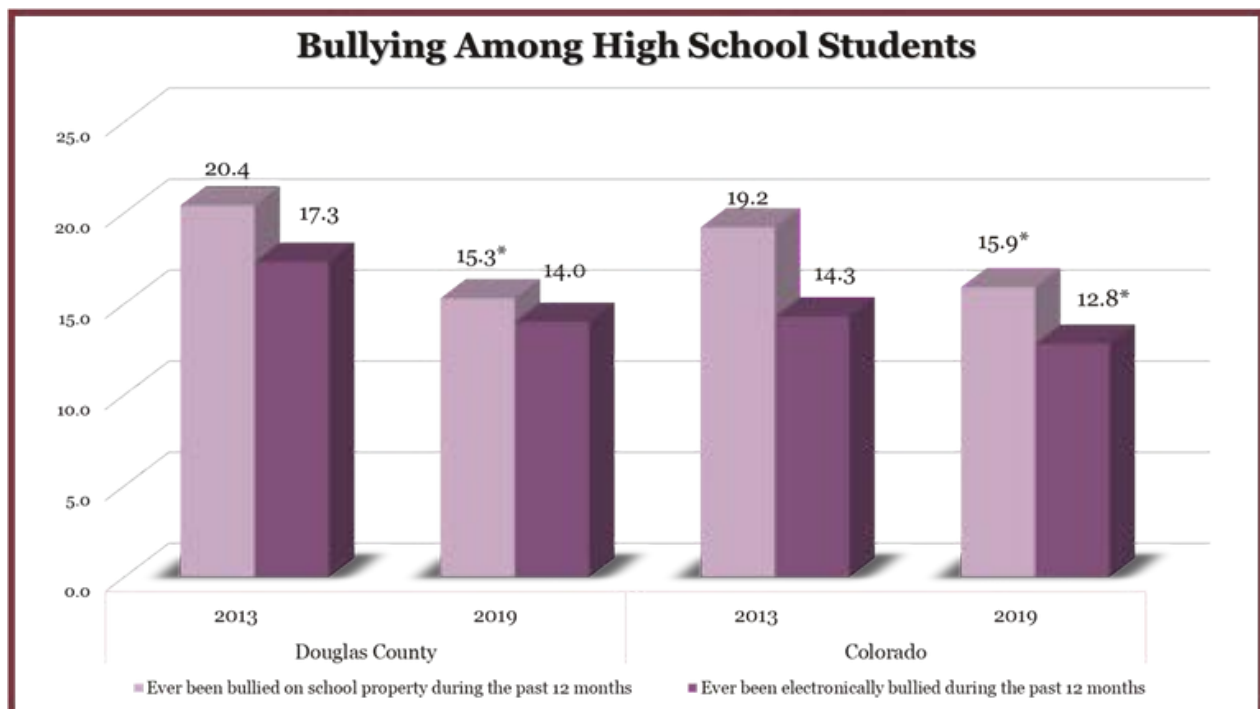


Figure 28 Bullying Among Douglas County High School Students

[1] Healthy Kids Colorado Survey, 2019

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Physical Activity

Decreased physical activity has been related to several disease conditions such as type 2 diabetes, cancer, stroke, hypertension, cardiovascular disease, and premature mortality, independent of obesity. Physical inactivity is not only associated with individual behavior but also community conditions such as expenditures on recreational activities, access to infrastructure, and poverty.^[i]

The percentage of high school students who were physically active for a total of at least 60 mins/day on five or more days in the previous week was similar between Douglas County and Colorado. In 2019, just about one in two students were physically active in the previous week, at 49.7 percent in Douglas County and 48.0 percent in Colorado. While this rate remained stable in Colorado between 2013 and 2019, the rate significantly increased among students in Douglas County from 45.5 percent in 2013 to 49.7 percent in 2019.^[ii]

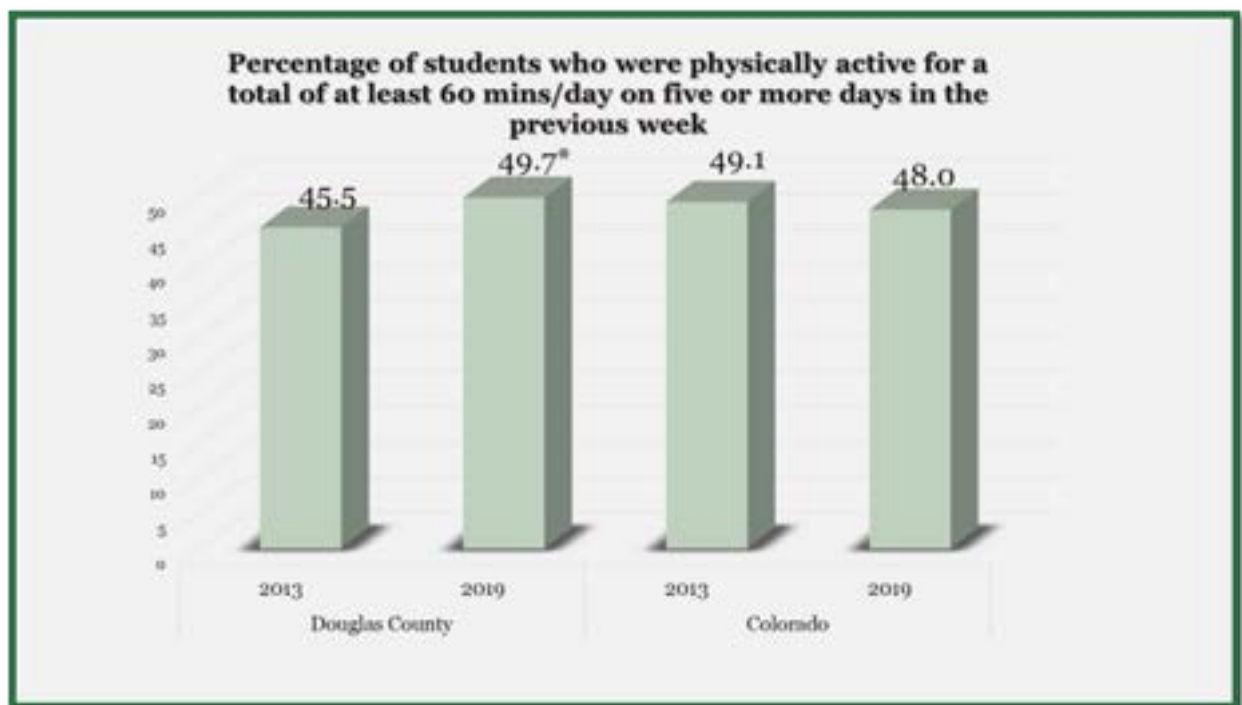


Figure 29 Student Physical Activity, Douglas County & Colorado 2013 - 2019

*Indicates a significant change in trend.

Physical inactivity among adults is also measured using responses to the Behavioral Risk Factor Surveillance Survey and is 1) the percentage of adults ages 20 and over reporting no leisure-time physical activity in the past month or 2) is based on responses to the National Health Interview Survey (NHIS) and is the percentage of adults ages 18 and over who meet the physical aerobic guidelines.

In 2020, the percentage of adults who reported no leisure-time physical activity in the past month was significantly lower in Douglas County at 10.0 percent compared to Colorado at 17.2 percent.^[iii]

^[i] Lee KH, Dvorak RG, Schuett MA, Van Riper CJ. Understanding spatial variation of physical inactivity across the continental United States. *Landscape and Urban Planning* (2017) 165:61-71.

^[ii] Colorado Health Kids Survey, 2019.

^[iii] Colorado Behavioral Health Risk Surveillance System, 2020.

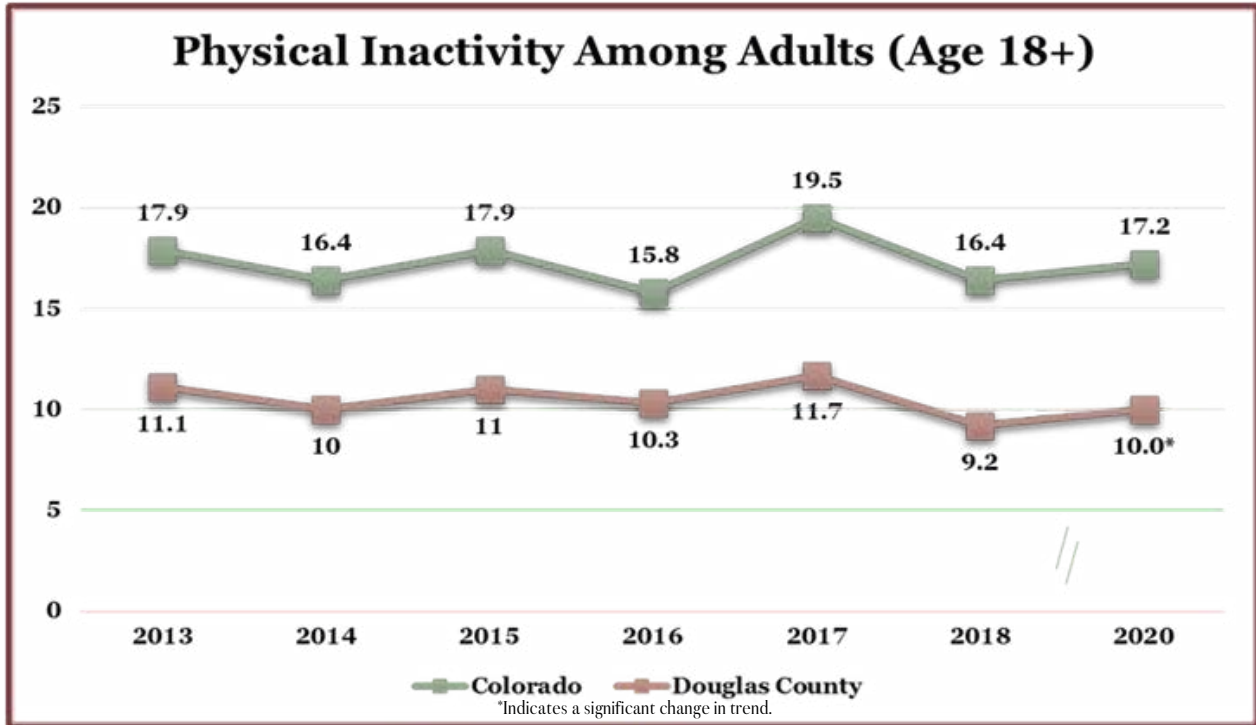


Figure 30 Adult Inactivity

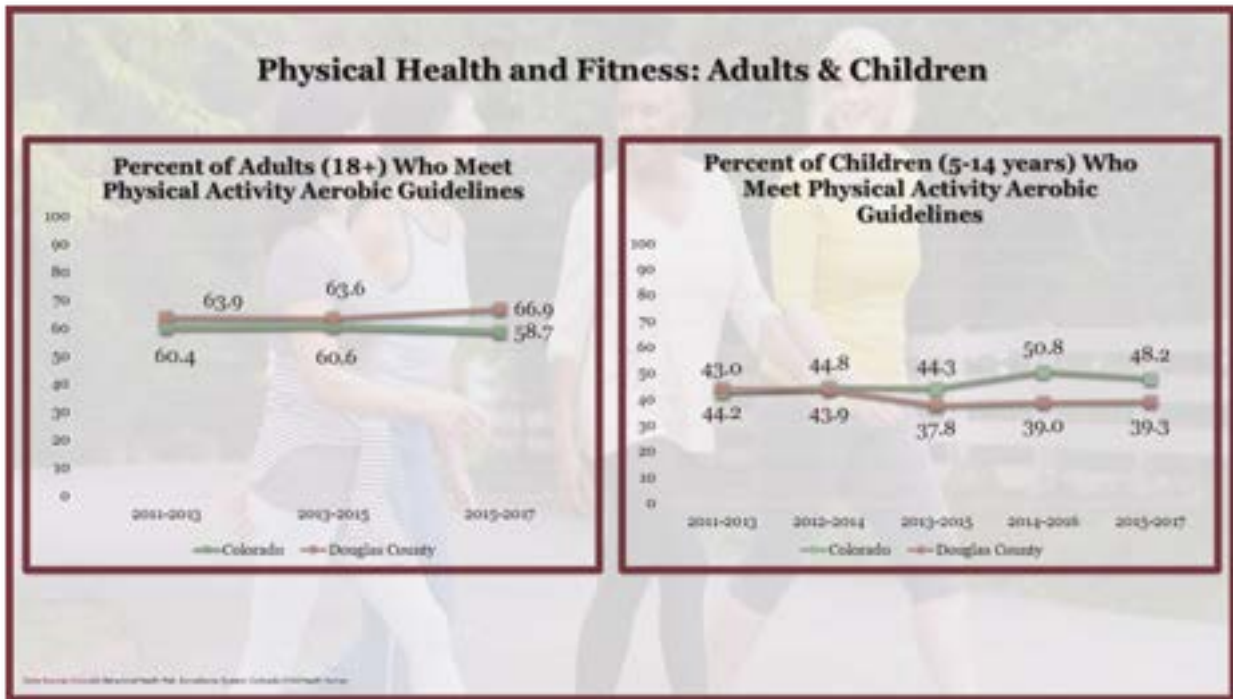


Figure 30 Physical Health & Fitness, Douglas County & Colorado, 2011 - 2017

The NHIS data suggest that that adults in Douglas County were slightly more likely than all Coloradans to meet the aerobic guidelines. In 2015-2017, 66.9 percent of Douglas County residents compared to 58.7 percent of Coloradans met the aerobic guidelines. In Colorado, the rate was slightly decreasing while it was increasing in Douglas County. Among children, however, 39.3 percent of children in Douglas County met the aerobic guidelines in 2015-2017, which was lower than children in Colorado at 48.2 percent. Additionally, while the rate percent of children meeting physical activity aerobic guidelines was increasing Colorado, it appears to have decreased in Douglas County since 2011-2013.^[i]

Obesity

In 2020, just over half (54.9%) of Douglas County adults who were overweight or obese. Obesity rates appear to be increasing faster in Douglas County compared to Colorado. However, the change is not yet significant. In Douglas County, the rate of obesity among adults 18 and older increased 19.5 percent (from 16.5 in 2013 to 19.7% in 2020) compared to a 11.1 percent increase (from 21.3% in 2013 to 23.6% in 2020) in Colorado.^[ii]

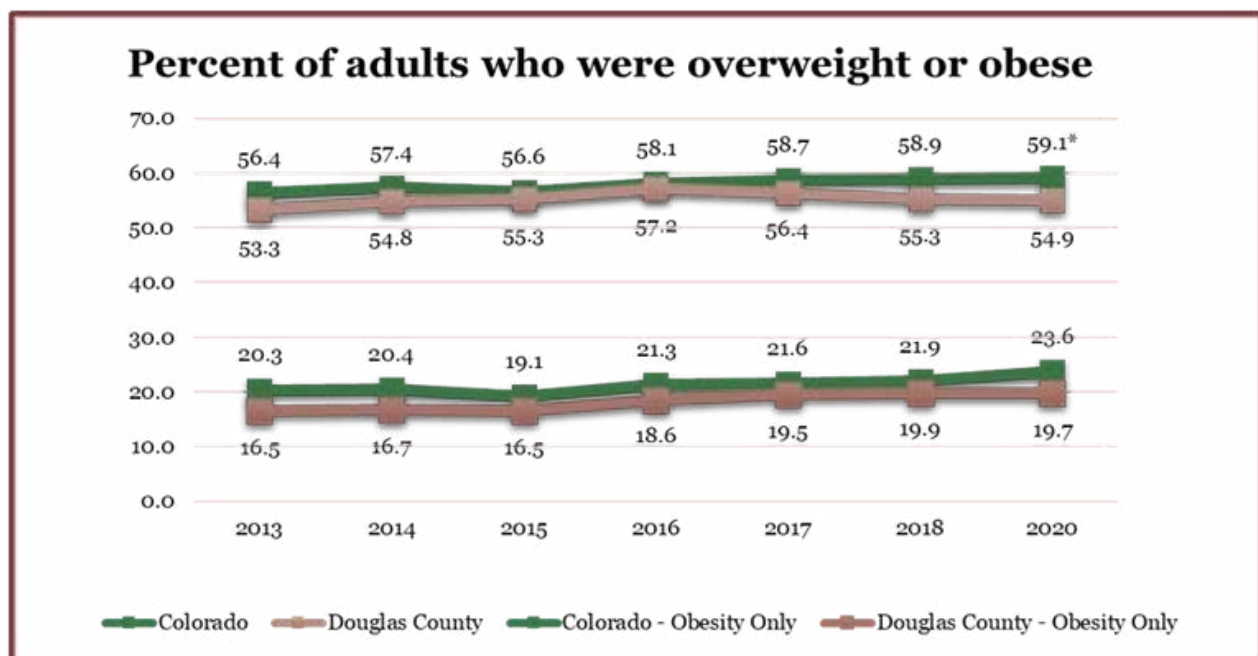


Figure 32 Adult Obesity

*Indicates a significant change in trend.

[i] National Health Interview Survey, 2017.

[ii] Colorado Behavioral Health Risk Surveillance System, 2018-2020.

Among high school students, the rate of obesity and being overweight remained stable in Douglas County between 2013 and 2019. The rate of being underweight has improved significantly, with a 40.6 percent decrease (from 6.4% in 2013 to 3.8% in 2019). Additionally, students in Douglas County who are overweight, obese, or underweight are significantly lower compared to Colorado.[i]

The rate of being overweight or obese among young children ages 5-14 years is decreasing in Douglas County, from a high of 12.4 percent in 2012-2014 to 7.4 percent in 2015-2017, while the rate has remained steady in Colorado around 22.0 percent.[ii]

TABLE 26 PHYSICAL HEALTH OF STUDENTS IN DOUGLAS COUNTY & COLORADO

Percentage of students	Douglas County			Colorado		
	2013	2019	% Change	2013	2019	% Change
Obese (i.e., at or above the 95th percentile for body mass index, by age and gender)	4.1%	5.2%	+26.8%	8.0%	9.7%	+21.3%*
Overweight (i.e., at or above the 85th percentile but below the 95th percentile for body mass index, by age and gender)	8.9%	7.9%**	-11.2%	11.3%	11.9%	+5.3%
Overweight or obese (i.e., at or above the 85th percentile for body mass index, by age and gender)	13.0%	13.1%**	+0.8%	19.3%	21.6%	+11.9%
Underweight (i.e., below the 5th percentile for body mass index, by age and gender)	6.4%	3.8%**	-40.6%*	4.6%	4.6%	0.0%

*Indicates a significant change in trend. **Indicates significant difference compared to Colorado.

[i] Colorado Healthy Kids Survey, 2019.

[ii] CDPHE Child Health Survey.



**HEALTH OUTCOMES
DOUGLAS COUNTY**

Health Outcomes

Health Outcomes represent the physical and mental well-being of residents within Douglas County through measures signifying not only the length of life but quality of life as well. Up until this point, the CHA has described many factors that influence health, from access to health care to the availability of good jobs, clean water, and affordable housing as well as the behaviors or choices individuals make that influence their health. By looking at data related to Health Outcomes, the CHA provides the data needed to understand whether health improvement programs in Douglas County are working or what health improvement programs may be needed. For example, a non-smoking ordinance in restaurants might impact smoking rates and ultimately lead to longer lives. Additionally, it is important to look at differences in health outcomes based on the presence of various community health factors and demographics.

Length of Life

Life expectancy from birth is a frequently utilized and analyzed component of demographic data for CHAs. It represents the average life span of a newborn and is an indicator of the overall health of a community. Life expectancy can fall due to problems like hunger, injury, disease, and chronically poor health. Improvements in health and welfare increase life expectancy. The higher the life expectancy, the better shape a community is in.

Douglas County has longer life expectancy rates compared to Colorado. Overall, Douglas County residents live on average for 84.0 years compared to 80.6 years in Colorado. Differences across race and ethnicity exist; however, in Douglas County, four race/ethnicity groups have higher life expectancy compared to Colorado. Asian and Hispanic residents in Douglas County have longer life expectancies than Black and White residents.^[i]

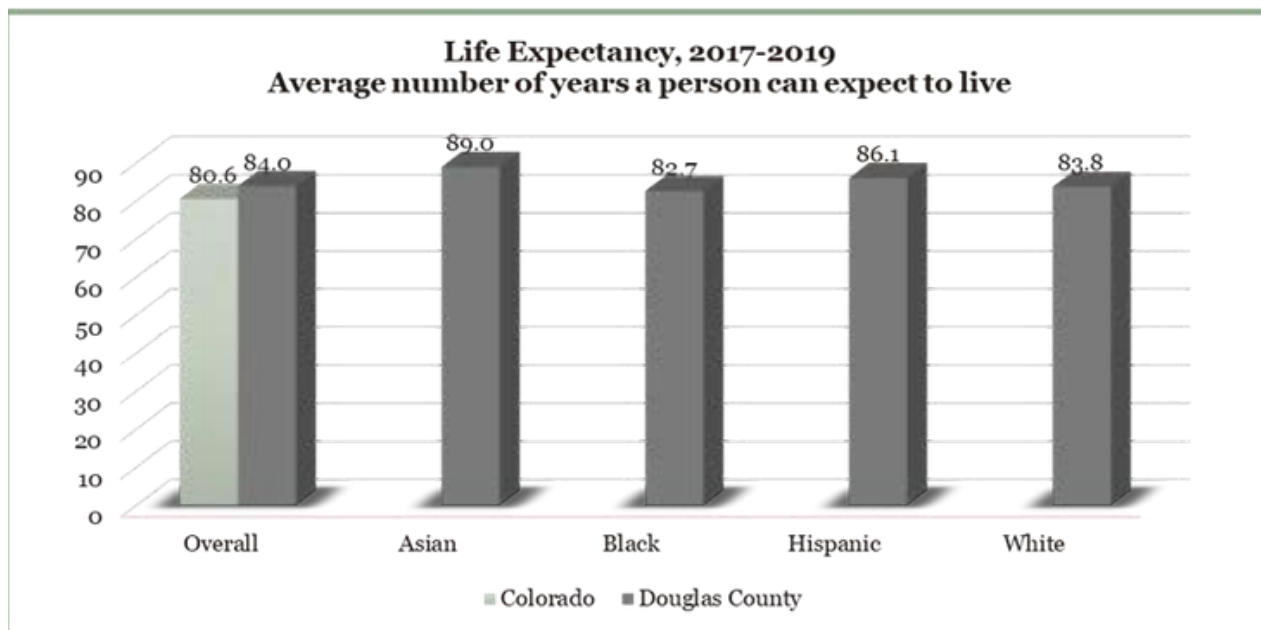


Figure 33 Life Expectancy, Douglas County & Colorado, 2017 - 2019

[i] National Center for Health Statistics - Mortality Files, as in the County Health Rankings. The 2021 County Health Rankings used data from 2017-2019 for this measure.

Mortality data provides a snapshot of current health problems, suggest persistent patterns of risk in specific communities, and shows trends in specific causes of death over time. Many causes of death are preventable or treatable and, therefore, warrant the attention of public health prevention efforts. The age adjusted death rate per 100,000 in Douglas County had been relatively stable between 2010 and 2019; however, the rate increased 16 percent between 2019 to 2020 as it did in Colorado.[i]

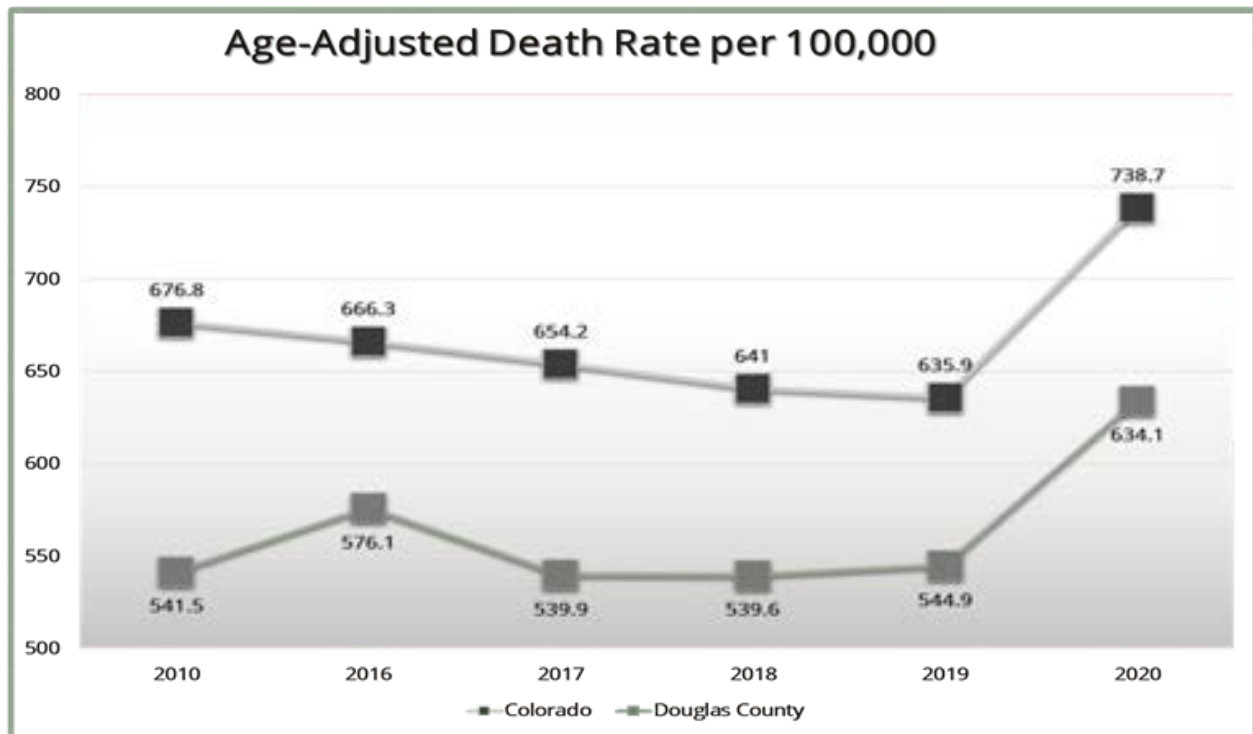


Figure 34 Death Rate, Douglas County & Colorado, 2010 - 2020

There were 1,030 deaths in 2020. On average, between 2016 to 2020, there were 1,535 deaths per year. On average, the percent of deaths by cause indicate that, overall, the leading singular causes of death in Douglas County were cardiovascular disease (22.8%) and malignant neoplasms (22.5%), followed by unintentional injuries (8.5%). Over the five-year time frame, COVID-19 caused 2.1 percent of deaths despite the deaths only occurring in 2020.[ii]

[i] Colorado Death Statistics. Department of Public Health & Environment. (n.d.). Retrieved October 1, 2021, from <https://cdphe.colorado.gov/colorado-death-statistics>.

[ii] Ibid.

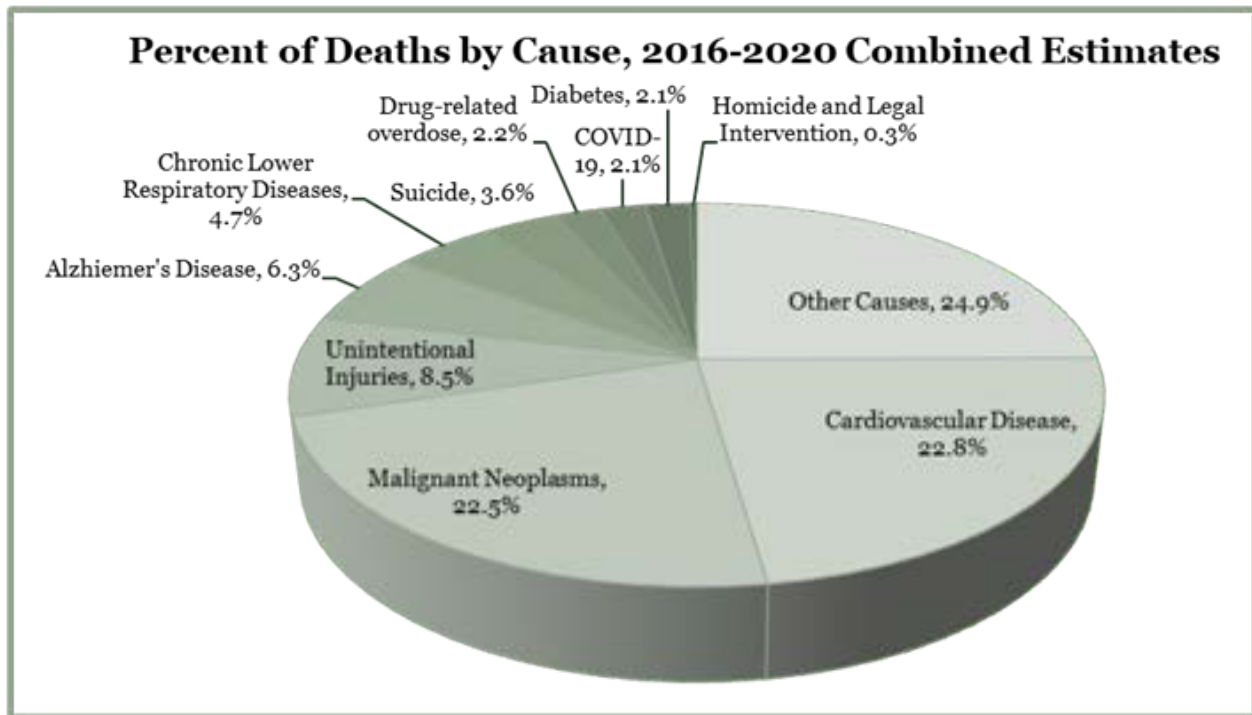


Figure 35 Death by Cause, Douglas County, 2016 - 2020

In 2020 alone, COVID-19 represented 8.7 percent of all deaths in Douglas County and became the third leading singular cause of death. Behavioral health related deaths make up, on average, 5.8 percent (suicide at 3.6% and drug related overdose at 2.2% of all deaths). [1]

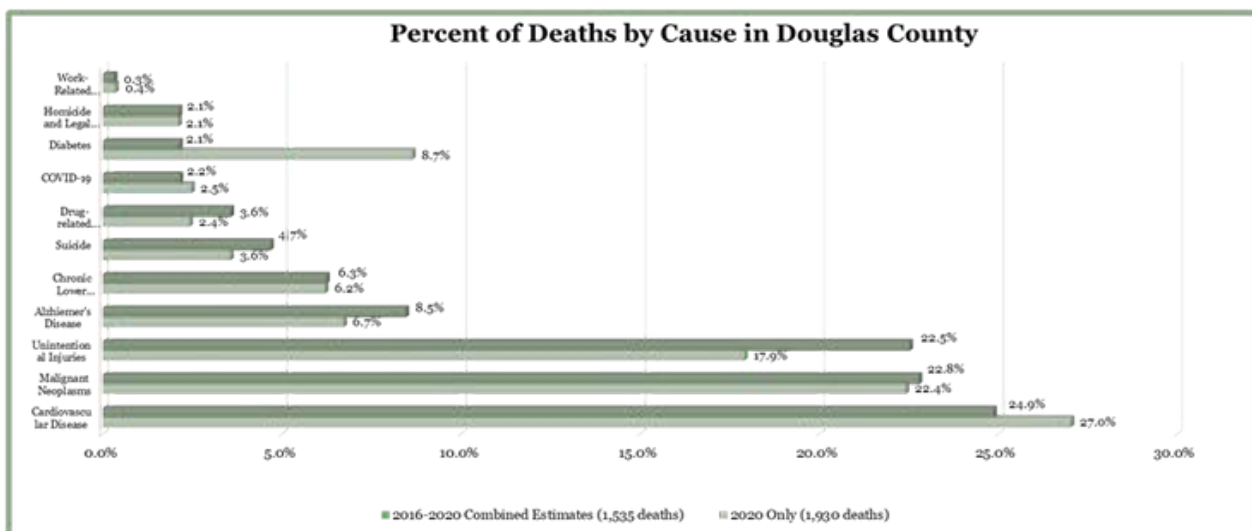


Figure 36 Percent of Deaths by Cause, Douglas County, 2020

[1] Colorado Death Statistics. Department of Public Health & Environment. (n.d.). Retrieved October 1, 2021, from <https://cdphe.colorado.gov/colorado-death-statistics>.

Among adults 15 to 44, unintentional injuries, suicide, and drug induced deaths are the three leading causes of death in Douglas County. For adults 45-64 the leading causes of death are malignant neoplasms, cardiovascular disease, alcohol induced deaths and all other.[1] For adults 65 and older, it is cardiovascular disease, malignant neoplasms, and for 2020, it was COVID-19.

RANK	<1	1-4	5-14	15-24	25-44	45-64	65-84	85+
1	Perinatal Period Conditions	Unintentional Injuries	Suicide	Suicide	Unintentional Injuries	Malignant Neoplasms	Malignant Neoplasms	Cardiovascular Disease
2	Congenital malformations, deformations or chromosomal abnormalities	Malignant Neoplasms	Unintentional Injuries	Unintentional Injuries	Suicide	Cardiovascular Disease	Cardiovascular Disease	All Other Diseases
3	Unintentional Injuries	*	Homicide	Drug-Induced Deaths	Drug-Induced Deaths	All Other Diseases	All Other Diseases	Malignant Neoplasms
4	*	*	*	Cardiovascular Diseases	Malignant Neoplasms	Suicide	Unintentional Injuries	Alzheimer's Disease
5	*	*	*	All Other Diseases	All Other Diseases	Unintentional Injuries	Alzheimer's Disease	Unintentional Injuries
6	*	*	*	Malignant Neoplasms	Cardiovascular Diseases	Alcohol-Induced Deaths	Chronic Lower Respiratory Disease	Cerebrovascular Disease

* - Denotes categories with fewer than three observations
 Of note, for those 85 and older COVID-19 ranks in the top ten leading cause of death despite only being present for two years.
 Data Source: Vital Statistics Program, Colorado Department of Public Health and Environment

Figure 37 Top Causes of Death by Age Group, Douglas County, 2020

[1] All other causes is the wide range of diseases and events that caused death that is not listed as a disease or injury by CDPHE's vital statistics birth and death reporting. Retrieved from <https://cdphe.colorado.gov/center-for-health-and-environmental-data/registries-and-vital-statistics/vital-statistics-program>.

Maternal, Infant, and Child Health

Improving the well-being of mothers, infants, and children is an important public health goal. Their well-being determines the health of the next generation and can help predict future public health challenges for families, communities, and the health care system. Health outcomes for pregnant women, infants and children are related to social, environmental, and physical factors including race and ethnicity, age, and socioeconomic status. Ensuring a woman receives appropriate prenatal care is one opportunity to positively influence the woman's health and the health of her baby and improve long-term outcomes and quality of life in a systematic way.

Prenatal care helps to identify individual behaviors such as a mother's smoking, drinking alcohol and taking drugs that can cause premature delivery and prenatal care can also help to identify risk factors related to the woman's-built environment and her access to care. Babies whose mothers do not receive prenatal care in the first trimester of pregnancy are more likely to have a low birth weight than those whose mothers do receive prenatal care, potentially increasing healthcare costs and presenting challenges for the child immediately from birth.^[1]

Poor long-term health outcomes are also well documented for both teens who give birth and their babies. Teen mothers and their children tend to exhibit adverse outcomes later in life, including poor educational attainment, poverty, and involvement with the criminal justice system. In addition, teen births can have harmful effects on a teenager's social, mental, and physical health.

The measures used in the CHA include:

- Birth rate per 1,000, including teen birth rate
- Low weight births: Low birth weight infants have an increased risk of experiencing developmental problems and delays. In addition, these infants are at higher risk for serious illness, disability, and lifelong health difficulties and are more likely to die before their first birthday
- Preterm births: Compared to infants born at term, preterm infants are more likely to suffer lifelong neurologic, cognitive and behavioral problems.
- Infant and neonatal mortality.

Lastly, preterm births and low birth weight are often, but not always, associated with use of prenatal care and therefore, the extent to which prenatal care is used among live births in Douglas County is examined.

[1] Prenatal care. Prenatal care | Office on Women's Health. (2021, February 22). Retrieved October 1, 2022, from <https://www.womenshealth.gov/a-z-topics/prenatal-care>

Birth Rate per 1,000, Including Teen Birth Rate

The birth rate per 1,000 women in Douglas County is significantly lower at 48.7 per 1,000 females compared to Colorado at 51.2 per 1,000 females. In Douglas County, the birth rate is significantly higher among females ages 25-39 years within Douglas County and in comparison, to Colorado.[i]

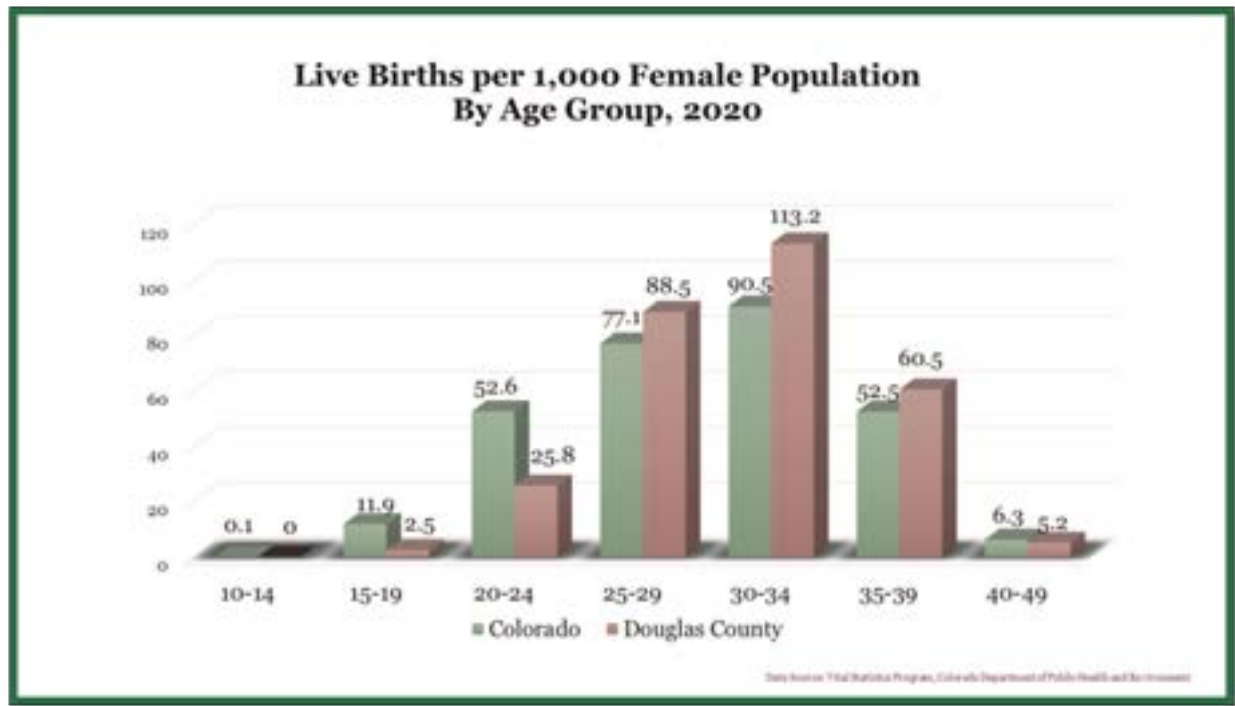


Figure 38 Live Births, Douglas County & Colorado, 2020

Giving birth as a teen can have profoundly negative consequences for both the teen parents and the infant – both from a socioeconomic perspective and health perspective. Between 2010 and 2020, the teen birth rate per 1,000 teens remained low and stable around 0.4 per 1,000, while the rate in Colorado decreased from a high of 6.7 per 1,000 teens in 2010 compared to 2.0 per 1,000 teens in 2020. There is geographic disparity within Douglas County, with three communities (totaling 12 births to teens) experiencing higher rates of teen birth compared to Douglas County overall. These include two communities in Castle Rock and one in Parker.[ii]

Douglas County generally has better birth outcomes and prenatal care utilization compared to Colorado in 2020. In particular, births with late or no prenatal care is nearly twice as high in Colorado (18.3% of births) compared to Douglas County (10.3% of births). Similarly, nearly twice as many births have no prenatal care in Colorado (1.7%) compared to Douglas County (0.7%). [iii]

Live births in Douglas County are more likely to have had prenatal care compared to Colorado. However, the percent of births receiving late or no prenatal care in Douglas County is slightly increasing since 2010 from 8.3 percent of births to 10.3 percent of births in 2020.[iv]

[i] Provided by Colorado Department of Public Health & Environment on October 8, 2021

[ii] Ibid.

[iii] Ibid.

[iv] Ibid.

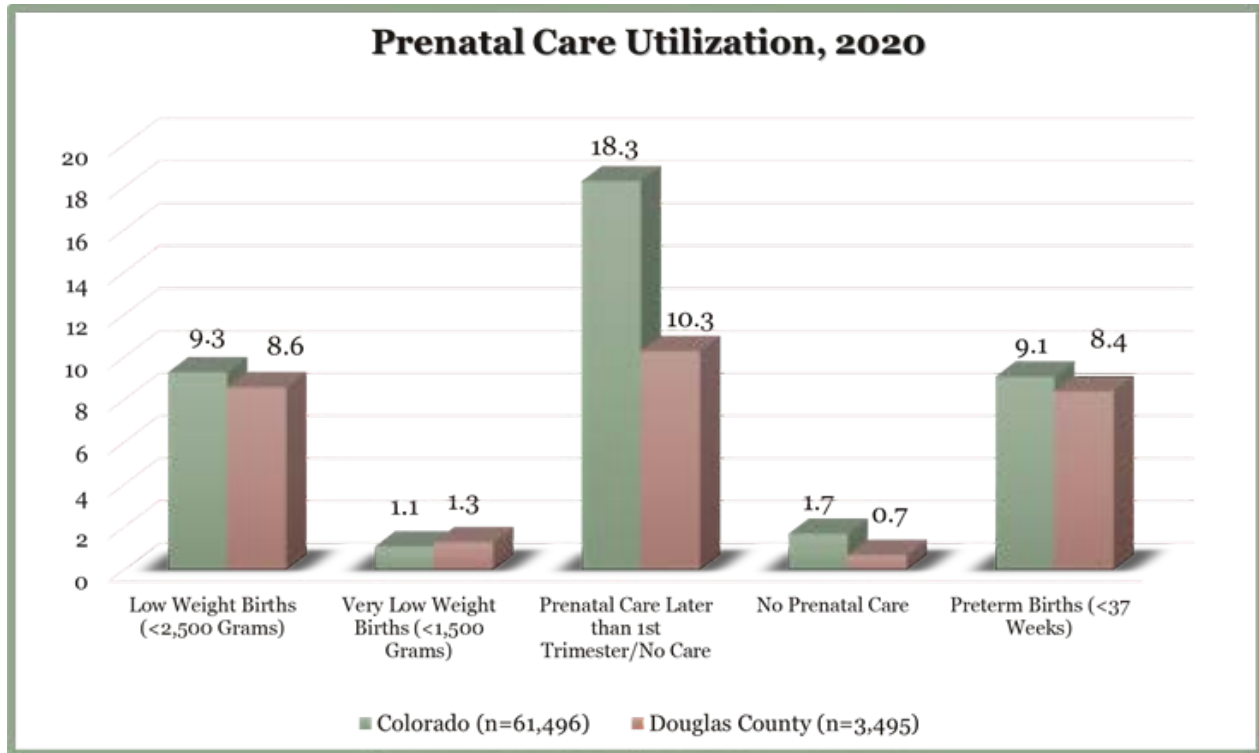


Figure 39 Prenatal Care Utilization, Douglas County & Colorado, 2020

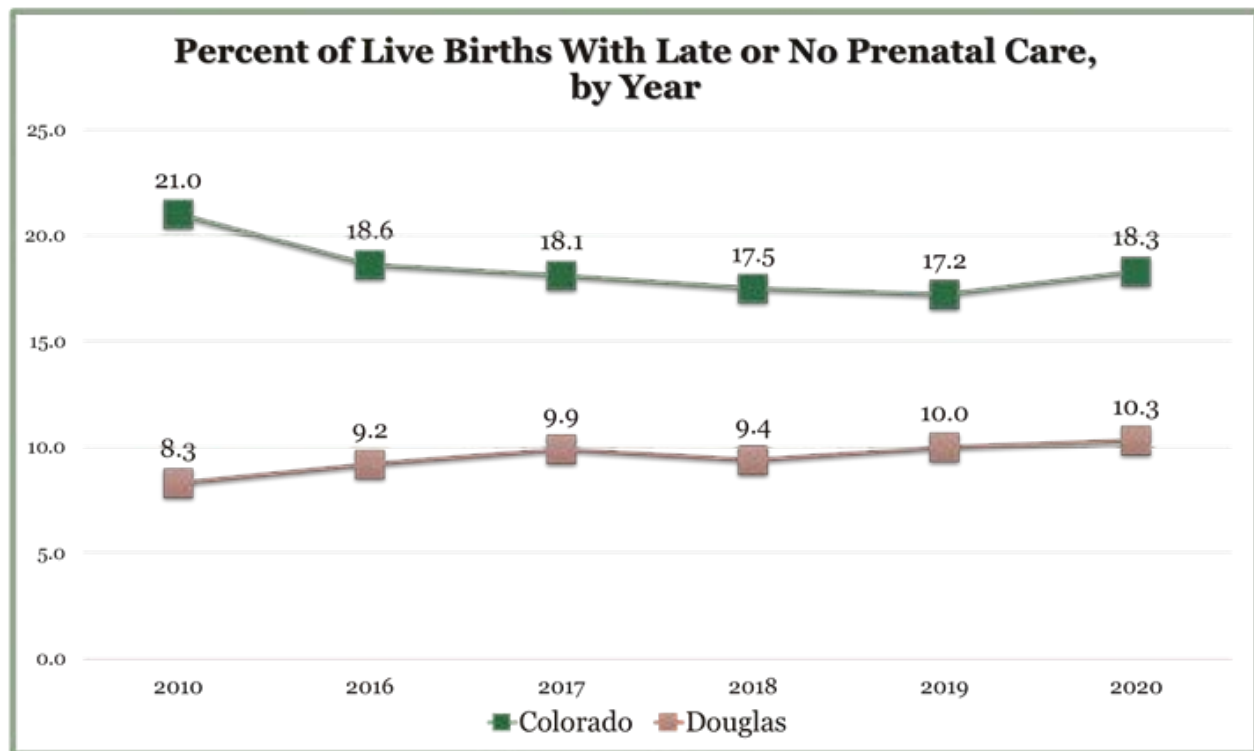


Figure 40 Live Births with Late or No Prenatal Care, Douglas County & Colorado

Similarly, to Colorado, Douglas County has different prenatal care utilization among live births to White Hispanic and Black women. For example: While Hispanic women had 8.5 percent of the births in 2020, 15.8 percent of these births had late or no prenatal care. Black women had 2.3 percent of the births, while 19 percent of these births had late or no prenatal care. Conversely, White Non-Hispanic women had 76.7 percent of the births while just 9.6 percent of them had late or no prenatal care.^[i]

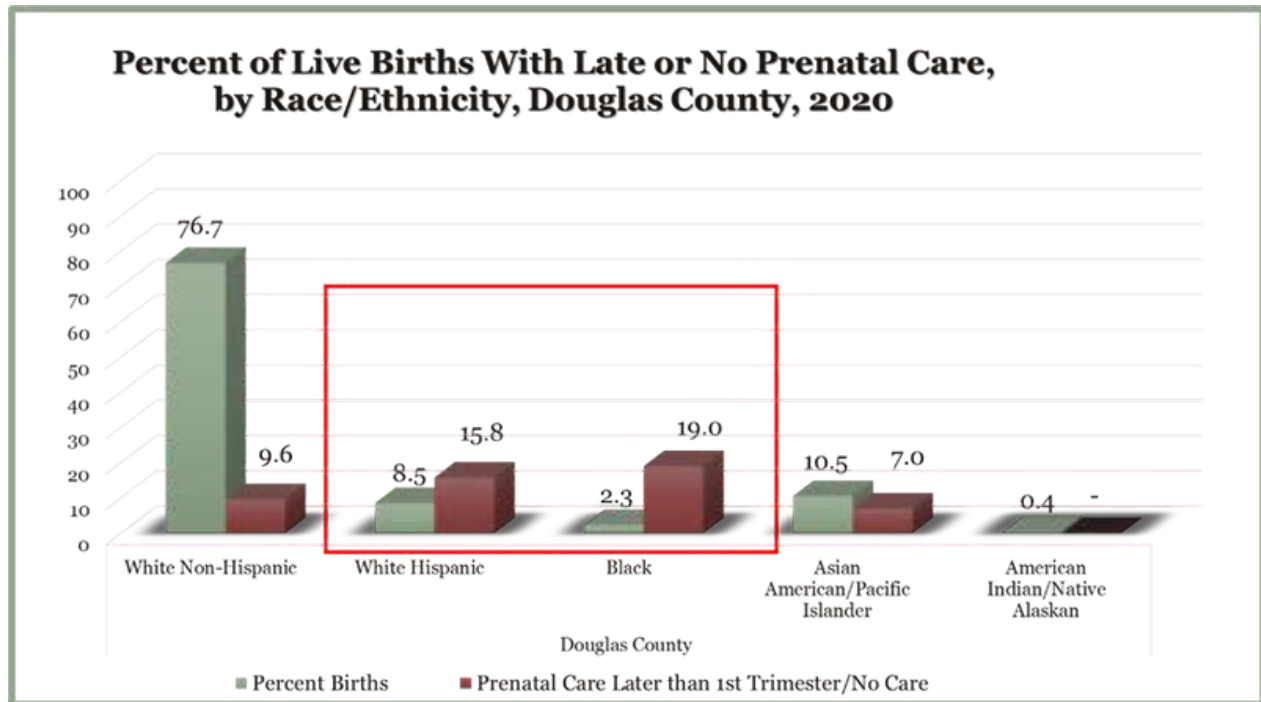


Figure 41 Late or No Prenatal Care by Race/Ethnicity, Douglas County, 2020

Note: There were 3,398 births with known race and ethnicity.

Additionally, geographic differences in access to prenatal care exists. In communities of Parker, Larkspur, and Castle Rock births have significantly lower utilization of prenatal care compared to Douglas County overall.^[ii] ^[iii] Conversely, communities in Highlands Ranch, Roxborough, Franktown, and Parker across nine census tracts have fewer births than Douglas County overall with no or late prenatal care.^[iv]

In 2020, there were 17 infant deaths and 15 neonatal deaths in Douglas County. Infant mortality rates were at a 10-year high at 4.9, up 25.6 percent, while Colorado rates were declining. Douglas County generally had a lower neonatal mortality rate compared to Colorado; however, the rate is at a 10 year high at 4.9 in 2020, increasing 26.5 percent from 2010 and 113% from 2016, and it surpassed Colorado.^[v]

^[i] Colorado Department of Public Health And Environment, Vital Statistics.

^[ii] Ibid.

^[iii] Provided by Colorado Department of Public Health & Environment on October 8, 2021. Five census tracts represent a combined 2015-2019 estimate of 257 births.

^[iv] Provided by Colorado Department of Public Health & Environment on October 8, 2021. Nine census tracts represent a combined 2015-2019 estimate of 240 births.

^[v] Colorado Department of Public Health And Environment, Vital Statistics.

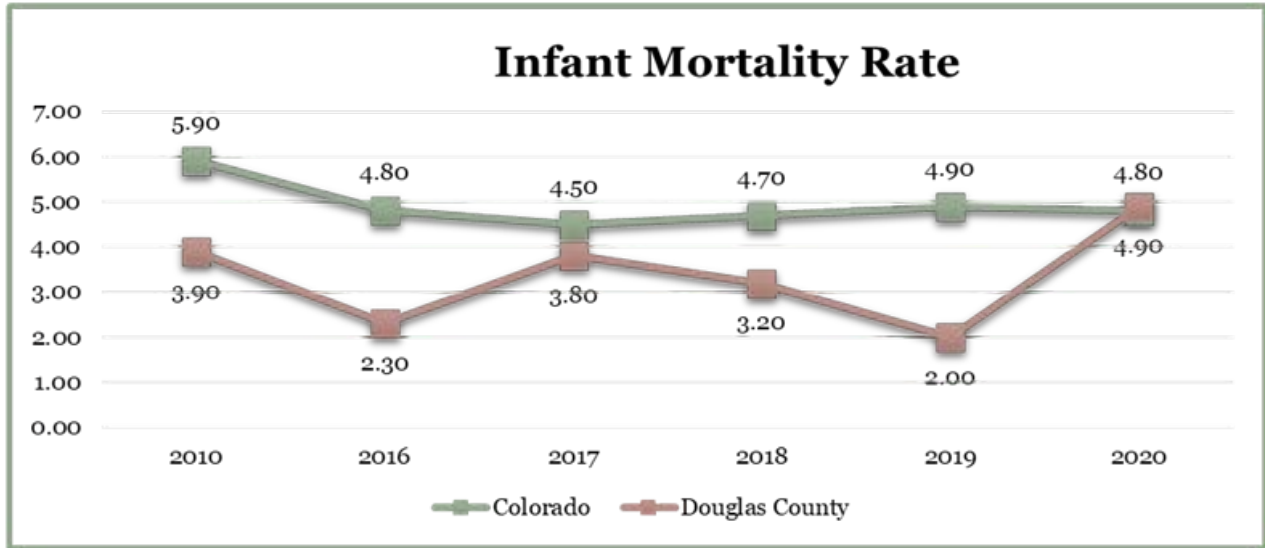


Figure 42 Infant Mortality Rate, Douglas County & Colorado, 2020

Chronic Disease

CDC data suggests that chronic diseases such as heart disease, cancer, and diabetes are the leading causes of death and disability in the United States. Chronic diseases are defined broadly as conditions that last one year or more and require ongoing medical attention or limit activities of daily living or both.

In Douglas County, the prevalence of one or more chronic conditions increased slightly between 2013 and 2017 from 58 percent to 63 percent among adults 18 years and older to approximately two in three adults.^[i] Approximately one in three adults have two or more chronic conditions.^[ii] In this section, we examine the following health outcomes related to chronic conditions:

- Heart Disease
- Diabetes
- Cancer

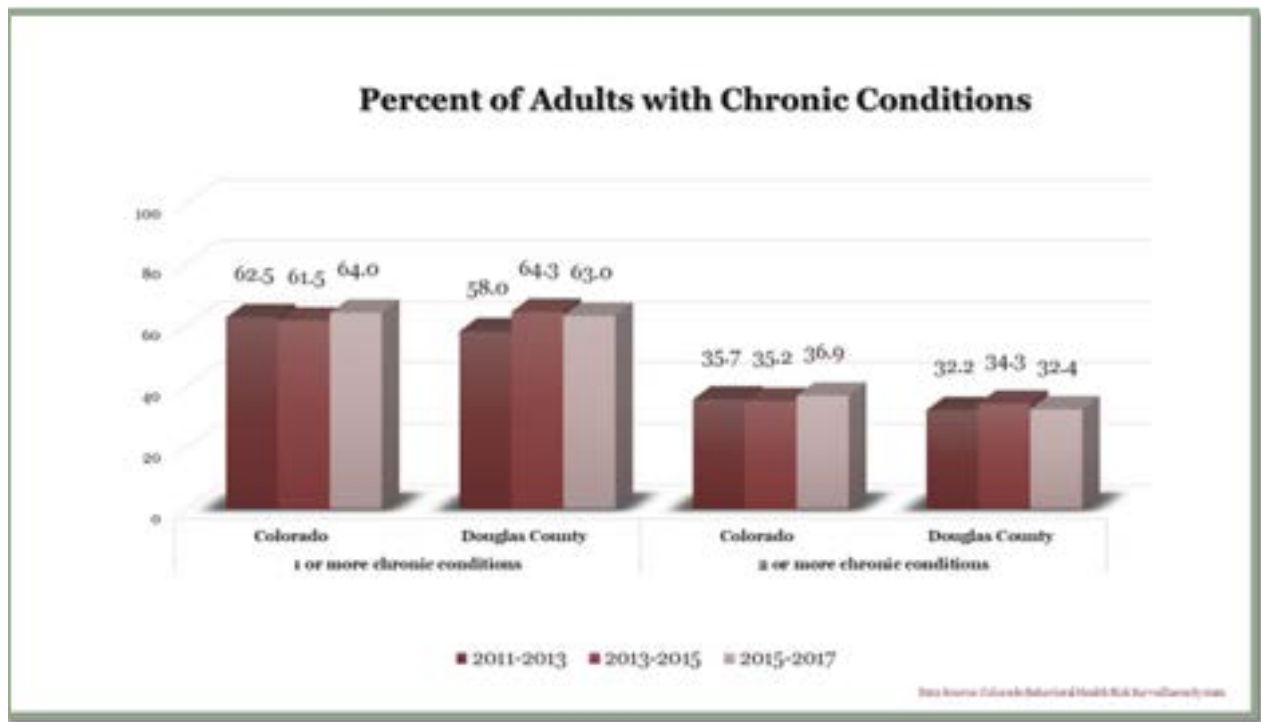


Figure 43 Adults with Chronic Conditions, Douglas County & Colorado

[i] Colorado Behavioral Health Risk Surveillance System. Updated 2020 data for this measure is not available.

[ii] Ibid.

Heart Disease

Douglas County has lower prevalence of heart disease compared to Colorado. However, the percent of adults who have been diagnosed with heart disease shows a nonsignificant increasing trend while Colorado remains stable around 2.8 percent.^[i]

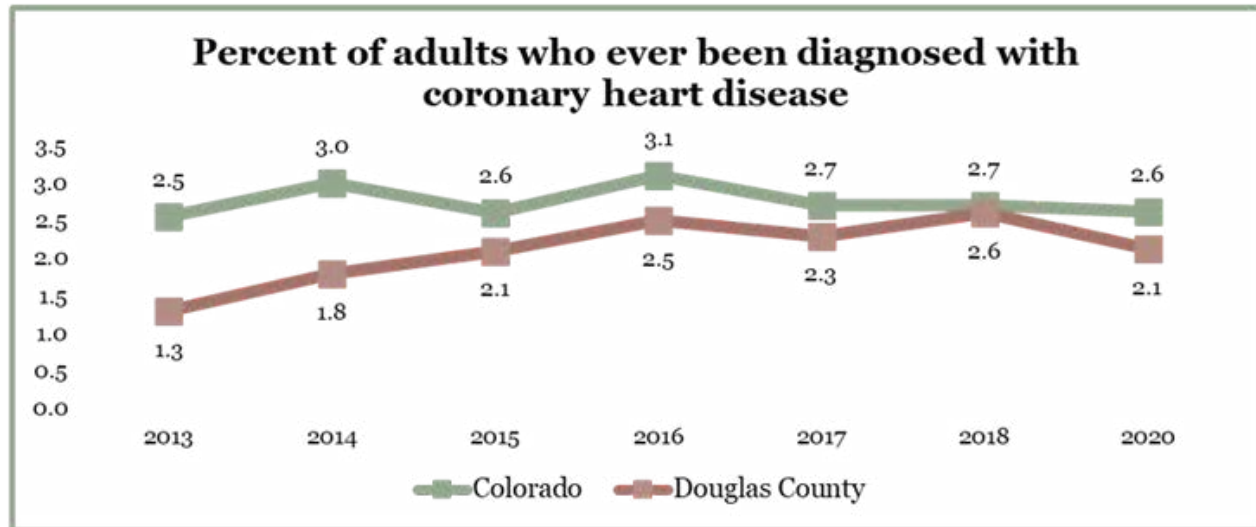


Figure 44 Adults with Coronary Heart Disease, Douglas County & Colorado, 2013 - 2020

Heart disease is the second leading cause of hospitalization in Douglas County. The 2019 hospitalization rate per 100,000 people was lower in Douglas County (1,968.5 per 100,000) compared to Colorado (2,137.2 per 100,000), and there is a significant improvement between 2015 and 2019.^[ii] However, there is significant geographic disparity in the county. Compared to Colorado, heart disease hospitalization was worse than the overall rate in Colorado in 26 percent of the census tracts. Compared to Douglas County, heart disease was worse in 34 percent of the census tracts, followed by heart failure with 30 percent of census tracts.

[i] Colorado Behavioral Health Risk Surveillance System, 2018-2020.

[ii] CDPHE Vital Statistics and Colorado Hospital Association, 2015-2019 Combined Estimates. Census tract level.

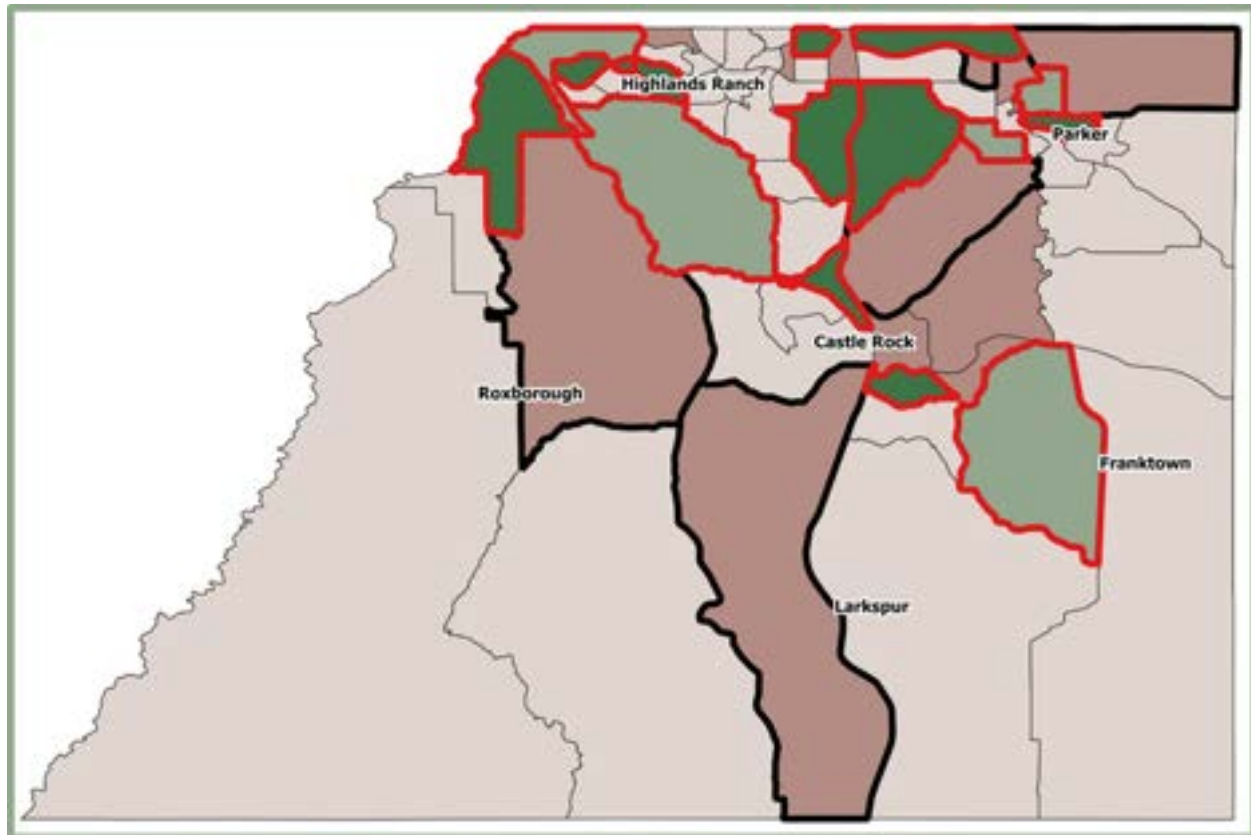


Figure 45 Hospitalization for Heart Disease, Douglas County by Community

Diabetes

In 2020, the percent of adults who had ever been diagnosed with diabetes is lower in Douglas County than in Colorado where approximately one in 20 adults (18+ years) report ever having been diagnosed with diabetes. In 2013, the percent of adults who had ever been diagnosed with diabetes was at 4.1 percent, which has since increased 19 percent (to 4.9% in 2020). In Colorado, the rate increased slower at 11.0 percent (from 6.5% to 7.2% in 2020).^[i]

People may be hospitalized for diabetes complications often stemming from severe hypoglycemia or hyperglycemia – or when blood sugar levels are too low or too high. In addition, having multiple diabetes complications significantly increases the risk of readmission not only for severe dysglycemia, but also for all causes that are seemingly unrelated to diabetes. Therefore, diabetes hospitalization rate data in part tells us where there may be evidence of untreated care.

[i] Colorado Behavioral Health Risk Surveillance System, 2018-2020.

Overall, Douglas County has lower rates of hospitalizations for diabetes compared to Colorado. For 2015-2019, the age-adjusted diabetes hospitalization rate per 100,000 residents was 900.7 in Douglas County compared to 1,281.5 in Colorado.^[i] However, there are communities within Douglas County that are doing worse compared to Colorado. Here we compare five communities (defined using census tracts) in Douglas County that have statistically significant higher rates of hospitalization for diabetes compared to Colorado. These communities are in Parker, Highlands Ranch, and Castle Rock.^[ii]

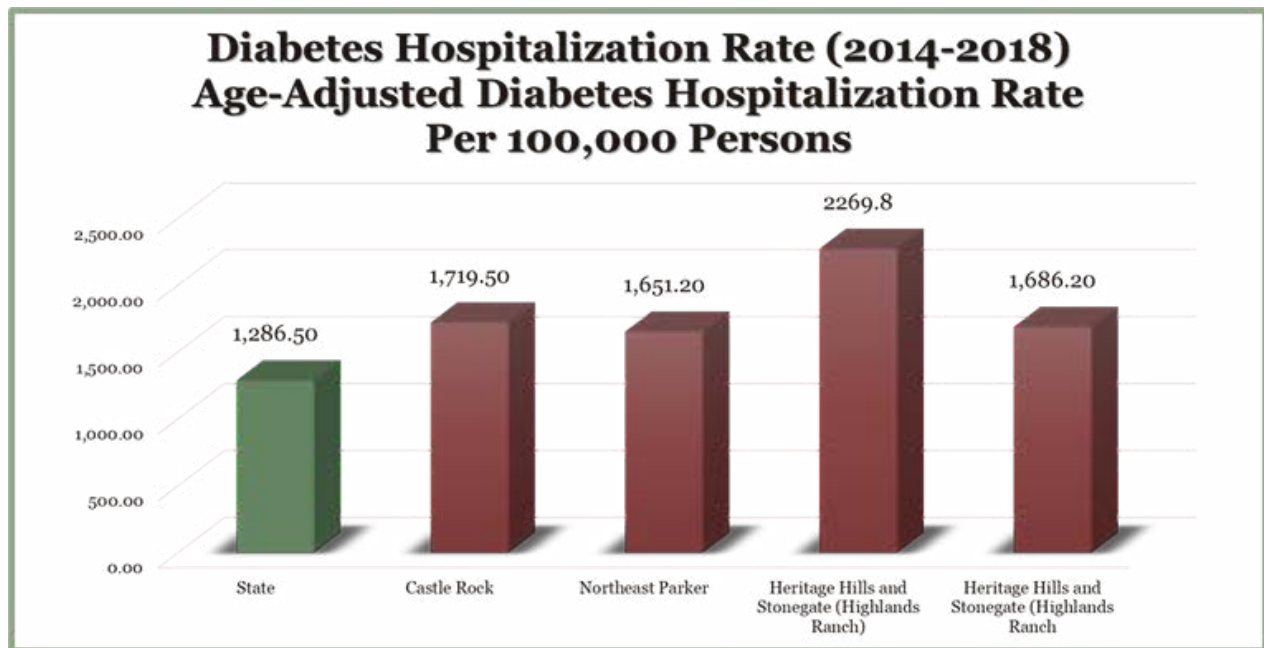


Figure 46 Diabetes Hospitalization, Douglas County, 2014 - 2018

Note: The rates are calculated using the geocoded billing address of discharged individuals found in the dataset with the selected ICD-10 Codes.

Cancer

Cancer is not always a one-time event. Cancer can be closely watched and treated, but sometimes it never completely goes away. It can be a chronic (ongoing) illness, much like diabetes or heart disease.^[iii] Getting screening tests regularly may find breast, cervical, and colorectal (colon) cancers early, when treatment is likely to work best. Douglas County females are significantly more likely to report having had mammogram within last 2 years (87.2%) and report having had Papanicolaou smear within last 3 years (85.4%) than females in Colorado. Douglas County adults aged 50+ years who met colorectal cancer screening guidelines was similar compared to Colorado, with about three in four adults (74.1%) meeting the colorectal cancer screening guidelines.^[iv]

[i] Colorado Hospital Association through the CDPHE Health Equity/Environmental Justice Collaborative (2015-2019 Data).

[ii] Ibid.

[iii] Centers for Disease Control and Prevention. (2021, May 19). Cancer screening tests. Centers for Disease Control and Prevention. Retrieved October 5, 2021, from <https://www.cdc.gov/cancer/dcp/prevention/screening.htm>

[iv] Colorado Behavioral Health Risk Surveillance System. 2018.

TABLE 27 CANCER SCREENING RATES IN 2018

	Douglas County	Colorado
Adults aged 50+ years who met colorectal cancer screening guidelines	74.1	68.9
Females aged 40+ years who report having had mammogram within last 2 years	87.2*	68.9
Females aged 18+ years who report having had Papanicolaou smear within last 3 years	85.4*	76.7

*Indicates significant difference compared to Colorado.

The percent of adults who had ever been diagnosed with cancer remained stable in both Douglas County and Colorado between 2011-2013 to 2018-2020. Rates of skin cancer are reported to be higher compared to cancers other than skin cancer. Overall, in 2020, skin cancer rates were trending higher in Douglas County at 9.0 percent compared to Colorado at 7.1 percent, although not significantly.^[i]

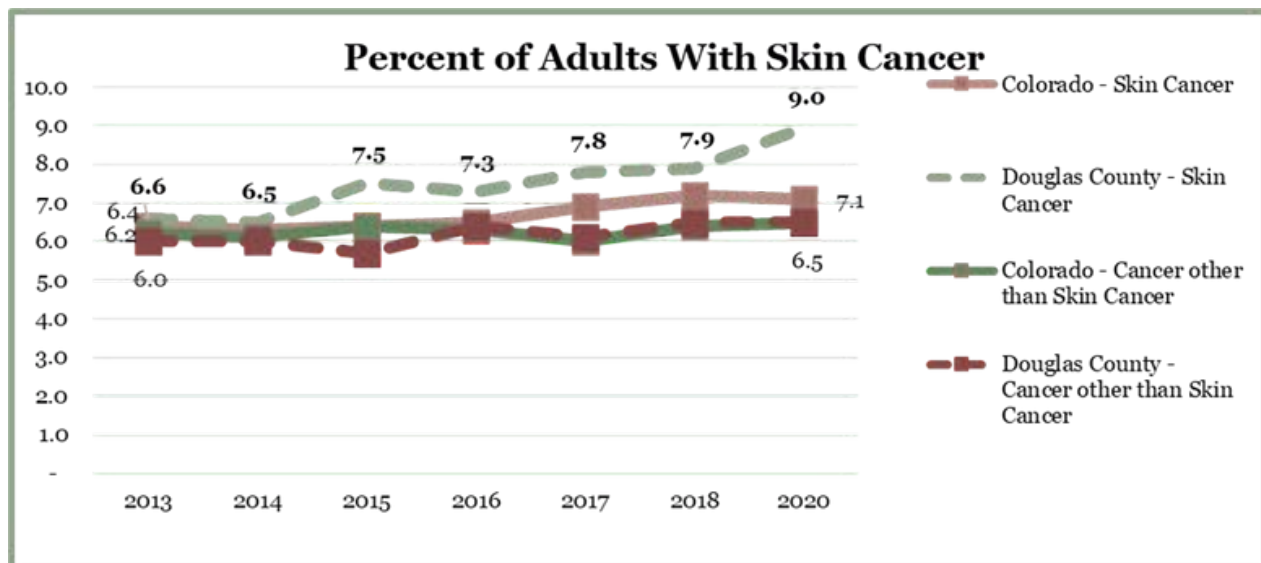


Figure 47 Adults with Skin Cancer, Douglas County & Colorado, 2013 - 2020

Mortality Due to Chronic Disease

Cause of death due to chronic disease is lower in Douglas County compared to Colorado. This chart below shows the age adjusted rate per 100,000 of death due to a number of chronic diseases, revealing that cardiovascular disease (146.4) and malignant neoplasms (115.4) are the leading causes of death due to chronic disease in Douglas County (similar to Colorado at 172.4 and 125.1, respectively). Compared to Colorado, death due to cardiovascular disease, lower respiratory diseases, and diabetes is significantly lower in Douglas County. Alzheimer Disease is the one chronic disease where rates in Douglas County are significantly higher compared to Colorado at 45.5 deaths per 100,000 people (compared to 35.6 per 100,000 people in Colorado).^[ii]

[i] Colorado Behavioral Health Risk Surveillance System, 2018-2020.

[ii] Colorado Department Of Public Health And Environment, Vital Statistics.

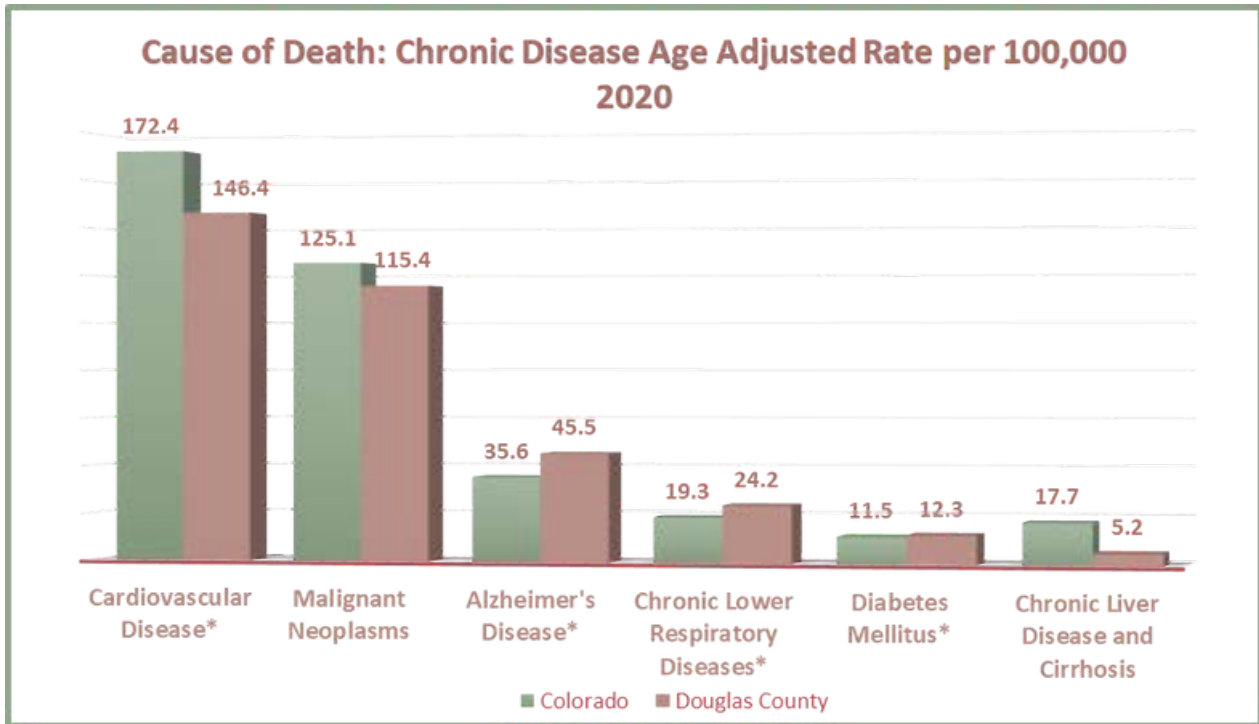


Figure 48 Mortality Rate, Chronic Disease, Douglas County & Colorado

*Indicates significantly higher or lower compared to Colorado.

As the leading type of cardiovascular chronic disease, the CHA was able to examine cause of death due to heart disease at the community level (as defined by census tract) revealing differences across communities within Douglas County. There are communities with lower rates of heart disease compared to the County and communities such as Parker and Castle Rock with higher rates.[i]

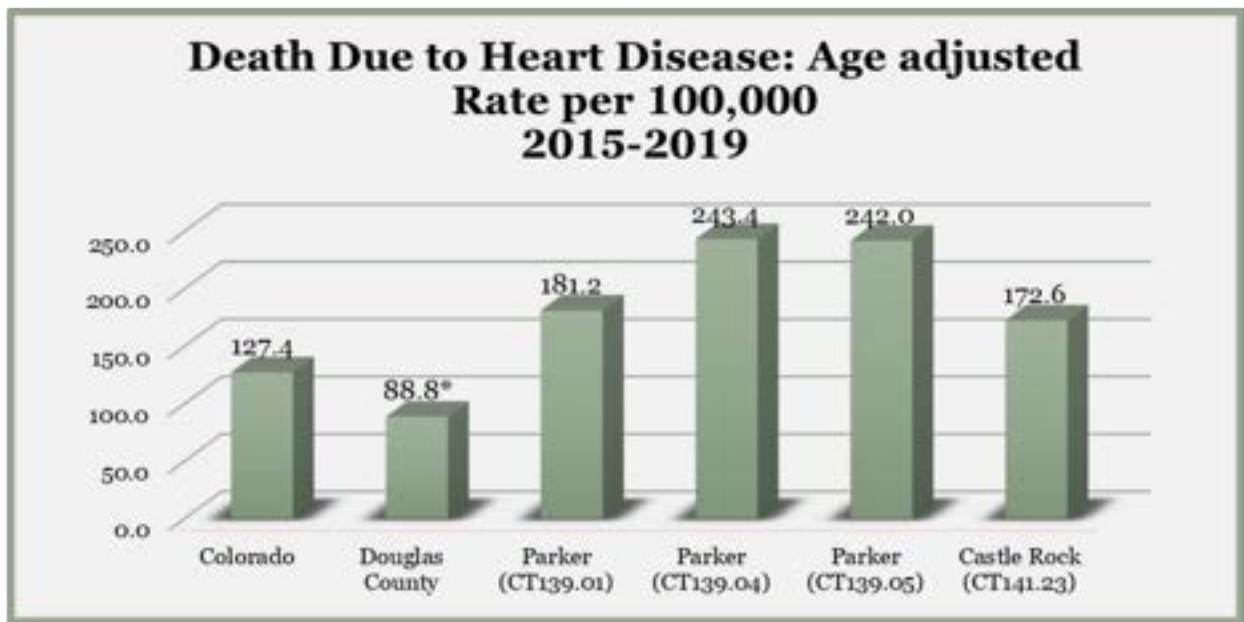


Figure 49 Heart Disease Mortality by Age, 2015 - 2019

*Indicates significantly lower rate compared to Colorado.

[i] CDPHE Health Equity/Environmental Justice Collaborative (2015-2019 Data).

Overtime, deaths due to chronic disease are decreasing in both Colorado and Douglas County, with the exception of Heart Disease. Mortality due to heart disease has increased 4 percent since 2016 to 107.0 per 100,000 people.^[i]

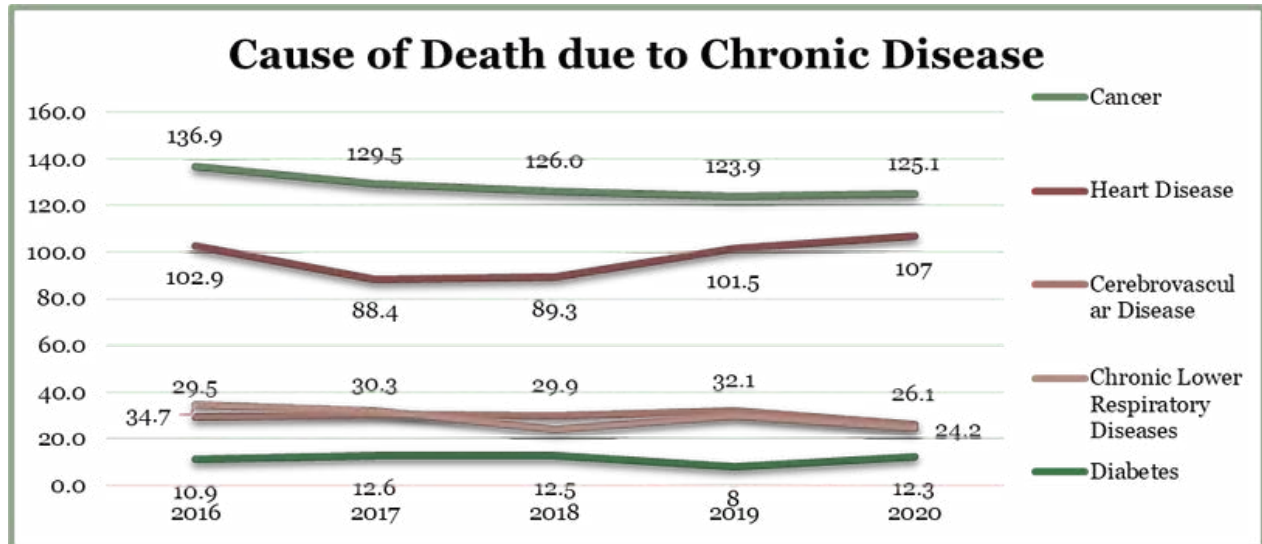


Figure 50 Mortality by Chronic Disease Type, 2016 - 2020

Additionally, there is disproportionate impact of chronic disease cause of death among people of color. In Douglas County, 22.4 percent of all deaths among all races are due to cardiovascular disease. However, among Asian American/Pacific Islanders and American Indigenous/Native American populations the proportion of deaths of each group to cardiovascular disease is higher at 32.7 percent and 33.7 percent respectively. The rates for these groups are higher in Douglas County than in Colorado. Also notable, within Douglas County, Black populations have lower proportion of death due to cardiovascular disease than Colorado.^[ii]

^[i] Colorado Department of Public Health And Environment. Vital Statistics.

^[ii] Ibid.

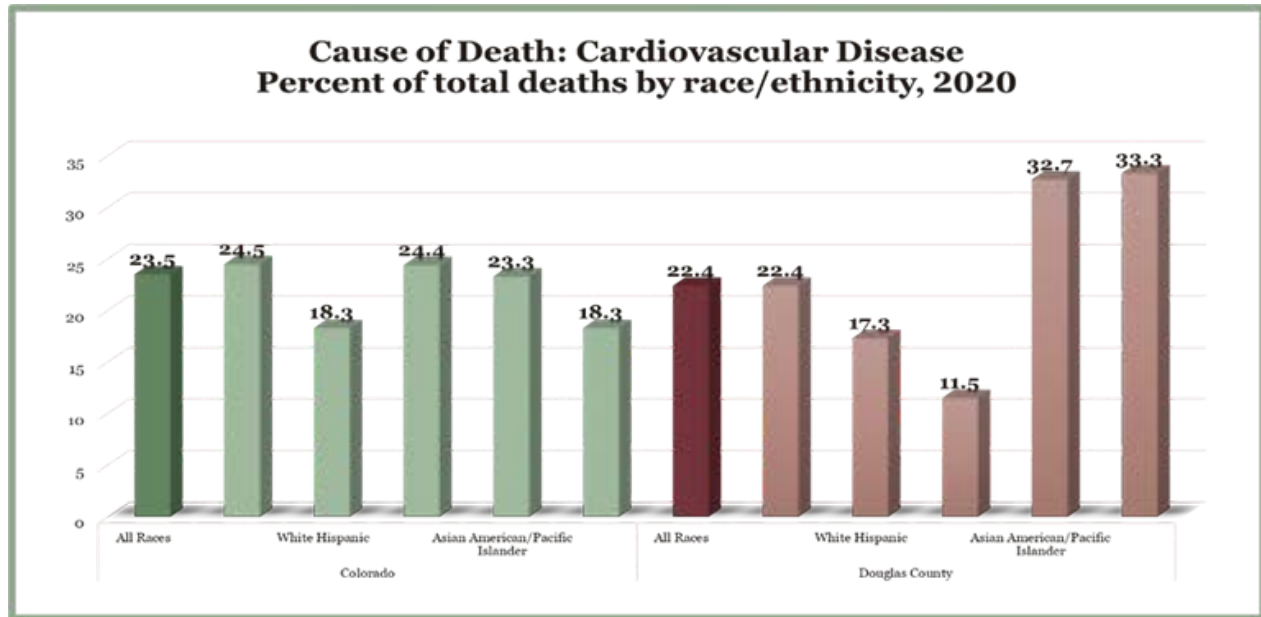


Figure 51 Cardiovascular Mortality by Race/Ethnicity, 2020
Note: Percentages are of total deaths of each race/ethnicity category.

Lastly, as the leading type of cardiovascular chronic disease cause of death, the CHA examined the racial and ethnic disparities among individuals who die due to cancer. Within Douglas County, there is a disproportionate impact of death due to cancer among American Indian/Native Alaskan (33.3%), Black (30.8%), and White Hispanic (25.3%) individuals which was not observed in Colorado. Individuals who are Asian American/Pacific Islanders as a percent of total deaths are least likely to die due to cancer at 14.5 percent.^[1]

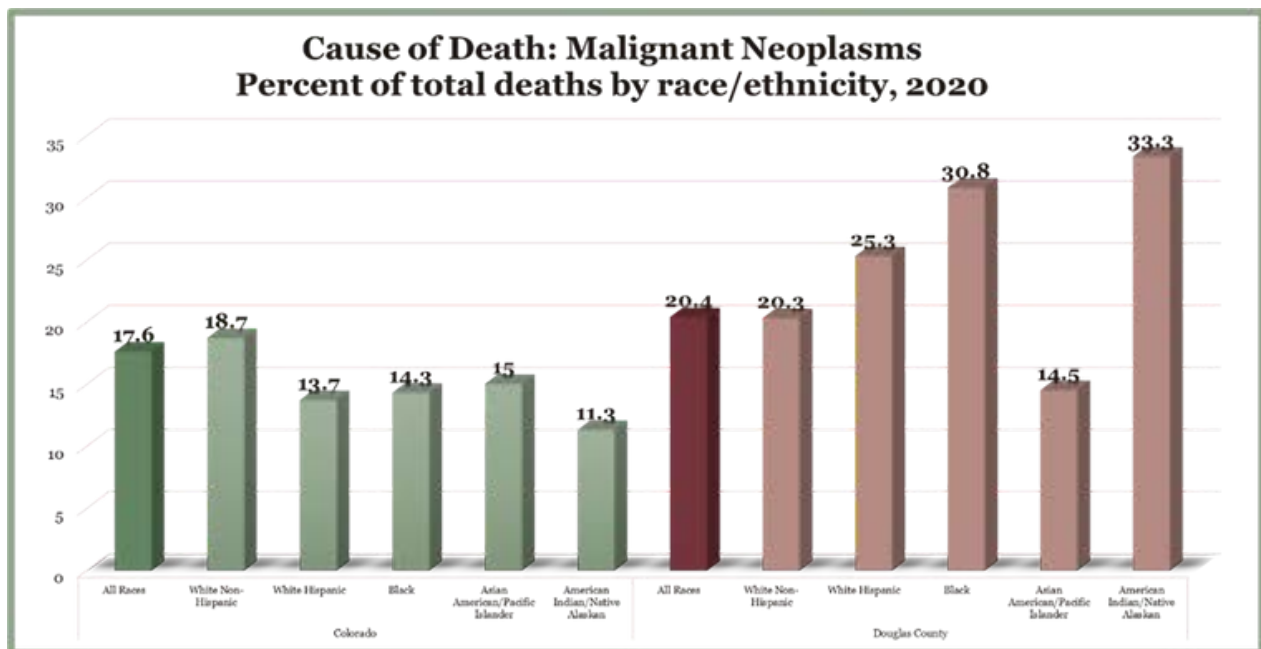


Figure 52 Mortality by Neoplasms by Race & Ethnicity, 2020
Note: Percentages are of total deaths of each race/ethnicity category.

[1] Colorado Department of Public Health And Environment. Vital Statistics.

Mental Health

Mental health disorders are medical conditions that disrupt a person's thinking, feeling, mood, ability to relate to others, and daily functioning. They are medical conditions that often result in a reduced ability to cope with routine daily activities such as work or raising a family. Just like other chronic diseases, mental health disorders are treatable. Most people diagnosed with a serious mental health disorder can receive relief from their symptoms by following a treatment plan designed for them by a trained psychologist or psychiatrist. Mental health disorders include illnesses such as major depression, bipolar disorder, obsessive-compulsive disorder, and post-traumatic stress disorder.

Many other associations exist between mental illness and chronic diseases, such as cardiovascular disease, diabetes, obesity, asthma, and arthritis.^[i] Depression is found to co-occur in 17 percent of individuals with cardiovascular disease, 23 percent of individuals with cerebrovascular disease, 27 percent of individuals with diabetes and more than 40 percent of individuals with cancer.^[ii]

In this section, the CHA examines mental health, including poor mental health and the prevalence of depression. Additionally, measures on mortality related to behavioral health issues – both mental health and substance use – is explored, including death due to drug overdose and suicide.

Poor Mental Health and Depression

In Douglas County, the percent of adults (18 years or older) who reported that their mental health was not good for 14+ days during the past 30 days is increasing faster compared to Colorado from 6.3 percent of adults in 2013 to 9.0 percent or just under one in 10 adults in 2020. However, the 2020 rates in Colorado were significantly higher than the 2013 rates.^[iii]

Among high school students, the percentage of students who felt so sad or hopeless and stopped doing usual activities almost every day for two or more consecutive weeks during the past 12 months increased significantly between 2013 and 2019 in both Douglas County and Colorado.^[iv]

[i] Chapman DP, Perry GS, Strine TW. The vital link between chronic disease and depressive disorders. *Prev Chronic Dis* [serial online] 2005; 2(1).

[ii] How does depression affect the heart? www.heart.org. (2021, June 22). Retrieved September 8, 2022, from <https://www.heart.org/en/healthy-living/healthy-lifestyle/mental-health-and-wellbeing/how-does-depression-affect-the-heart>

[iii] Colorado Behavioral Health Risk Surveillance System, 2018-2020.

[iv] Colorado Healthy Kids Survey, 2019.

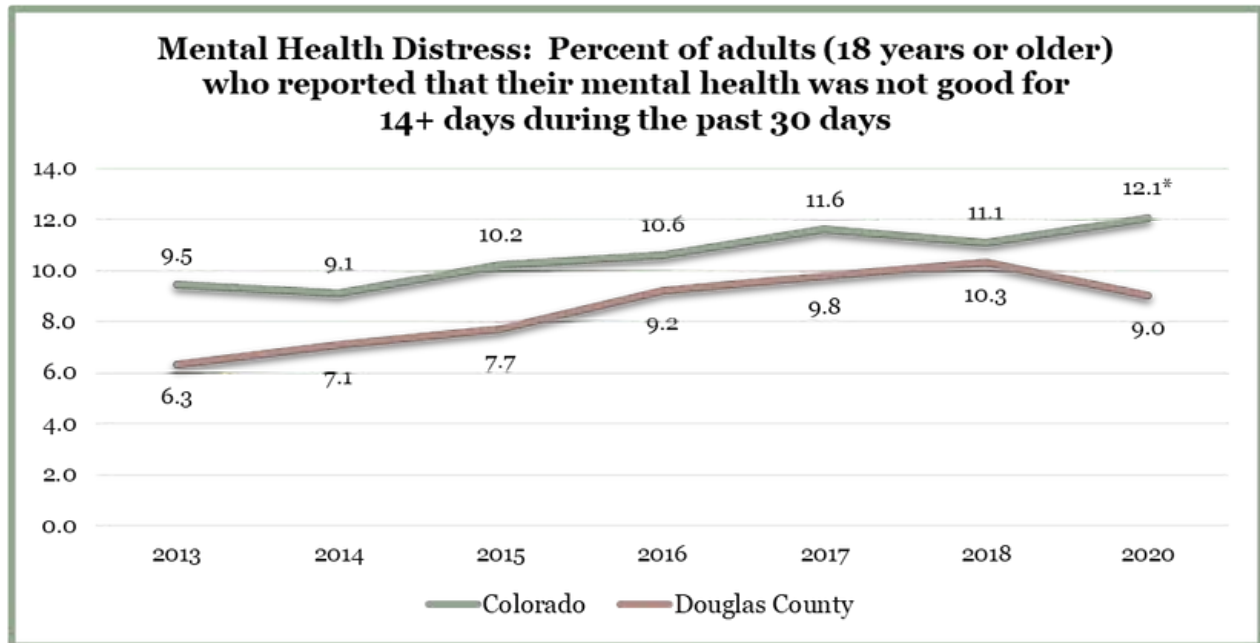


Figure 53 Mental Health Distress 14+ Days, Douglas County & Colorado, 2013 - 2020

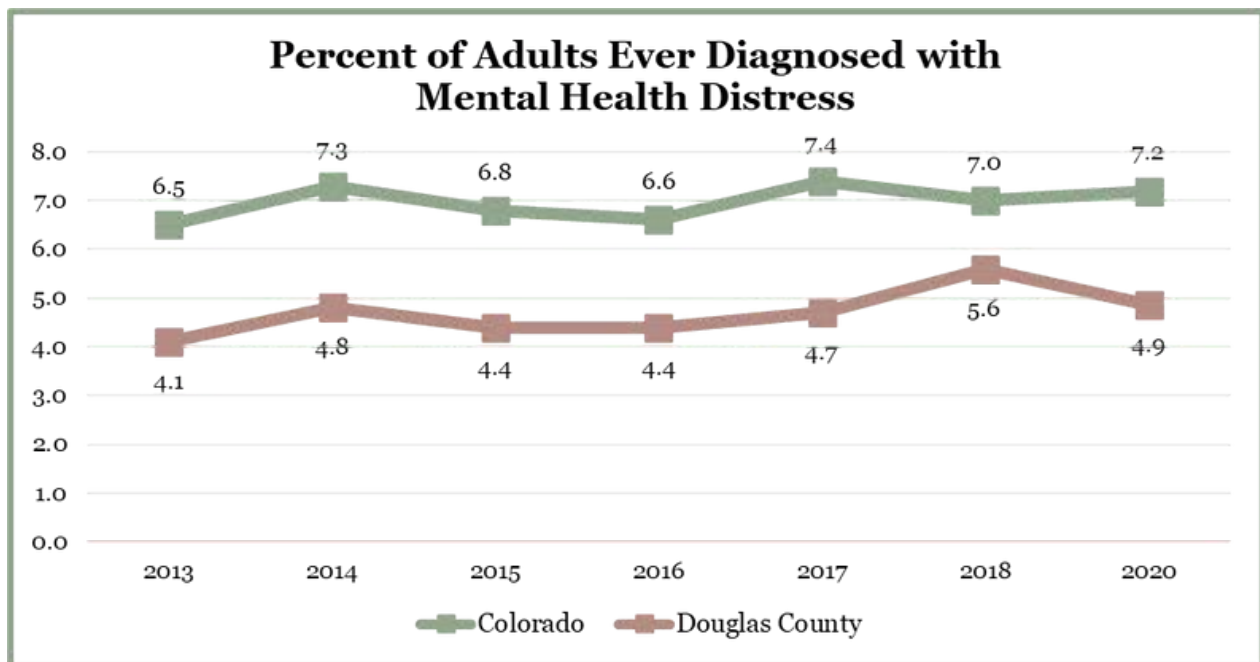


Figure 54 Adults Diagnosed with Mental Health Distress, Douglas County & Colorado, 2013 - 2020

Overall, three in 10 (30.9%) high school students experienced symptoms of depression. This rate is higher for some students.^[i] For example, females and Lesbian Gay Bisexual (LGB) high school students are more likely to experience symptoms of depression than their peers, a similar disparity is seen in Colorado.

[i] Colorado Healthy Kids Survey, 2019.

	Douglas County			Colorado		
	2013	2019	% Change	2013	2019	% Change
Percentage of students who felt so sad or hopeless and stopped doing usual activities almost every day for 2+ consecutive weeks during the past 12 months ¹⁷³	21.5	30.9	43.7%*	24.3	34.7	42.8%*

*Indicates a significant change in trend.

The hospitalization rate for mental health reasons or issues was the leading cause of hospitalization in Douglas County in 2019. The hospitalization rate for mental health issues is lower in Douglas County at 2,389.7 per 100,000 compared to 2,913.1 per 100,000 in Colorado.^[i] However, the rate was significantly getting worse in Douglas County, from 2,266.1 per 100,000 in 2015 to 2,389.7 per 100,000 in 2019. Additionally, there is significant geographic disparity. The rate of hospitalization for mental health issues was higher than Colorado for 16 percent of Douglas County's census tracts. Compared to Douglas County, mental health was worse in 34 percent of the County census tracts.

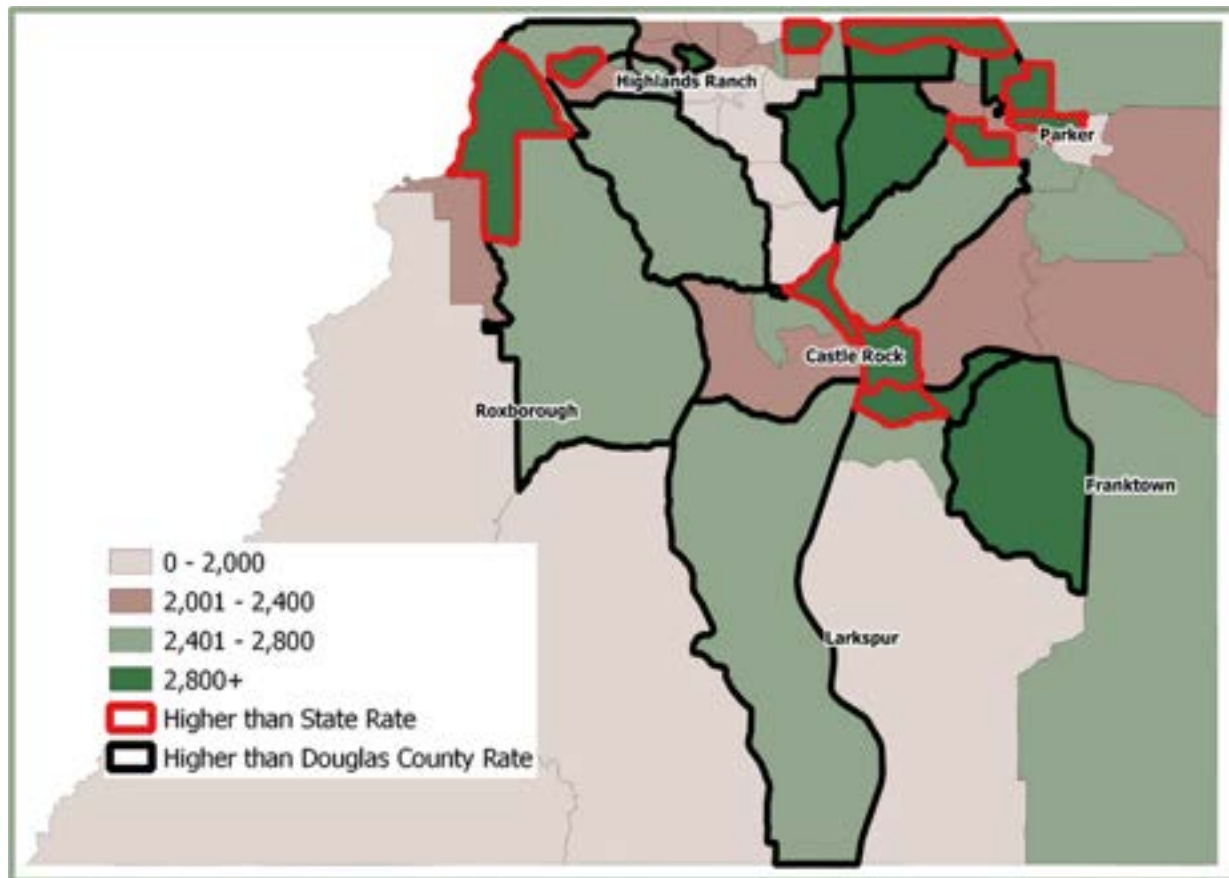


Figure 55 Age Adjusted Hospitalization Rate for Mental Health Issues

[i] Colorado Department of Public Health And Environment, Vital Statistics, Colorado Hospital Association, 2015-2019 Combined Estimates, Census Tracts.

Mortality

Douglas County has lower rates of behavioral health related deaths compared to Colorado in 2020. In Douglas County, suicide (12.3) and drug induced deaths (13.7) are more common than alcohol-induced deaths (9.7) or chronic liver disease and cirrhosis (5.2). In Colorado, drug induced deaths (25.5) and alcohol induced deaths (24.0) are more common than suicide (12.3) and chronic liver disease and cirrhosis (5.2).^[i]

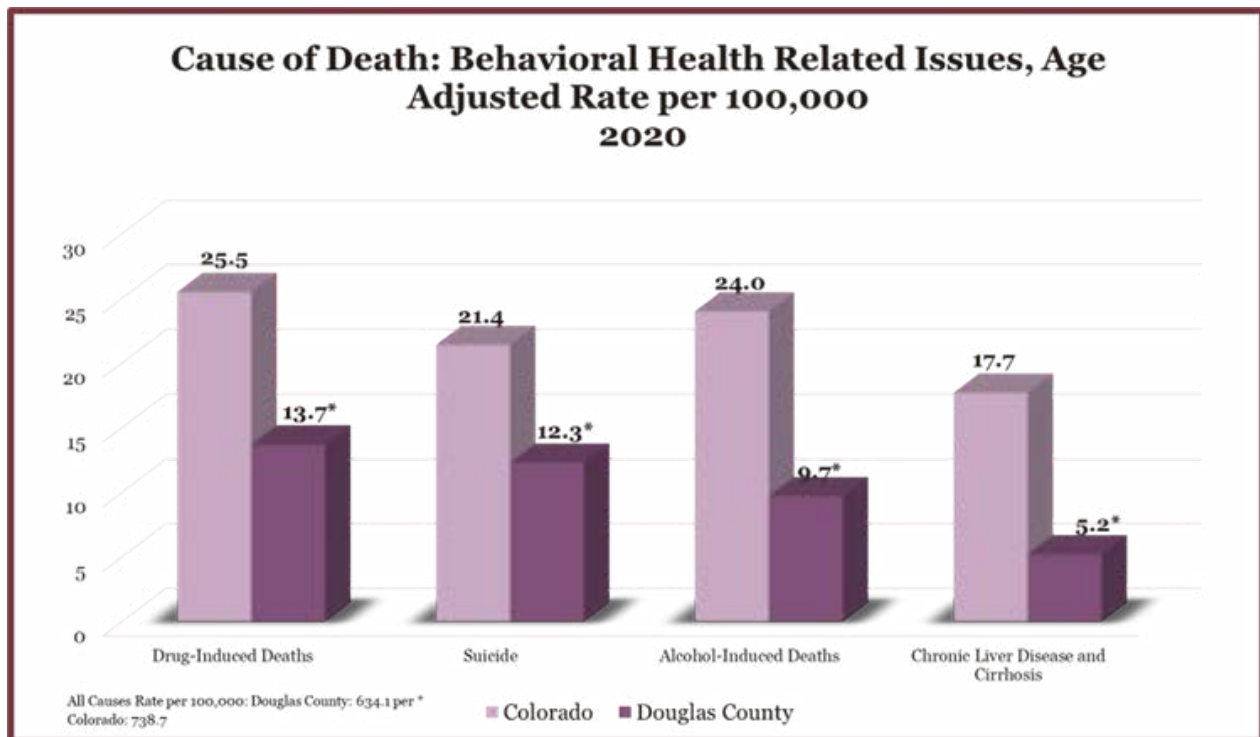


Figure 56 Behavioral Health Related Mortality, Douglas County & Colorado, 2020

Among individuals who have died due to a drug induced event, the age group 25-34 years have the highest rate per 100,000 at 23.2, which is higher than Douglas County overall rate of 9.4. White males are the most common gender and race/ethnicity demographic among those who have experienced a drug induced death.^[ii]

Among individuals who died due to suicide, the age group 20-24 years had the highest rate per 100,000 at 25.1 per 100,000, which is higher than Douglas County's overall rate of 15.9 per 100,000. White males are the most common gender and race/ethnicity demographic among those who died by suicide. Females (7.8) and Asian/Pacific Islanders (6.8) are less likely to have died by suicide compared to Douglas County overall.^[iii]

[i] Colorado Department of Public Health and Environment, Vital Statistics

[ii] Ibid.

[iii] Ibid.

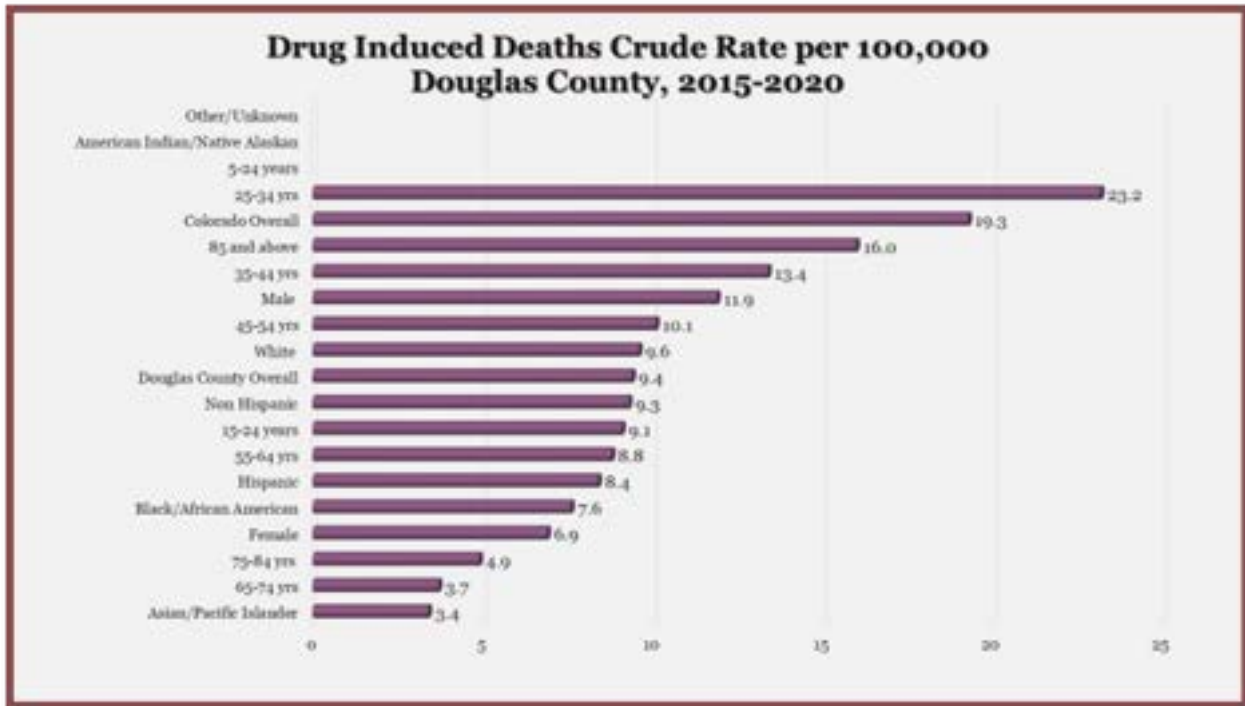


Figure 57 Drug Induced Death, Douglas County, 2015 - 2020

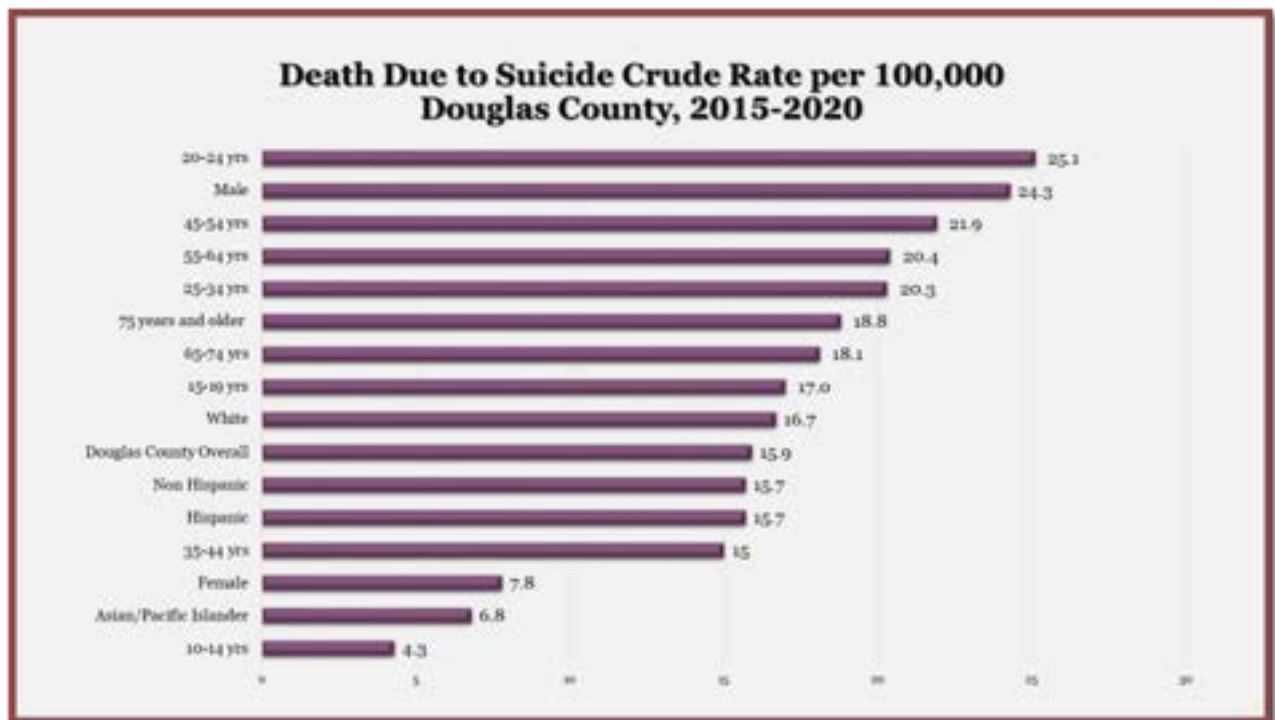


Figure 58 Suicide Rate, Douglas County, 2015 - 2020

Note: Categories are not mutually exclusive.

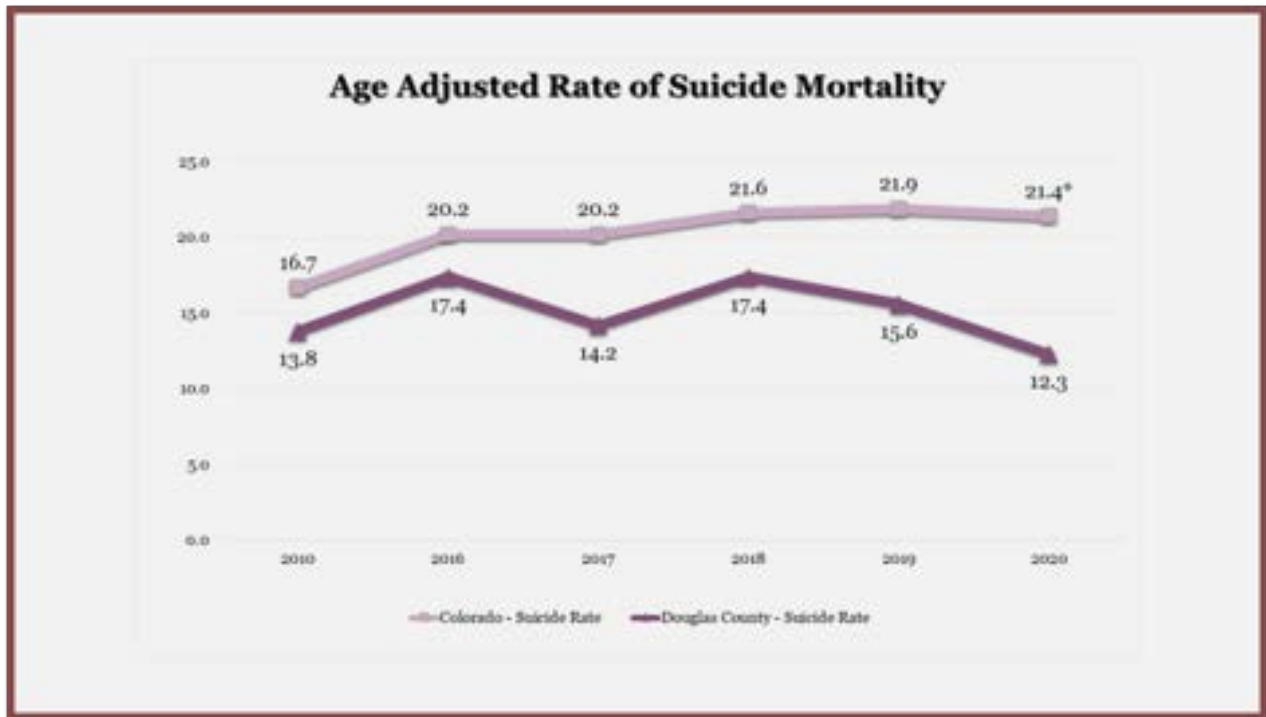


Figure 59 Suicide Mortality, Age Adjusted Rate, Douglas County & Colorado, 2010 - 2020

The trend in suicide related deaths in Douglas County has remained stable over the last 10 years, while increasing significantly in Colorado. Of the county's 664 suicides between 2004 and 2019, circumstances are known for 658 (99%) and toxicology is known for 624 (94%).^[i] The top three circumstances surrounding a suicide in Douglas County were current diagnosed mental health problem (62%, higher than Colorado at 47.1%), followed by current depressed mood (59.3%, similar to 57.0% for Colorado), and ever having received treatment for mental health problem (54.1%, higher than Colorado at 41.4%). Contributing intimate partner problem was the fourth leading circumstance at 44.2% (higher than Colorado at 38.0%). Regarding toxicology, more than one in three suicides (35.3%, similar to Colorado at 35.7%) there was alcohol present, followed by 16.0% with antidepressants (compared to 13.6% in Colorado), and 15.1 percent with opiates (compared to 15.1% in Colorado).^[ii]

The trend in drug related overdose deaths in Douglas County was lowest in 2014 and 2015 at an age adjusted rate of 6.5 per 100,000. In 2020, the rate was at a 20 year high at 13.4 per 100,000 as was Colorado's rate of 24.8.^[iii]

[i] Colorado Violent Death Reporting System, Circumstances, Toxicology, and Injury Location. Accessed on 10/17/2021. Note that data presented are limited to Colorado residents who died in state.

[ii] Ibid.

[iii] Colorado Department of Public Health and Environment, Vital Statistics.

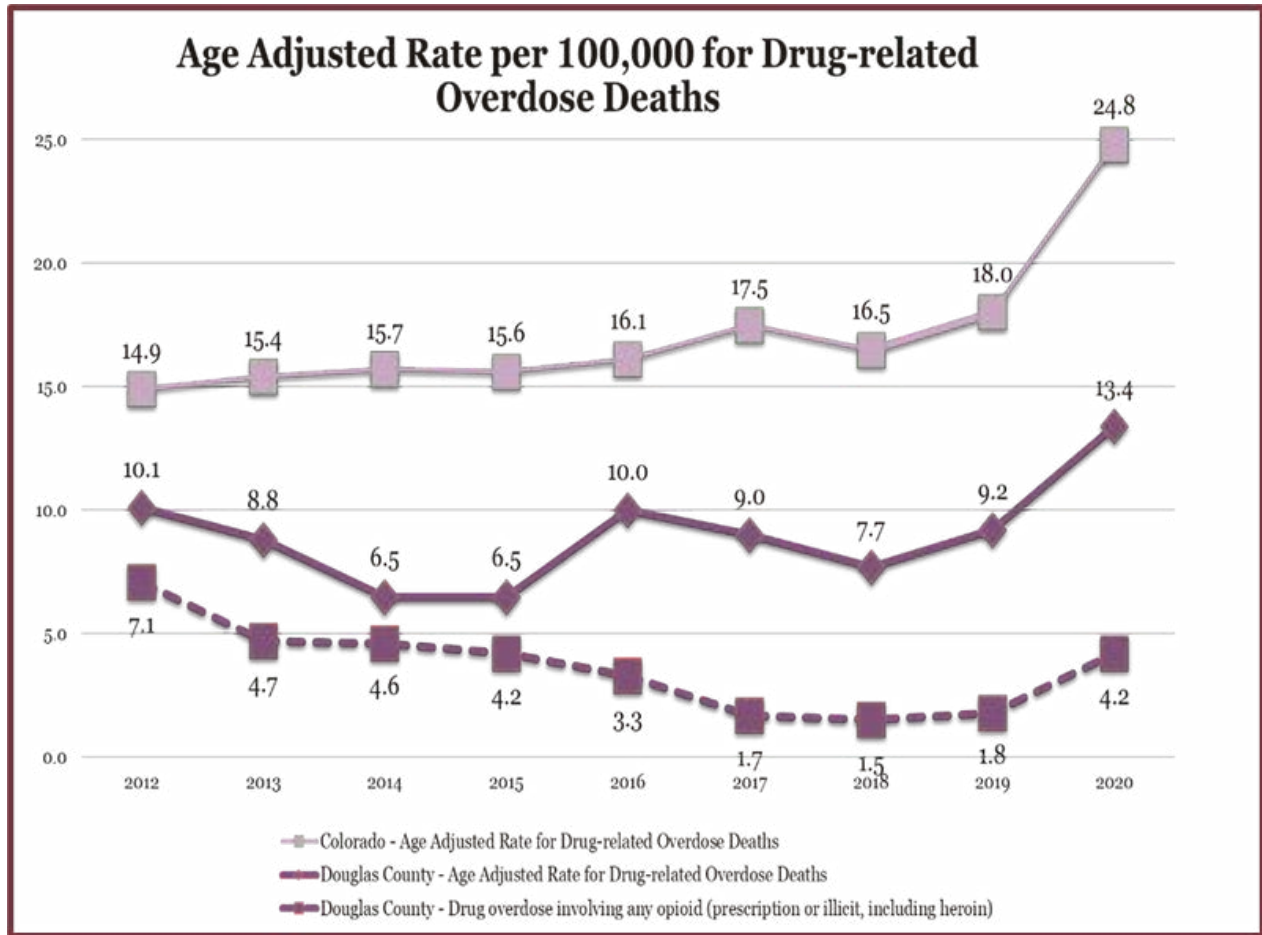


Figure 60 Drug Related Overdose Death, Age Adjusted, Douglas County and Colorado
 *Significantly higher in 2020 compared to 2021

Communicable Diseases

Communicable disease is one that is spread from one person to another through a variety of ways that include: contact with blood and bodily fluids; breathing in an airborne virus; or by being bitten by an insect. Public health looks for changes in disease trends to help identify outbreaks or know when a disease is changing. The CHA looks at the following:

- Immunization rates among kindergarteners
- Immunization rates among adults
- Prevalence of Sexually Transmitted Infections (STIs)
- Mortality

Children Immunization Rates

Immunization rates among kindergarten students are slightly higher in Douglas County compared to Colorado, including DTAP (92.1%), Hepatitis B (HepB) (94.7%), Measles, Mumps, and Rubella (MMR) (92.8%), Polio (91.4%), and Varicella (92.0%).^[i]

Overall, immunization rates among kindergarteners have increased between 2017/18 to 2020/21, with a faster rate of increase in Douglas County for all disease types. In Douglas County, the range of percent change was 1.6 percent to 3.9 percent, while in Colorado it was 0.8 percent to 1.5 percent.^[ii]

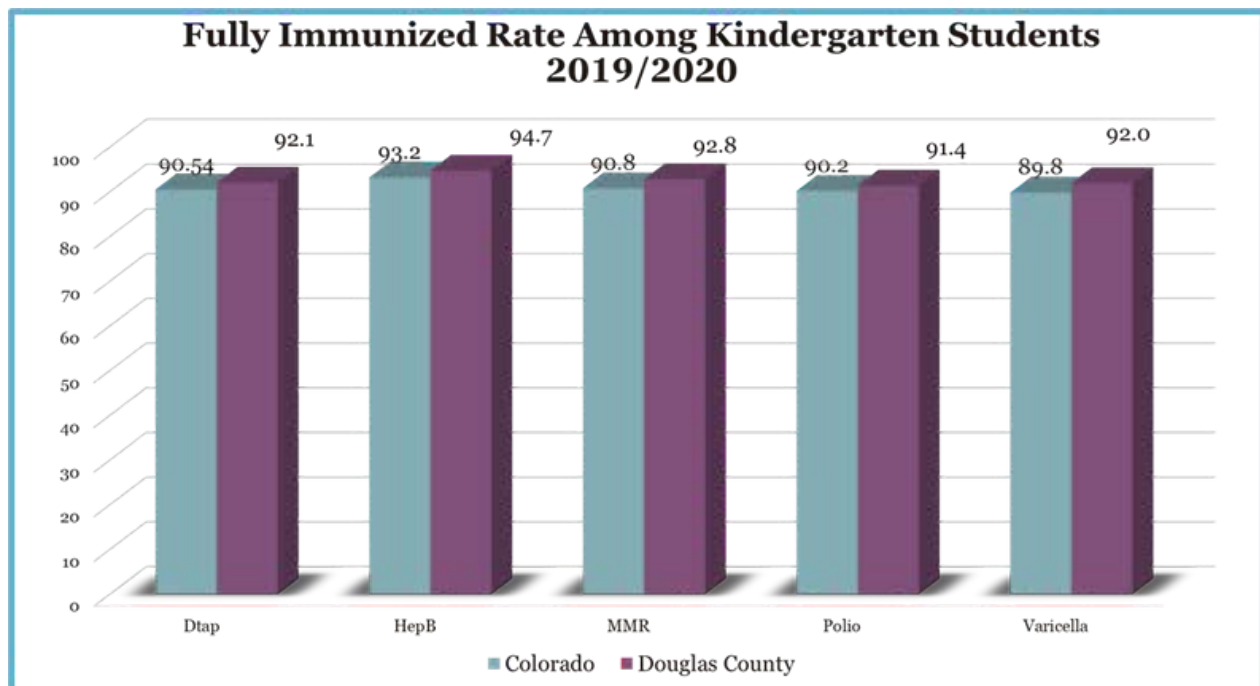


Figure 6i Full Immunization of Kindergarten Students, Douglas County & Colorado, 2019/2020

^[i] CDPHE Disease Control and Public Health Response Portal, Annual Kindergarten School Immunization Survey.

^[ii] Ibid.

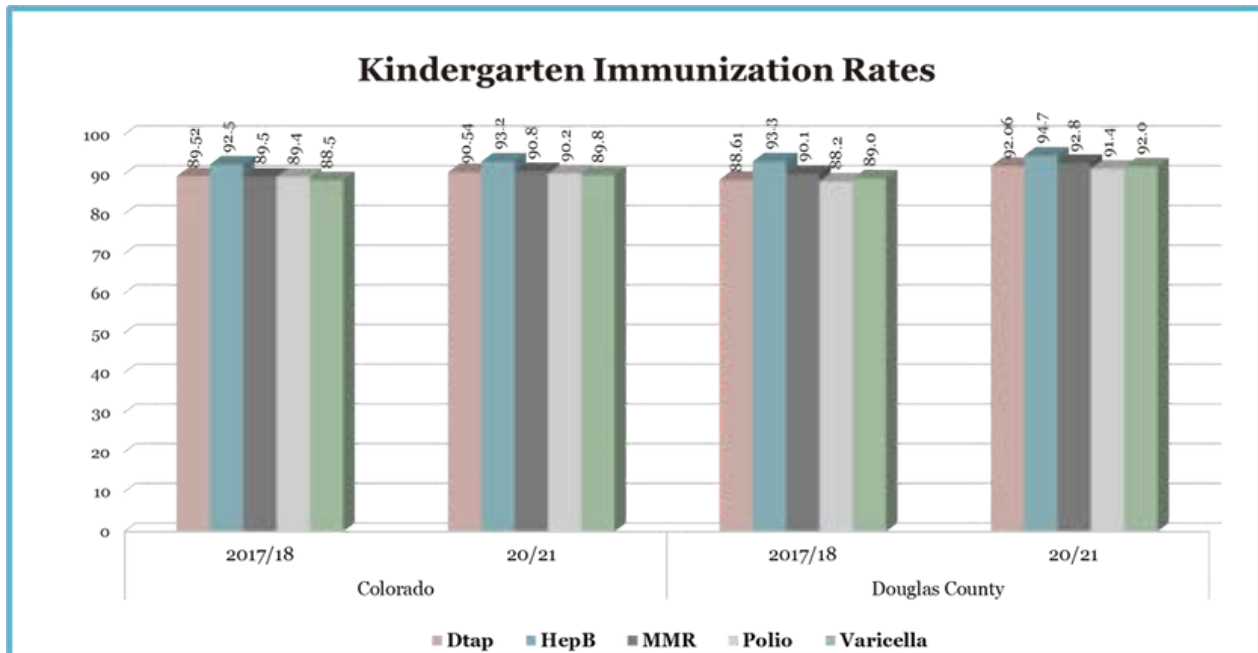


Figure 62 Kindergarten Immunization Rates, Douglas County & Colorado

Adult Immunization Rates

Adult immunization rates for common influenza virus was higher in Douglas County compared to Colorado in 2018. Since 2013, flu immunization rates have been decreasing slightly in Colorado while remaining stable in Douglas County.^[i]

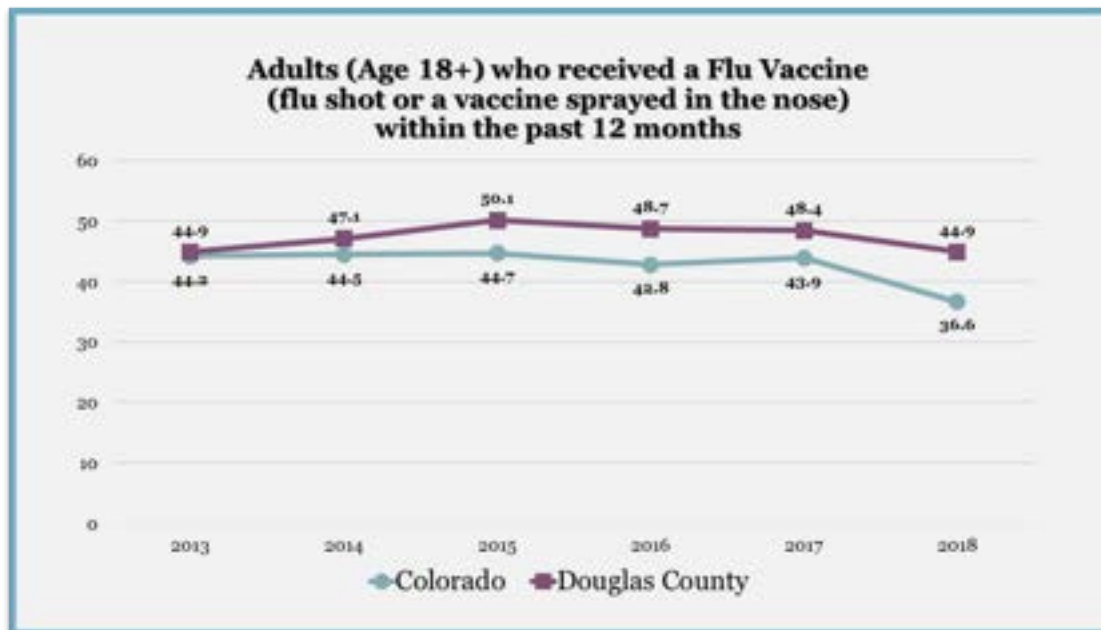


Figure 63 Adult Flu Vaccination Rate, Douglas County & Colorado, 2013 - 2018

As of November 21, 2021, CDPHE reported that the percent of residents ages 12 years and older immunized with one or more doses of any COVID-19 vaccine was 80.5 percent in Douglas County, compared to 81.4 percent in Colorado.^[ii] Cumulative cases of COVID-19 in Douglas county was 44,632 of which 316 Douglas County residents died.^[iii]

[i] Colorado Behavioral Health Risk Surveillance System, 2018.

[ii] To make a comparison to Colorado rates, CDPHE COVID-19 dashboard data were used for the CHA.

[iii] For up to date COVID-19 case and vaccination rates, visit <https://covid19.colorado.gov/data>

Sexually Transmitted Infections (STIs)

STIs are another important communicable disease to track. Overall, the rate of STIs is lower in Douglas County compared to Colorado.^[i] In 2019, Colorado reported 517.4 cases of chlamydia per 100,000, a 1.2 percent increase from 2018 and 18.3 percent increase from 2015. Most chlamydia cases are among women, 62.9 percent, and 66.9 percent of cases among women were between 15 and 24 years of age in 2019.^[ii]

For gonorrhea in 2019, in Colorado, there were 166.1 cases per 100,000, a 6.0 percent increase from 2018 and a 106.6 percent increase from 2015. Males represent a higher proportion of gonorrhea cases (59.4%) when compared to females, and 42.6 percent of all cases were among those 20-29 years of age. In Colorado, there were 24.9 cases of syphilis (all stages) per 100,000 in 2019, a 23.6 percent increase from 2018 and a 144.5 percent increase from 2015. Males accounted for 82.5 percent of cases. However, the proportion of women diagnosed with syphilis has been increasing the past several years (5.9% in 2015 to 17.5% in 2019).^[iii]

As in Colorado, Chlamydia and Gonorrhea are the most commonly reported STI in Douglas County. The rate of Chlamydia increased 91 percent between 2007 (107 per 100,000) and 2018 (205 per 100,000). By the end of 2019, an estimated 14,630 Colorado residents were living with HIV. In 2019, there were 414 new diagnosed cases of HIV reported in Colorado. In Douglas County, the rate of new HIV Diagnoses remained steady around 3.0 per 100,000 compared to 8.0 per 100,000 in Colorado.^[iv]

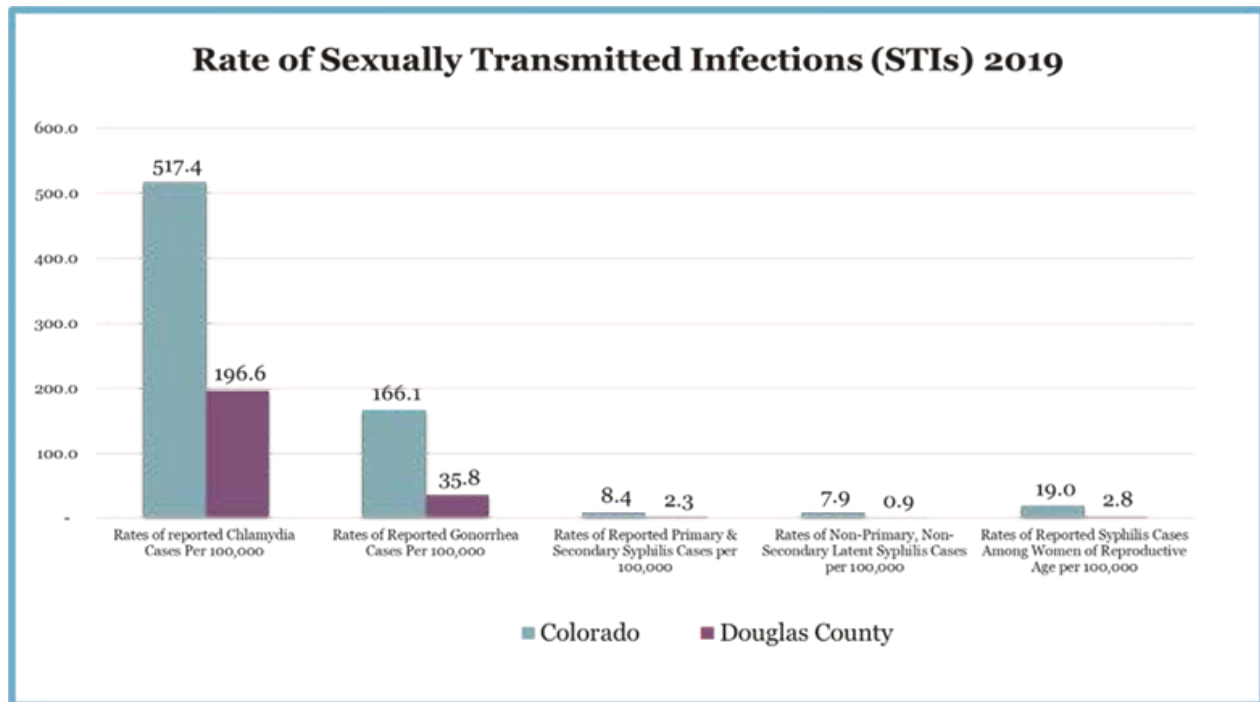


Figure 64 Rate of Sexually Transmitted Infections, Douglas County & Colorado, 2019

[i] Under Colorado law updated in May 2017, health care providers and laboratories must report all diagnosed cases of chlamydia and gonorrhea to the Colorado Department of Public Health and Environment (CDPHE) within four days and all syphilis cases within one workday. These case reports are entered into the statewide STI reporting database. Case reports entered into this database are the primary data source for diagnosed cases of STIs in Colorado. Chlamydia, gonorrhea and syphilis cases most often require laboratory confirmation; all laboratories submit STI reports to CDPHE, and all major laboratories report STIs electronically via secure data networks.

[ii] Colorado 2019 Sexually Transmitted Infections Annual Report Colorado Department of Public Health and Environment, Denver, CO July 2021.

[iii] Ibid.

[iv] Ibid.

Mortality

In 2020, Douglas County had similar age adjusted rates of death per 100,000 due to Pneumonia and Influenza (5.1) and COVID-19 (60.6) compared to Colorado, 7.1 and 67.8, respectively. As reported previously, as of November 23, 2021, 316 Douglas County residents died due to COVID-19 and 399 deaths have occurred in Douglas County.^[1] Among deaths due to COVID-19, Asian American/Pacific Islanders have the highest percent of deaths due to COVID-19 in Douglas County and experienced the highest percent among all race/ethnicity populations in Colorado, followed by White Hispanics.

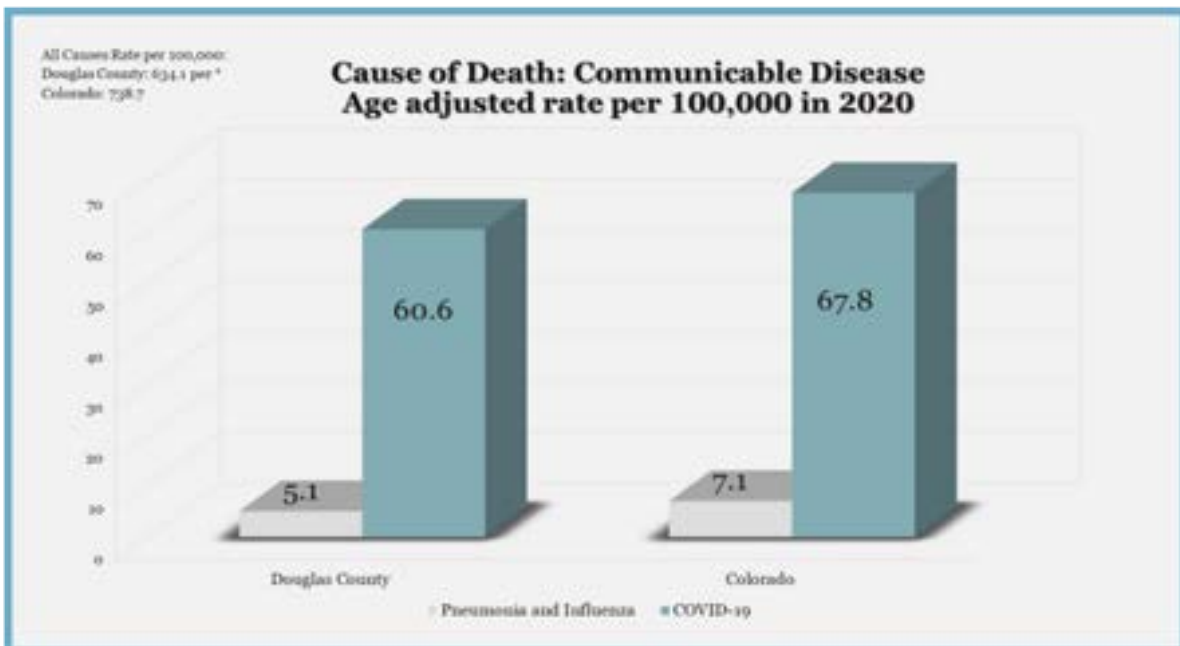


Figure 65 Mortality Rate, Communicable Disease, Age Adjusted, Douglas County & Colorado, 2020

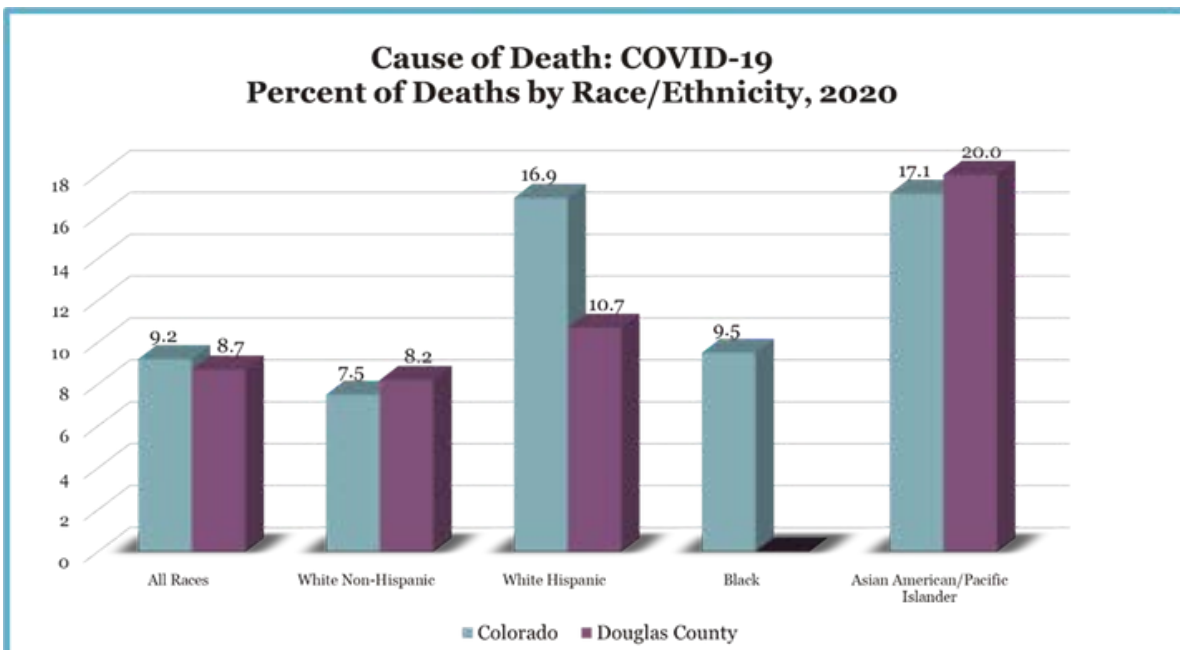


Figure 66 Mortality Rate, COVID-19 by Race/Ethnicity, 2020

[1] For up to date COVID-19 case, death, and vaccination rates, visit <https://covid19.colorado.gov/data>

Unintentional and Intentional Injury

Injuries are one of the leading causes of death; unintentional injuries were the third leading cause, and intentional injuries (self-harm) the 10th leading cause, of US mortality in 2019.^[i] The leading causes of death in 2019 among unintentional injuries, respectively, were: opioid overdoses (unintentional poisoning), motor vehicle crashes, and unintentional falls. Among intentional injuries, the leading causes of death in 2019, respectively, were: firearm suicides, suffocation suicides, and firearm homicides. In 2019, unintentional injuries were the leading cause of death for all groups under age 45. Injuries accounted for 29 percent of all ED visits and falls account for nearly one-quarter of those visits. Fatal and nonfatal injury indicators in this section will examine:

- ED visits mentioning any injury (nonfatal injury)
- Motor vehicle
- Falls
- Firearm
- Child abuse and neglect
- Homicides
- Suicides

Poisoning due to drugs was examined in the previous section Behavioral Health with alcohol and other drug use. Overall, the average annual age-adjusted rate of ED visits mentioning any injury per 100,000 residents is lower in Douglas County (4,896.1) compared to Colorado (6,493.8).^[ii]

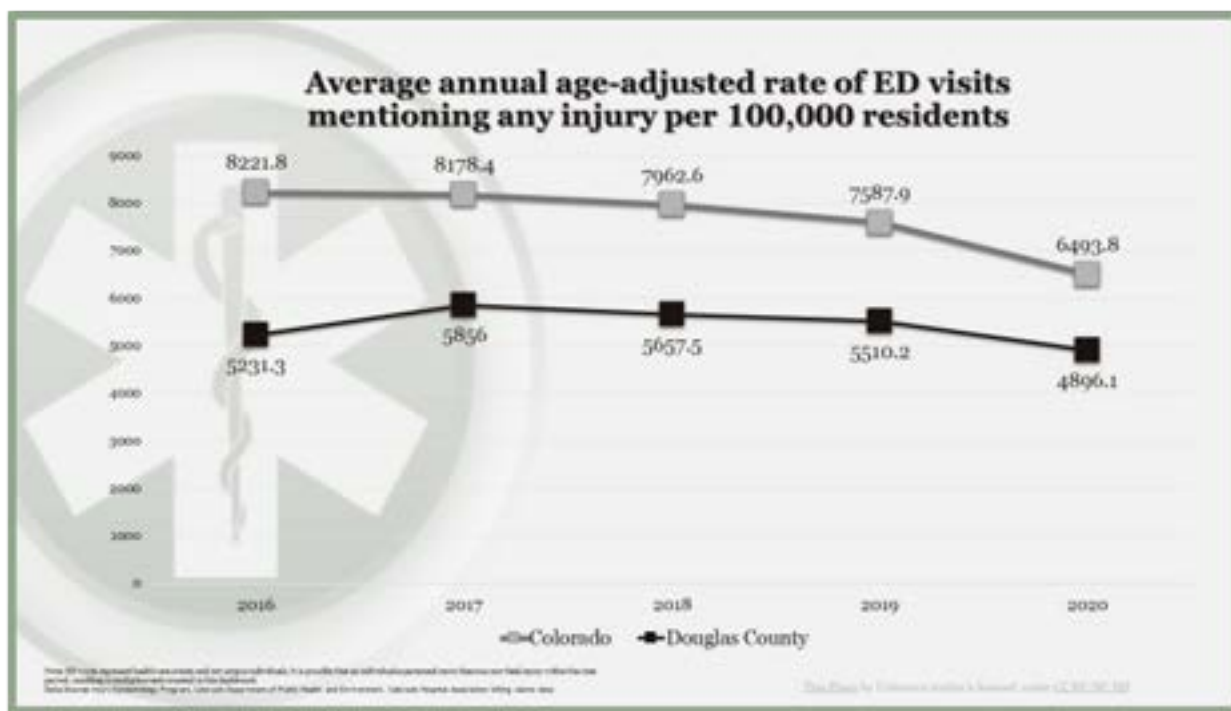


Figure 67 Average Annual Injury Related ED Visits, Age Adjusted, Douglas County & Colorado

[i] Centers for Disease Control and Prevention. (2022, February 10). Leading causes of death and injury. Retrieved October 8, 2021, from <https://www.cdc.gov/injury/wisqars/LeadingCauses.html>

[ii] Injury Epidemiology Program, Colorado Department of Public Health and Environment. Injuries in Colorado Dashboard. Accessed 10/2021.

Nonfatal Injury

Overall, the average annual age-adjusted rate of ED visits mentioning any injury per 100,000 residents is lower in Douglas County (4,896.1) compared to Colorado (6,493.8).^[i]

Among injuries, fall-related injuries are the leading cause of ED utilization at 1,802.5 per 100,000 residents, followed by motor vehicle crashes (148.4), poisoning due to drugs (143.7), assault (118.7), intentional self-harm (109.1), and child or adult abuse (21.2). Since 2016, ED visits due to injury had increased for fall, poisonings due to drugs, assault, intentional self-harm, and child or adult abuse. Motor vehicle related injuries was one exception among the leading types of injury related ED visits, which decreased 23 percent from 452.2 in 2016 to 348.2 per 100,000 residents in 2020.^[ii]

TABLE 29 AGE ADJUSTED RATES OF ED VISITS PER 100,000 RESIDENTS BY INJURY TYPE

Injury Type	2016	2020	Percent Change
Fall Injuries	1,759.9	1,852.5	5%
Motor Vehicle	452.2	348.4	-23%
Poisoning Due to Drugs	115.3	143.7	25%
Assault	105.6	118.7	12%
Intentional Self Harm	100.3	109.1	9%
Child or Adult Abuse	16.3	21.2	30%

Injury Deaths

Injury is common, costly, and preventable – it is a third lead causes of death in Colorado. Injury data sheds light on when and why violence and injuries occur and how to prevent them. Overall, in 2020, the injury death rate per 100,000 is significantly lower in Douglas County at 65.7 compared to 80.0 in Colorado. Similarly, the unintentional injury rate is significantly lower in Douglas County at 48.1 compared to 52.9 in Colorado. In Douglas County, the leading types of injury death are falls (which is significantly higher at 27.8 per 100,000 compared to Colorado at 16.1 per 100,000, followed by suicide (15.2 per 100,000), motor vehicle injuries (4.9 per 100,000) and homicides (1.4 per 100,000).^[iii]

Overtime, the rate of all injury deaths significantly increased in Colorado while remained stable in Douglas County. Unintentional injury deaths remained stable for both Colorado and Douglas County, suggesting that the rate of intentional injuries has driven the increase in injury deaths in Colorado. Homicide injuries in Colorado significantly increased between 2016 and 2020 (from 4.2 to 5.8 per 100,000) while suicide death rates remained stable.^[iv]

[i] Injury Epidemiology Program, Colorado Department of Public Health and Environment. Injuries in Colorado Dashboard. Accessed 10/2021.

[ii] Ibid.

[iii] Ibid.

[iv] Ibid.

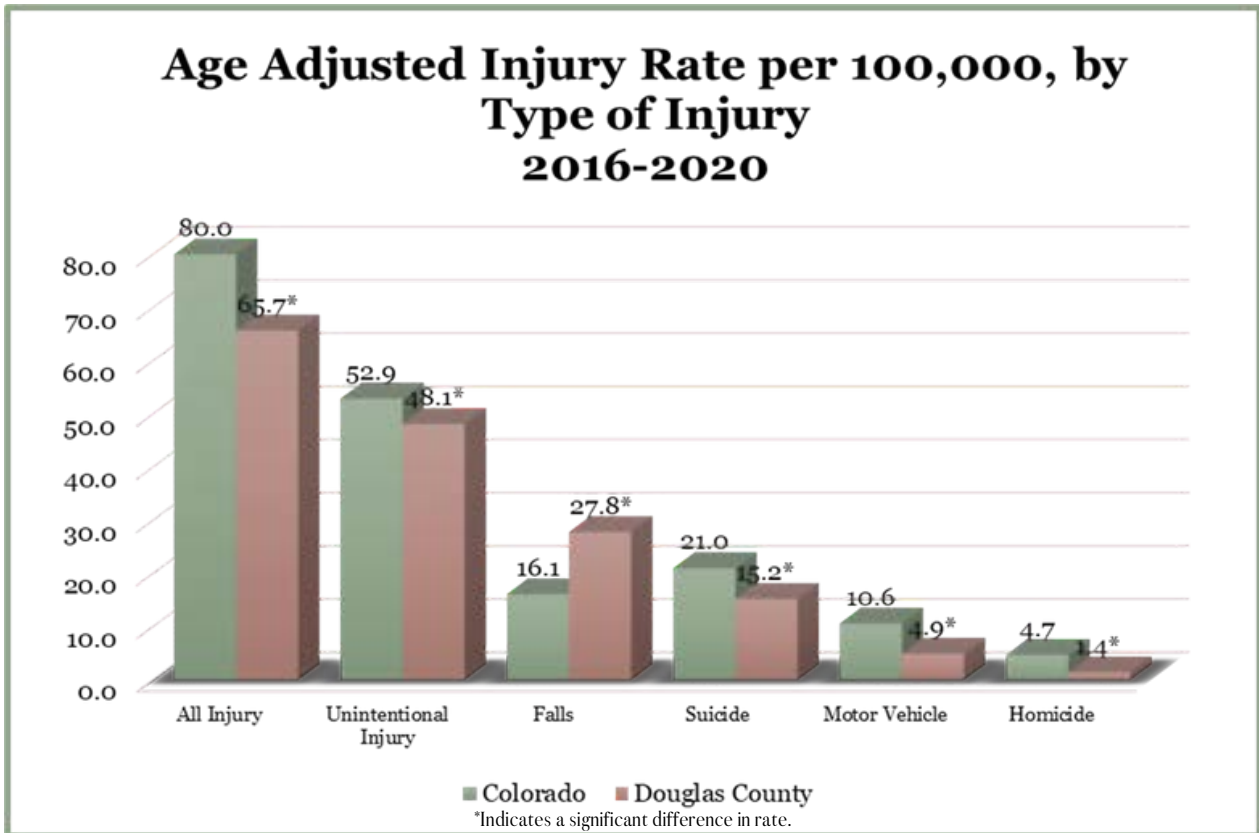


Figure 68 Injury by Type, Age Adjusted Rate, Douglas County & Colorado, 2016 - 2020

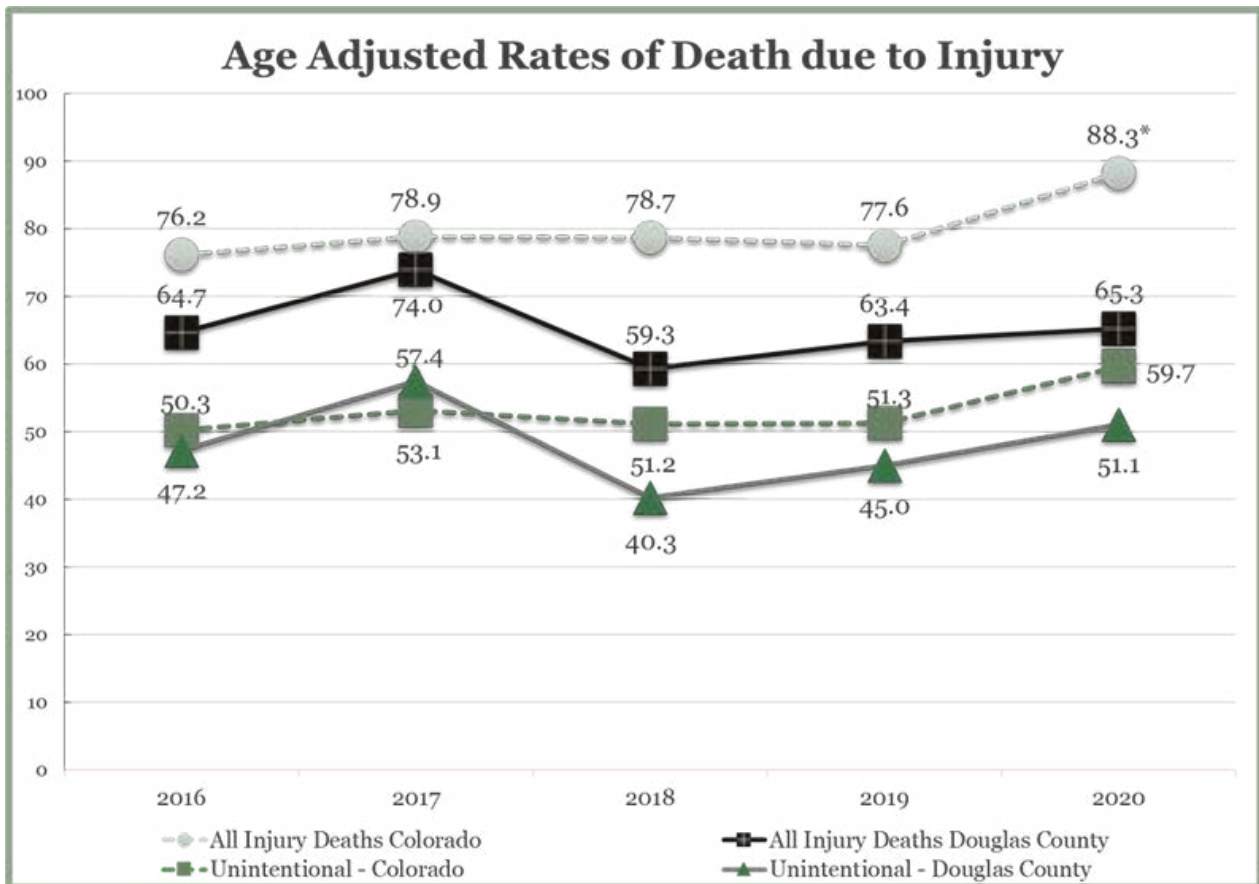


Figure 69 Injury Related Mortality Rates, Age Adjusted, Douglas County & Colorado, 2016 - 2020

Falls

Falls are one of the leading causes of injury in Douglas County, and the age adjusted rate is greater than Colorado – which is what the rate would be if Colorado and Douglas County had the same composition of ages. The rate of falls in Douglas County remained stable between 2016 and 2020. An assessment of crude rates per 100,000 allows for an examination of the age group most commonly experiencing injury death due to a fall. In Douglas County, adults 65 years and above had a fall injury rate of 137.7 per 100,000.^[i] Within this age group, ages 85 and above had the highest crude rate of 1,154.1 per 100,000, followed by adults ages 75-84 years (161.9), and adults 65-74 years (10.2). Additionally, females (21.9 per 100,000) were significantly more likely than males (15.9 per 100,000) to die due to a fall.

Firearm Fatalities

Firearm is one possible weapon to cause injury death in Douglas County, with a crude rate of 9.1 per 100,000 in Douglas County. The crude rate of deaths due to firearms per year has significantly decreased in Douglas County between 2016 at 12.2 per 100,000 and 2020 at 7.6 per 100,000. By gender, males were more likely to experience a death due to firearm at 15.9 per 100,000 compared to females at 2.5. Youth under 18 were significantly less likely than any other age group to experience a death due to a firearm at 2.2 per 100,000, lower than young adults 18-24 years (10.3), adults 24-64 years (11.6) and older adults 65 and above (11.1). Black or African American residents had the highest rate per 100,000 at 13.3, followed by White Non-Hispanic (9.2), Hispanic or Latino (7.9), and Asian/Pacific Islander (5.1). There was no significant difference in rates between the different race and ethnicity groups.^[ii]

Suicide Fatalities

Among injuries due to suicide, in both Colorado and Douglas County, firearms were the method most commonly used. In Colorado, the rate per 100,000 suicides with a firearm was 10.6 compared to 7.7 in Douglas County. Hanging/Strangulation/Suffocation was the second most common followed by poisoning, falls, sharp instrument and other methods. Use of a firearm and hanging/strangulation/suffocation significantly increased in Colorado over the last 10 years, while it remained steady in Douglas County.^[iii]

Motor Vehicles

In Douglas County, the rate of deaths due to motor vehicle crashes decreased between 2016 and 2020, from 5.6 per 100,000 to 3.2 per 100,000 residents in 2020. In 2020, mortality due to motor vehicle crashes were at a 5-year low for Douglas County at 3.2 traffic accidents per 100,000 residents, while Colorado experienced an average annual age-adjusted rate of deaths due to traffic accidents of 10.8 per 100,000 Coloradans^[i]. By age group, adults 65 years and above had the highest rate of deaths due to motor vehicle crashes per year at 9.7 per 100,000, followed by young adults ages 18-24 years (6.6), adults 25-64 years (5.4), and youth under 18 years (1.0). There is no significant difference in rates between the age groups. By gender, males (7.4 per 100,000) are significantly more likely to die due to motor vehicle crashes compared to females (2.5).^[iv]

[i] Injury Epidemiology Program, Colorado Department of Public Health and Environment. Injuries in Colorado Dashboard. Accessed 10/2021.

[ii] Ibid.

[iii] Ibid.

[iv] Ibid.

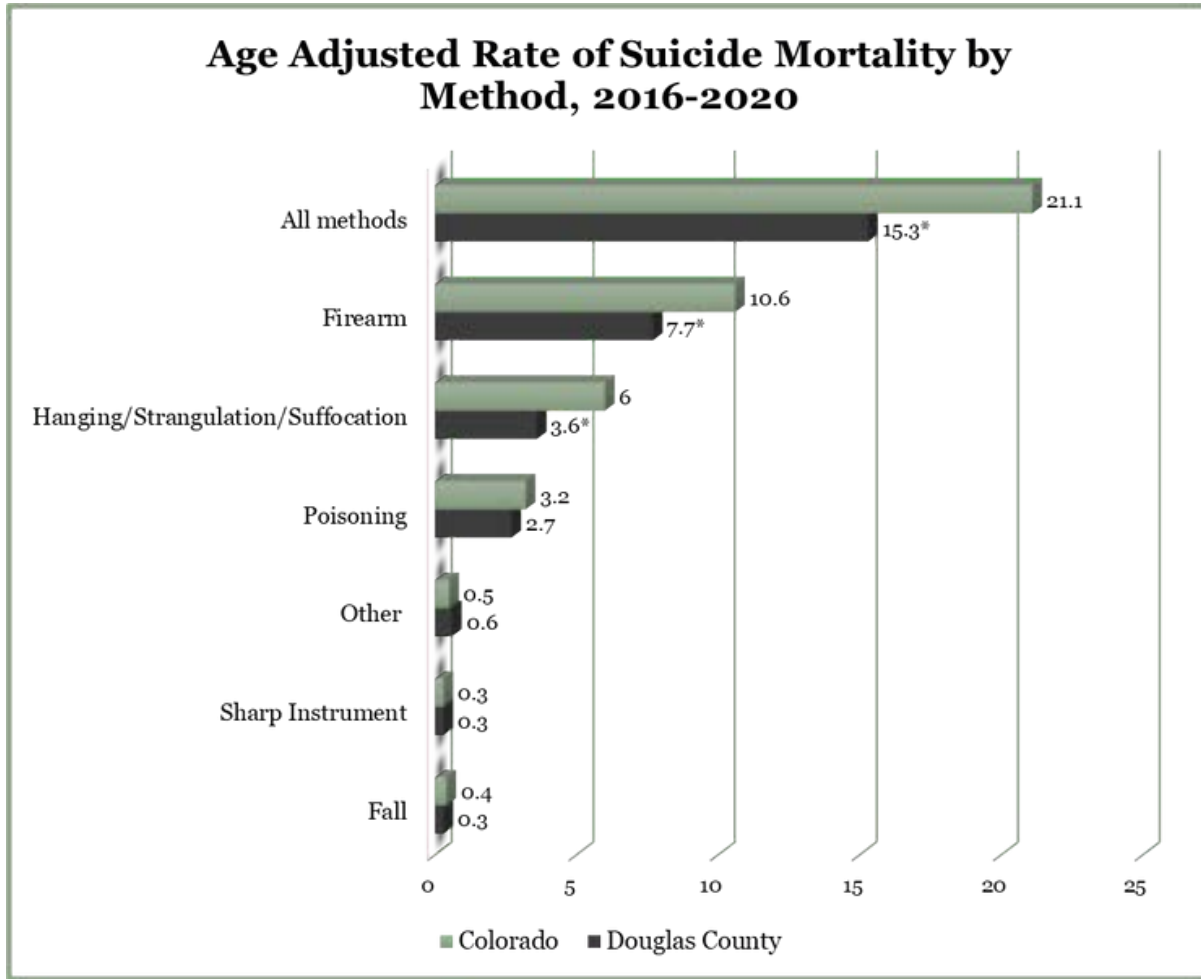


Figure 70 Suicide Mortality by Method, Age Adjusted Rate, Douglas County & Colorado, 2016 - 2020

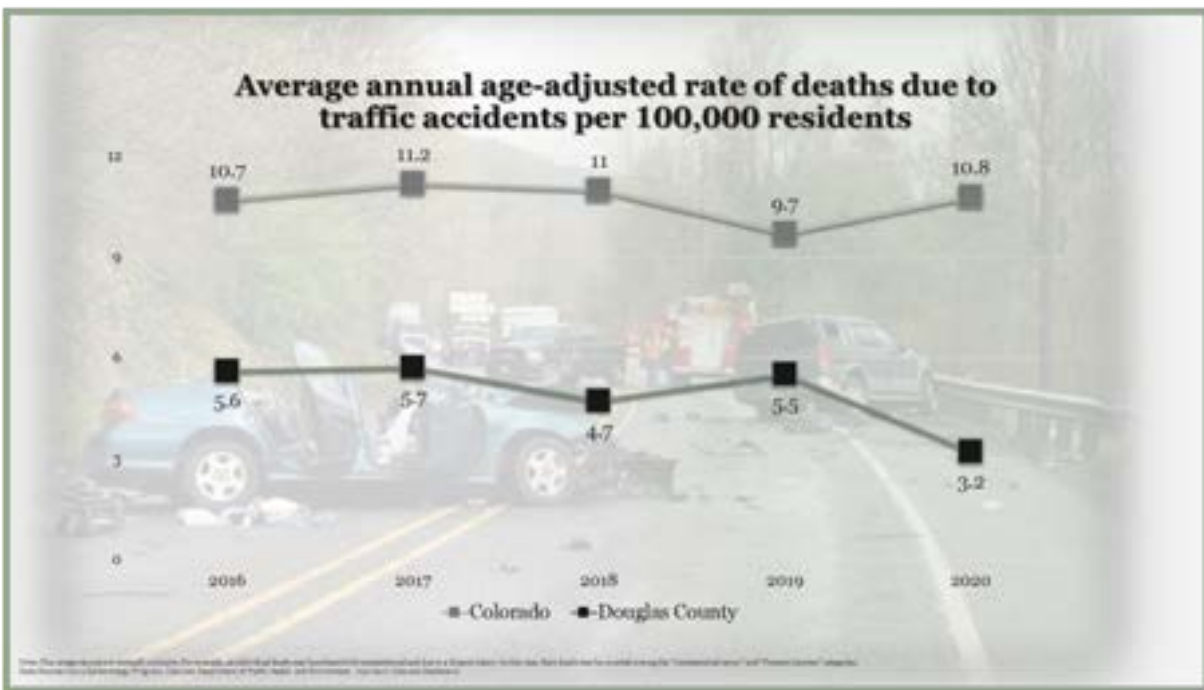


Figure 71 Mortality Rate, Traffic Accidents, Age Adjusted, Douglas County & Colorado, 2016 - 2020

Child Abuse and Neglect

Child maltreatment is a significant public health problem. Child abuse and neglect are serious public health problems and adverse childhood experiences (ACEs) can have long-term impacts on health, opportunity, and wellbeing. [i] There are five common types of abuse and neglect: Neglect is the failure to meet a child's basic physical and emotional needs. These needs include housing, food, clothing, and education. Medical neglect refers to failure to access medical care to meet a child's basic physical and emotional needs.

In the United States, at least one in seven children have experienced child abuse and/or neglect in the past year, and this is likely an underestimate. In 2019, 1,840 children died of abuse and neglect in the United States, a slight increase from the FFY 2018 number of 1,780. Since 2015, there was a 10.8 percent increase from 1,660 children who died. The FFY 2019 data translate to a rate of 2.5 children per 100,000 children in the general population and an average of more than five children dying every day from abuse or neglect.[ii]

In Douglas County, between 2016 and 2020, there were 10,443 allegations of maltreatment made of which 23 percent (2,405) were substantiated. The remaining 77 percent (8,028) are unsubstantiated or pending. The most common type of maltreatment is neglect representing approximately 75 percent of substantiated allegations, followed by physical abuse (ranging from 10.3% to 11.4%), psychological or emotional abuse (ranging from 5.1% to 9.8%), and medical neglect (ranging from 0.4% to 2.3%). By age group, adults 65 years and above had the highest rate of deaths due to motor vehicle crashes per year at 9.7 per 100,000, followed by young adults ages 18-24 years (6.6), adults 25-64 years (5.4), and youth under 18 years (1.0).[i] There is no significant difference in rates between the age groups. By gender, males (7.4 per 100,000) are significantly more likely to die due to motor vehicle crashes compared to females (2.5).[iii]

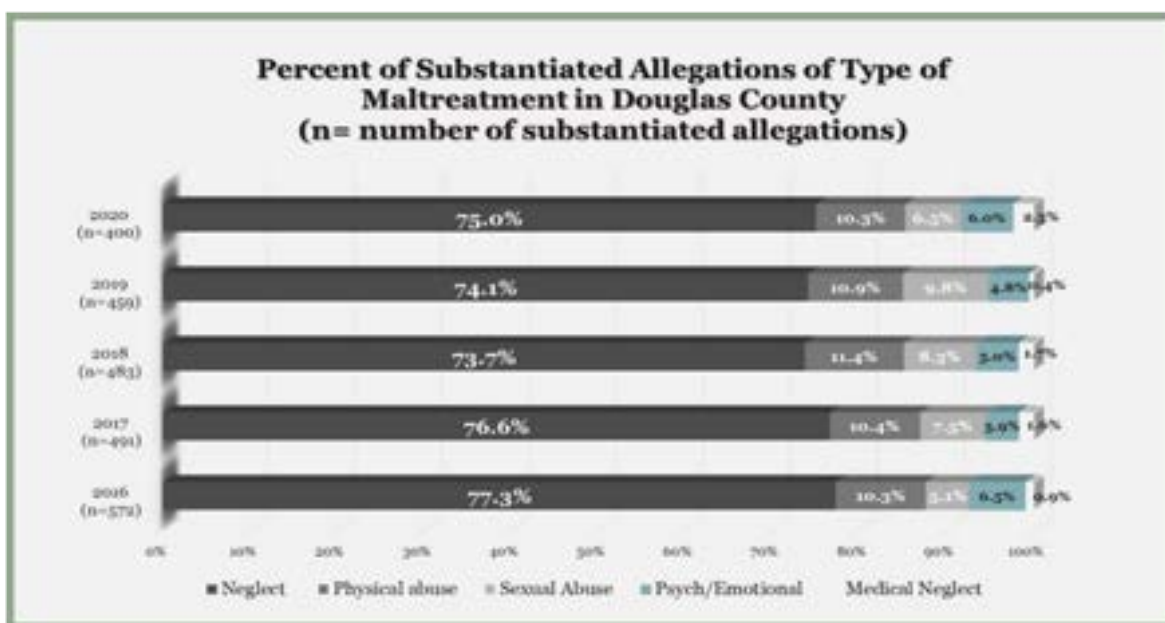


Figure 72 Substantiated Allegations of Child Maltreatment by Type, Douglas County

[i] Injury Prevention & Control. (2021, April 6). Child abuse and neglect prevention. Centers for Disease Control and Prevention. Retrieved October 8, 2021, from <https://www.cdc.gov/violenceprevention/childabuseandneglect/index.html>

[ii] Ibid.

[iii] CDHS Community Performance Center. (n.d.). Retrieved October 8, 2021 from <http://www.cdhsdatamatters.org/>

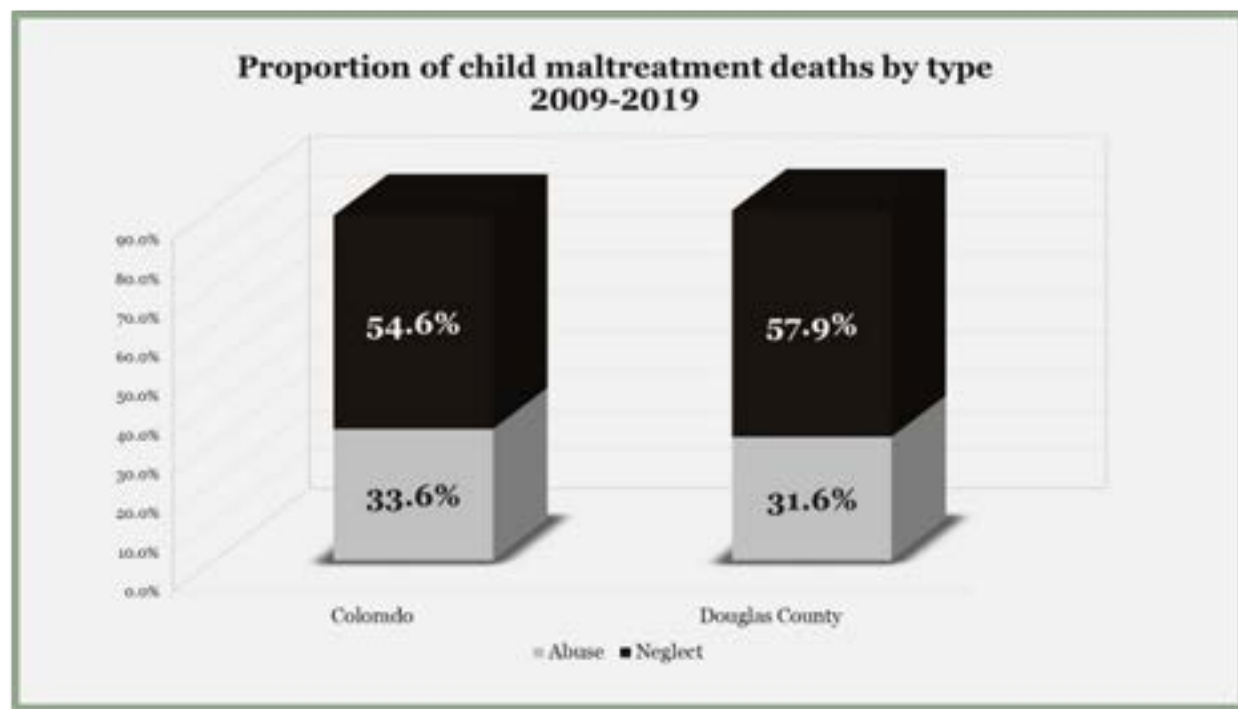


Figure 73 Mortality, Child Abuse & Neglect, Douglas County & Colorado, 2009 - 2019

Colorado's child fatality prevention system (CFPS) estimates a statewide rate of 3.3 child maltreatment deaths per 100,000 children (2009-2019 combined estimates). In Douglas County, the rate was lower at 2.0.^[i] More than half of the child maltreatment cases were due to neglect, a similar trend in both Colorado (54.6%) and Douglas County (57.9%). Biological parents are the lead perpetrator of child abuse and neglect, at 69.1 percent of child maltreatment deaths. There is greater impact of child abuse and neglect among young children 0 to 4 years, at the highest rate of 12.7 child maltreatment deaths per 100,000 children among children under age one, followed by children ages 1-4 at a rate of 2.3.

TABLE 30 RATE OF CHILD MALTREATMENT

Age of Child	Colorado	Douglas County
<1 year of age	24.6	12.7
Ages 1-4	4.8	2.3
Ages 5-9	1.4	1.2
Ages 10-14	1.2	1.0
Ages 15-17	1.4	2.3

[i] Colorado Child Fatality Prevention System Child Maltreatment Data.

Summary of Findings

Overall, Douglas County is healthier than Colorado. However, what is uncovered after an examination of the 154 health measures, is that there are trends that Douglas County Public Health should pay attention to and/or differences in the health experience of certain people within Douglas County – either based on where one lives, their income, and/or their race and ethnicity.

Community Strengths and Assets

The CHA identified several strengths and assets available to Douglas County for its PHIP. Residents shared that they felt Douglas County has great sense of community connectedness reporting they felt Douglas County was a good place to raise children and safe place to live and grow old. Residents are satisfied with the quality of life and the health care in their community. Additionally, the abundant open space and access to outdoor recreation opportunities are seen as important, positive assets of the community.

Health Priorities

Based on an assessment of all primary and secondary data sources at a county and sub-county level, trends analysis, and comparison to Colorado, the following were identified as priority health areas for Douglas County:

- Management and Prevention of Disease
- Behavioral Health
- Injury Prevention

Regarding the priority area of [Management and Prevention of Disease](#), vaccine preventable hospitalization and/or death caused by easily transmissible viruses (COVID-19) was identified as the second “worst health problem” in Douglas County via the CHA community survey. As an important upstream protective factor of the management and prevention of disease, community members noted that the fourth most important factor in a healthy community is “healthy behaviors and lifestyles,” and that among the top 10 most risky or harmful behaviors happening in their communities are “being overweight,” “poor eating habits,” and “lack of exercise.” While secondary data sources points to cardiovascular disease, lower respiratory diseases, and diabetes as being significantly lower in Douglas County in 2020 compared to Colorado; cardiovascular disease was the leading cause of hospitalization and death while rates of diabetes appeared to have increased since 2013 to approximately one in 20 adults (18+ years) ever having been diagnosed with diabetes in 2020.[i] Generally, in 2017, the prevalence of one or more chronic conditions increased slightly between 2013 and 2017 from 58 percent to 63 percent among adults 18 years and older to approximately two in three adults.[ii] There are strong attributes of Douglas County to support efforts to improve of Management and Prevention of Disease.

[i] Colorado Behavioral Health Risk Surveillance System, 2018-2020.

[ii] Colorado Behavioral Health Risk Surveillance System, 2018.

For example, more than half of residents within the major cities of Douglas County live within 10-minute walk of a park.^[i] Additionally, 84 percent of Douglas County residents report being very satisfied or somewhat satisfied with the open space and land conservation services provided by Douglas County, and agree that Douglas County is working effectively with state and municipal officials and conservation groups to ensure adequate natural open space and land conservation for the public's benefit – including space for recreation, such as hiking or mountain biking.^[ii]

Regarding the priority area of **Behavioral Health**, community members identified mental health problems as the "worst health problem" in Douglas County, followed by suicide as the fifth and substance/drug misuse as the ninth worst health problem. Secondary data sources points to concerns with increasing mental health distress, with Douglas County youth and adults having self-reported feeling more mental distress in 2019 and 2020, respectively, than they did in 2013.^[iii]^[iv] Additionally, ED and hospitalization for mental health issues and substance use has increased. For example, ED visits per 100,000 residents involving drugs with potential for abuse increased 18.5 percent between 2016 and 2020.^[v] Hospitalization rate per 100,000 for mental health issues was the leading cause of hospitalization in Douglas County and increased between 2015 and 2019.^[vi] Lastly, drug overdose deaths, which has increased to a five year high in 2020 to 13.4 per 100,000 people (from 10.0 in 2016).^[vii] It is important to note that behavioral health was identified as a priority area also in light of the many strong resources and successes in Douglas County that can be leveraged and built upon regarding mental health and suicide intervention.

Regarding the priority area of **Injury Prevention**, community members indicated unsafe driving behaviors are the second most risky or harmful behavior in the County. In Douglas County, there were 4,321 crashes in 2020, which was a 21.3 percent decrease since 2016. The decrease is largely between the year 2019 and 2020, which saw a steep drop in crashes. Of these crashes in 2020, 26 percent resulted in either a possible, minor, serious, or fatal injury. Careless driving was a contributing driver action for 2,737 (63%) crashes in 2020. In consideration of a "typical" year of 2019 prior to the pandemic, among the 6,186 crashes in 2019, 1,203 (19.5%) were due to distracted driver.^[viii] More broadly than motor vehicle injury, unintentional injury overall was the third leading singular cause of death in Douglas County (of which motor vehicle injury is a part), causing 8.7 percent of all deaths between 2016 and 2020.^[ix] While the unintentional injury age adjusted death rate was significantly lower in Douglas County at 48.1 compared to 52.9 per 100,000 in Colorado, injury deaths due to falls was significantly higher at 27.8 per 100,000 compared to Colorado at 16.1 per 100,000. Among unintentional injuries, fall related injuries are the leading reason for emergency room visits with an age adjusted rate of ED visits at 1,802.5 per 100,000 residents, followed by ED visits mentioning motor vehicle crashes (148.4) and poisoning due to drugs (143.7).^[x]

[i] Trust for Public Land's ParkScore® index

[ii] 2021 Douglas County Poll

[iii] Colorado Behavioral Health Risk Surveillance System, 2018-2020

[iv] Colorado Healthy Kids Survey, 2019

[v] Injury Epidemiology Program, Colorado Department of Public Health and Environment, Injuries in Colorado Dashboard. Accessed 10/2021.

[vi] Colorado Hospital Association through the CDPHE Health Equity/Environmental Justice Collaborative (2015-2019 Data)

[vii] Injury Epidemiology Program, Colorado Department of Public Health and Environment, Injuries in Colorado Dashboard. Accessed 10/2021.

[viii] Crash data, Colorado Department of Transportation. (2022, June 24). Retrieved September 8, 2022, from <https://www.codot.gov/safety/traffic-safety/data-analysis/crash-data>

[ix] Injury Epidemiology Program, Colorado Department of Public Health and Environment, Injuries in Colorado Dashboard. Accessed 10/2021.

[x] Ibid.

APPENDIX 1

HEALTH INDICATOR: CAUSES OF DEATH

	N	Crude Rate	Age-Adjusted Rate	Lower Limit	Upper Limit	Rate Compared to Colorado
All Causes	1930	540.9	634.1	606.4	661.7	LOW
All Other	574	160.9	197.9	181.6	214.2	----
Cardiovascular Disease	433	121.4	146.4	132.4	160.5	LOW
Malignant Neoplasms	394	110.4	115.4	103.6	127.3	----
COVID-19	167	46.8	60.6	51.2	69.9	----
Unintentional Injuries	155	43.4	51.1	42.9	59.4	----
Alzheimer's Disease	120	33.6	45.5	37.3	53.7	HIGH
Chronic Lower Respiratory Diseases	69	19.3	24.2	18.3	30.1	LOW
Drug-Induced Deaths	49	13.7	13.7	9.8	17.5	LOW
Suicide	47	13.2	12.3	8.7	15.9	LOW
Diabetes Mellitus	41	11.5	12.3	8.3	16.2	LOW
Alcohol-Induced Deaths	37	10.4	9.7	6.5	12.8	LOW
Injury by Firearm	27	7.6	6.8	4.2	9.4	LOW
Septicemia	20	5.6	5.7	3.1	8.4	----
Chronic Liver Disease and Cirrhosis	21	5.9	5.2	2.9	7.4	LOW
Pneumonia and Influenza	18	5	5.1	2.6	7.6	----
Perinatal Period Conditions	13	3.6	5	2.3	7.7	----
Nephritis, Nephrosis, Nephrotic Syndrome	15	4.2	4.8	2.3	7.4	----
Homicide and Legal Intervention	7	2	1.9	0.8	3.6	LOW
Congenital Anomalies	3	0.8	1.2	0.3	2.6	----
HIV Infection	0	0	0	0	0	LOW
Work-Related Injury (Y/N Check Death Certificate)	0	0	0	0	0	LOW

APPENDIX 2

COMMUNITY SURVEY: BARRIERS TO CARE

Barriers to Accessing Healthcare Services	Number	Percentage
I have not experienced any barriers.	3484	70.90%
High out-of-pocket-costs	789	16.10%
Needed evening and/or weekend hours of service	359	7.30%
Needed service not offered in my area	282	5.70%
Do not know what services and resources were available	179	3.60%
No health insurance	140	2.80%
Could not find services that understood, valued & respected my culture	132	2.70%
Felt embarrassed about getting services	111	2.30%
I don't want to answer	67	1.40%
Not easy to travel to / lacked transportation	66	1.30%
Not eligible for services	66	1.30%
Did not feel safe	52	1.10%
Could not find providers that looked like me	45	0.90%
Poor physical access (i.e., handicap accessibility)	37	0.80%
Don't know	34	0.70%
Application forms were too complicated	29	0.60%
I don't know what this question is asking	27	0.50%
Language barriers	11	0.20%

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