July 2022

Reasons Members Use the Emergency Department, Pandemic-Induced Utilization Changes, and Opportunities for Intervention

Health First Colorado **Emergency Department Utilization Report**

Research & Analysis Section

COLORADO
Department of Health Care Policy & Financing

Contents

I. Executive Summary

A. Background

The emergency department (ED) is an essential health care setting for treating life-threatening conditions, yet many individuals seek care at the ED for less acute reasons that may indicate broader access to care challenges. Health First Colorado members who overly rely on the ED for non-emergency care may not be obtaining comprehensive and preventive care, or may not be connected to a medical home. Additionally, repeat and preventable ED visits can be costly[1] and may result in overwhelmed EDs, which has been particularly problematic during the pandemic.

Since 2018, the Department of Health Care Policy & Financing (Department) has tracked ED utilization at the Regional Accountable Entity (RAE) level. RAEs are the health care entities responsible for coordinating member care, ensuring members are connected with primary and behavioral health care, and developing strategies that respond to the needs of members in their region, in collaboration with the Department (see Appendix A). The Department has financially incentivized RAEs to reduce overall ED utilization rates for the last several years. Reducing ED utilization can be a challenge, requiring a nuanced understanding of the complex reasons people go to the ED. The purpose of this report is to better understand which members are using the ED, why they are using this care setting, and what access to care challenges and opportunities exist.

This research is informed by ED fee-for-service claims data from January 2019 – September 2021. The Department primarily used member groups and RAE regions to identify variations in ED visits within the Health First Colorado population. There are a few caveats to keep in mind when reading this report. The data include primary diagnoses that members received at the ED; most behavioral health ED data are included with some exceptions[2]; and members

[1] Hospitalizations are a primary driver of total cost of care for Health First Colorado, while ED visits constitute less than 2% of all spending. Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data.*

[2] This report relies on fee-for-service ED data, which includes all ED substance use disorder (SUD) visits where SUD is the primary diagnosis, and a majority of, but not all, mental health ED visits where mental health is a primary diagnosis.

who were admitted to the hospital after an emergency department visit evaluation were excluded from this analysis. Lastly, although this report touches on ED utilization for unhoused members and children in foster care, information on broader social needs is absent from this analysis due to data limitations. The methodology is described in greater detail in Section III of this report.

B. Key Findings

There are several key findings covered in this report:

- ED utilization rates vary by Health First Colorado member group. Pregnant members tend to have higher ED utilization rates on average, while children have among the lowest ED utilization rates.
- ED utilization declined significantly during the pandemic, with children experiencing the largest initial change in visits. However, the eligibility categories of children (including children in foster care) and adults[3] also have come the closest to returning to pre-pandemic ED utilization levels as of September 2021.
- Reasons members went to the ED changed during the pandemic. For example, respiratory infections declined substantially during the early months. ED visits for certain behavioral health conditions became more common during the first year of the pandemic, particularly alcohol-related disorders, substance use disorders, and anxiety, which may be associated with the increase and exacerbation of health issues during this time[4] and also appears to be impacted by new Health First Colorado enrollment of individuals with these conditions.
- Potentially preventable ED visits, such as visits for uncontrolled diabetes, comprise a small percentage of overall ED visits (5%). These

[3] Because this report uses eligibility categories to identify member groups, "children" and "adults" do not include all individuals of a certain age. In particular, the group "children" does not include members with disabilities or children in foster care. The group "adults" does not include members with disabilities, pregnant individuals, adults ages 65 and older, or adults with Medicare. Members excluded from these definitions are defined as their own member groups.

[4] Kaiser Family Foundation. (2021). *The implications of COVID-19 for mental health and substance use*. https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/

conditions can be treated and managed more appropriately in other settings like primary care. Other potentially preventable ED visits, such as upper respiratory infections, do **not** appear to have been **substantially** offset by primary care telemedicine appointments.

- Four percent of members went to the ED six or more times in a 12-month time period and accounted for more than 20% of ED visits. These members had more frequent return visits for behavioral health needs. Health First Colorado data do not capture broader social needs of members to help explain why someone may have used emergency services, and this is a limitation of the analysis. However, members who are unhoused comprise 30% of this high utilizer group and members with disabilities comprise 18%. There is some overlap between members who are unhoused and members who have a disability.
- RAEs have taken different approaches to managing their ED utilization trend. One RAE focuses on members who use the ED frequently and have unmet social needs. Another RAE focuses on members with chronic conditions who overutilize the ED when compared with primary care. This report offers more details on implementation efforts at the regional level.

C. Acknowledgments

The report authors would like to offer their sincere appreciation to Allison Betley, the Department's data analyst who developed the ED Tableau® dashboard from which much of this research originates. The Team would also like to thank Colorado Access and Rocky Mountain Health Plans for their collaboration and contributions to the case studies featured in this report.

II. Introduction

Each year, approximately one quarter of Health First Colorado members rely on the Emergency Department (ED) for care at some point.[5] The reasons members use the ED are as diverse as the Health First Colorado member population. While the ED is an essential life-saving care setting, it can come with a high price tag, especially when members with complex, unmet needs could obtain potentially better health outcomes through regular care at their primary care medical home, to which each is assigned and can change at their option. ED utilization has been complicated by the COVID-19 pandemic, which impacted not only overall ED rates but also the reasons members visited the ED.

The Department of Health Care Policy & Financing (Department) wrote this report to explore the nuances of ED utilization among Health First Colorado members, including which members use the ED more often, and why as well as what access to care challenges and opportunities exist. Given the goal to reduce preventable ED utilization, it is important to give members options to access other providers, particularly primary care and behavioral health. This includes patient-centered care that is available when appointments are needed.

The ED is a particularly important service delivery setting for Medicaid programs to study. Medicaid members use the ED at higher rates than individuals with private insurance in Colorado and nationally.[6] [7] This higher utilization is due to a combination of factors.[8] [9] Medicaid members tend to have a higher disease burden. Also, Medicaid members are generally not charged co-pays or out of pocket costs for using the ED, which removes the

[5] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data.*
[6] Cairns, C., Ashman, J.J., & Kang, K. (2021). *Emergency department visit rates by selected characteristics: United States, 2018.* National Center for Health Statistics. https://doi.org/10.15620/cdc:102278
[7] Colorado Health Institute. (2019). *Colorado Health Access Survey data analysis.*
[8] Allen, L., Cummings, J.R., & Hockenberry, J. (2019). Urgent care centers and the demand for non-emergent emergency department visits. *National Bureau of Economic Research.* https://www.nber.org/system/files/working_papers/w25428/w25428.pdf
[9] Office of the Assistant Secretary for Planning and Evaluation. (2021). *Trends in the utilization of emergency department services, 2009-2018.* U.S. Department of Health and Human Services. https://aspe.hhs.gov/sites/default/files/private/pdf/265086/ED-report-to-Congress.pdf

financial impacts.[10] ED utilization for non-emergencies can also be an indication that members lack adequate access to other providers, or that they have few options when they need to be seen after hours. While it is true that some members use the ED out of convenience, education alone will not significantly change behavior, particularly if members do not have alternatives to care that meet their needs.

The Department's Research and Analysis Section analyzed ED utilization data from claims and conducted a review of the literature with the goal of addressing the following questions:

- How do ED utilization rates vary by member subgroup and by geography?
- How did ED utilization rates and diagnoses change from the year before the pandemic as compared to the first year of the pandemic?
- What opportunities exist to promote expanded access to primary care and behavioral health care instead of the ED?
- What subset of members uses the ED most frequently and for which medical conditions?
- What efforts are Regional Accountable Entities (RAEs) leading to manage ED utilization?
- What areas exist for future research to ensure members get the right level of care at the right time and place?

[10] Colorado Department of Health Care Policy & Financing. (2021). *Health First Colorado co-pays.* https://www.healthfirstcolorado.com/copay/

III. Methodology

The Department analyzed reasons members visited the ED as a percentage of total ED visits from two time periods: before COVID-19, March 15, 2019 – March 14, 2020, and during COVID-19, March 15, 2020 – March 14, 2021. If a member went to the ED multiple times, then each visit is counted. The visit reasons are defined as diagnoses made by ED physicians. Data are available by member group (see Box 1 for definition), RAE, age, and housing status.

Box 1. Definitions
Member groups are defined by Health First Colorado eligibility categories: adults (ages 19-64 years old), pregnant adults, members with disabilities (all ages), adults 65 and older, individuals who receive both Medicare and Health First Colorado, children (ages 0-18 years old), children in foster care, and individuals who are not citizens and, therefore, have access to the ED only in emergencies. Members are assigned to one budget group each month they are enrolled, so each ED visit for a member is associated with only one budget group.

Throughout this report, ED visits will be considered in three ways: (1) raw visit counts; (2) visits for a diagnosis as a percentage of total ED visits; and (3) rankings that show which diagnoses resulted in a greater percentage of ED visits. In specific instances, rates are used as well. The Department also looked at members who used the ED more frequently. Six or more visits to the ED in a 12-month period was chosen as the threshold, but this threshold can be adjusted. For instance, it is possible to look at members who used the ED 20 or more times in a year.

There are several limitations of these data. Data represent fee-for-service claims data, which includes most behavioral health ED visits but does exclude a minority of mental health primary diagnoses that are reimbursed with a capitated payment. This means mental health ED visits are somewhat undercounted. A second limitation is that the analysis includes primary diagnoses only, even though there can be multiple diagnoses on a claim. For example, if someone went to the ED for an injury that occurred because they were intoxicated, then this analysis would not capture the possible underlying substance use or behavioral health condition. Importantly, ED utilization data in this brief excludes members who were admitted to the hospital through the emergency department visit evaluation. National research suggests that hospital admissions rates for Medicaid members who enter through the ED

range from 4.5% to 15.3% depending on health condition.[11] If those members were included, the acuity levels of ED visits likely would be higher.

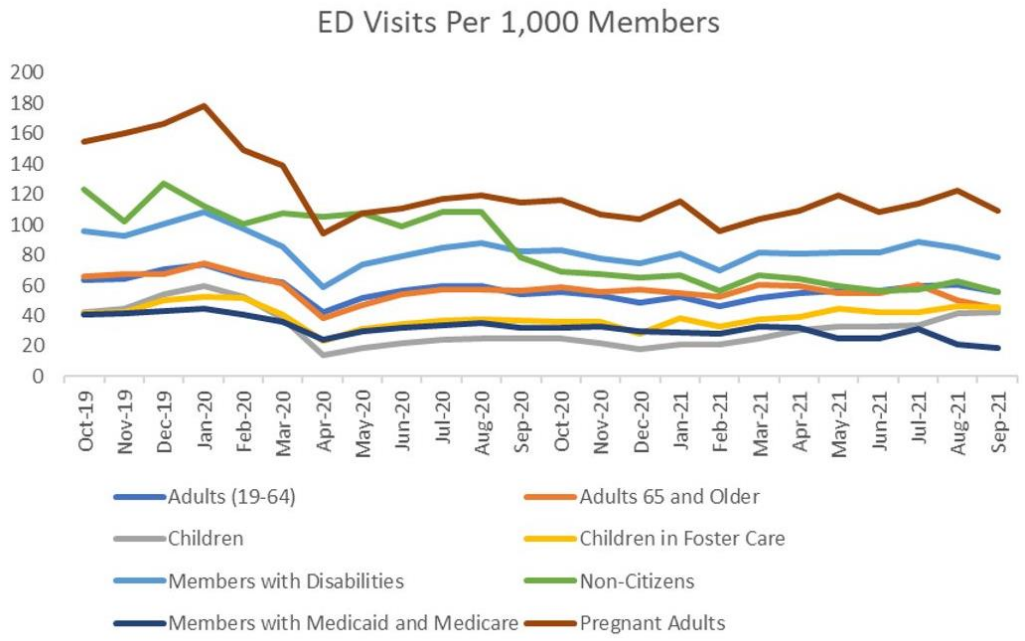
On a final note, the data are not risk-adjusted unless specifically noted, which means that individual factors, such as age and health risks, have not been adjusted for. By not using risk-adjusted numbers, this analysis allows for the comparison of ED visits by member group.

[11] Office of the Assistant Secretary for Planning and Evaluation. (2021). *Trends in the utilization of emergency department services, 2009-2018.* U.S. Department of Health and Human Services. https://aspe.hhs.gov/sites/default/files/private/pdf/265086/ED-report-to-Congress.pdf

IV. ED Utilization by Member Subgroup and Geography

At a state and regional level, risk-adjusted ED utilization remained relatively stable during the two years preceding the pandemic.[12] It is difficult to strategize on the reduction of ED utilization at a population level. Therefore, to better understand the nuances of ED utilization, the Department looked at visits by member group. Some member groups have higher ED utilization than others. Figure 1 depicts ED rates by member subgroup over time, both before and during the COVID-19 period. ED rates represent total visits per 1,000 members regardless of the number of times members went to the ED.

Figure 1. ED Utilization Rates by Subgroup, October 2019 – September 2021



Source: Health First Colorado fee-for-service claims data. Data are not risk-adjusted. ED utilization rates for pregnant adults and non-citizens have been particularly impacted by the Public Health Emergency and should be interpreted with caution. For example, members who enrolled as a pregnant adult will still appear in that member group even though they are no longer pregnant.

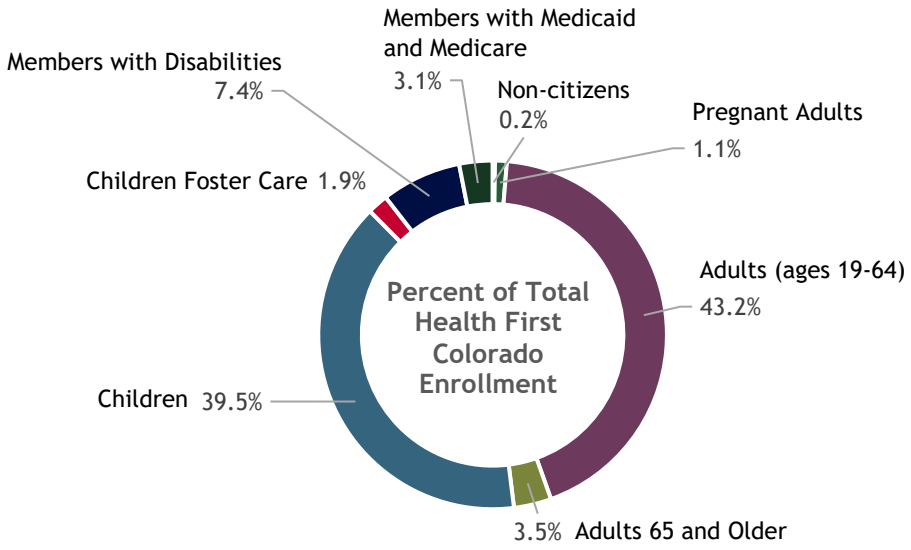
[12] Colorado Department of Health Care Policy & Financing. (2021). *Key Performance Indicators.* Note: These data are risk adjusted. ED rates fluctuated anywhere from 0% to 3.7% depending on the RAE from the time period beginning September 2018 and ending March 2020. Because these are performance metric data, rates are calculated quarterly over a rolling 12 months which can obscure monthly fluctuations in rates.

Box 2. Emergency Medicaid
Some services are available on a short-term basis for individuals who do not meet immigration or citizenship requirements to become enrolled Health First Colorado members. These individuals must have a life- or limb-threatening medical emergency, and coverage now includes severe COVID-19 symptoms. Additionally, according to federal law - the Emergency Medical Treatment and Labor Act (EMTALA) – it is illegal to turn away or transfer any person seeking emergency care in an ED because of their insurance status or ability to pay.

Pregnant members tend to use the ED at the highest rates (139.1 visits per 1,000 members in March 2020) often because they go into labor early or experience false labor or pregnancy-related complications.[13] Alternatively, children and members with Medicaid and Medicare had the lowest ED utilization rates just as the pandemic was beginning in March 2020 – 38.4 visits per 1,000 members and 36.3 visits per 1,000 members, respectively. Members with disabilities also have higher ED utilization rates when compared to adults and children without disabilities. Non-citizens were the only member subgroup that did not experience an initial decline in ED utilization when the pandemic began. These individuals are only eligible for Medicaid in life-threatening medical emergencies, so it makes sense that their ED utilization would be impacted to a lesser extent (Box 2). When considering overall ED rate changes, it is important to keep in mind that adult (ages 19-64) and children member subgroups are the largest groups in overall Health First Colorado enrollment (Figure 2), and, therefore, changes in ED utilization for these groups have a more substantial impact on overall rates.

[13] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data*.

Figure 2. Adults and Children Are the Largest Member Subgroups, March 2020



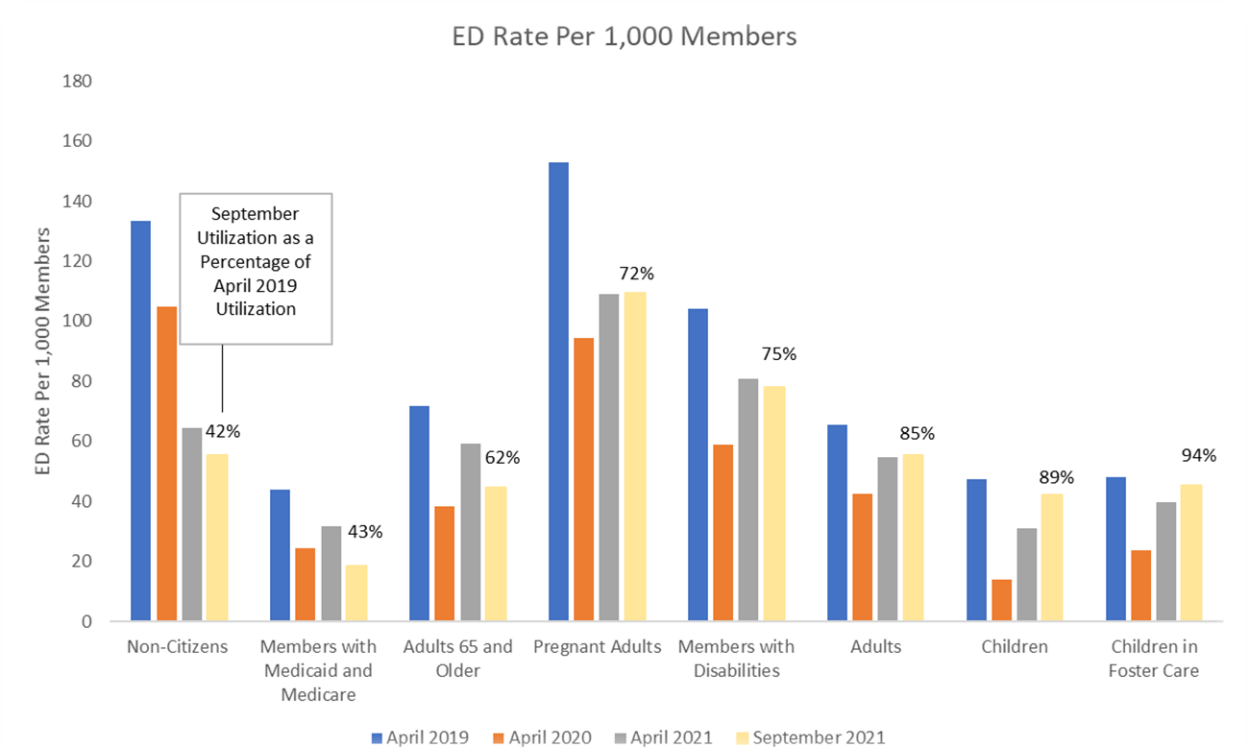
Source: Health First Colorado fee-for-service claims data, March 2020. Data include members enrolled in each budget group, not ED utilization for each member group. Enrollment changed during the public health emergency with increased enrollments for most subgroups.

Across all subgroups, members utilized the ED substantially less after the onset of COVID-19, and these lower levels have generally persisted over time. Figure 3 below illustrates how ED utilization has changed over time for various member groups. As of September 2021 – the latest time period that data are available – adults and children, including those in foster care, have come closest to meeting pre-pandemic ED utilization rates. For example, in April 2021, children's ED utilization was still 65% of utilization pre-pandemic, but utilization steadily increased over the summer and early fall of 2021 particularly as cases of respiratory infections increased.[14] This was also the period of time when the respiratory syncytial virus (RSV) increased dramatically for children.[15] Utilization for adults 65 and older, members who have Medicaid and Medicare, and members with disabilities have yet to come close to pre-

[14] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data.*
[15] Centers for Disease Control and Prevention. (2021). *RSV state trends.* United States Department of Health and Human Services. https://www.cdc.gov/surveillance/nrevss/rsv/state.html#VA Note: The Department assumes that ED physicians coded RSV as respiratory infections or other conditions such as bronchitis, thereby contributing to the increase in visits.

pandemic rates.[16] See Appendix B for the most recent utilization data past the first year of the pandemic.

Figure 3. ED Visit Rates Have Not Yet Returned to Pre-Pandemic Levels for All Subgroups



Source: Health First Colorado fee-for-service claims data. These data represent a point in time snapshot as of the end of each month. September 2021 is the most recent data for which complete claims data were available. The month of April was used because this was the first month of the pandemic in which utilization decreases were clearly seen. Use caution when interpreting comparisons between September and April time periods due to seasonality effects in the data and changes due to COVID-19.

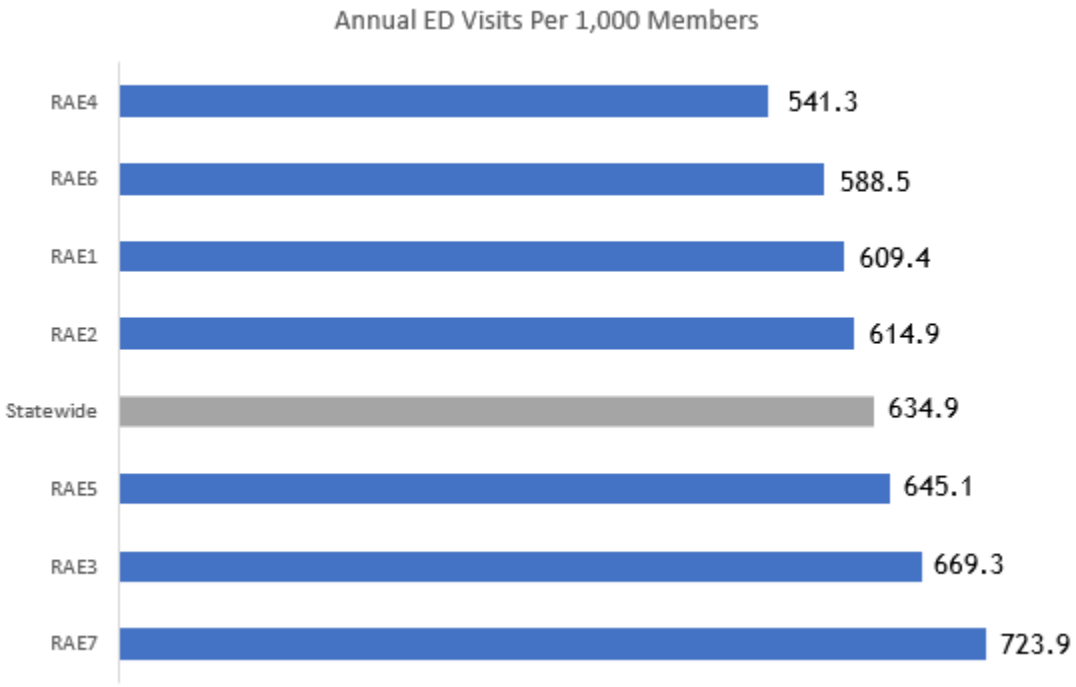
[16] Pregnant members and non-citizens were excluded here due to public health emergency enrollment changes that make it challenging to evaluate trends over time.

There are several reasons that ED utilization declined during the pandemic. Many people avoided the ED out of fear of exposure to COVID-19.[17] According to Health First Colorado claims data, utilization was also lower due to the reduced spread of illnesses and fewer accidents and injuries. Lower ED use could also be attributed to some degree to the influx of new Health First Colorado enrollees who gained coverage during the pandemic, who were less likely to use services.[18]

ED utilization also varies by regional accountable entity (RAE) region. RAEs are the health care entities responsible for coordinating member care, ensuring members are connected with primary and behavioral health care, and developing strategies that respond to the needs of their region in collaboration with the Department. This includes efforts to reduce preventable ED visits. The RAEs that manage a more urban population have a slightly higher ED utilization rate than RAEs that manage a more rural population (Figure 4; see Appendix A for a map of the RAE regions).[19] The Department would need to conduct a more sensitive analysis of rural and urban ED utilization rates to better understand geographic differences. Once COVID-19 arrived in Colorado, all RAE regions experienced substantially reduced ED utilization at similar rates.[20] Box 3 explains the responsibility of RAEs to manage their ED utilization rates.

[17] Centers for Disease Control and Prevention. (2020). *Delay or avoidance of medical care because of COVID-19-related concerns – United States, June 2020.* United States Department of Health and Human Services. https://www.cdc.gov/mmwr/volumes/69/wr/mm6936a4.htm
[18] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data.*
[19] These data are risk-adjusted, meaning the physical health acuity levels of Health First Colorado members have been taken into consideration. This allows for a comparison of ED utilization across RAE regions which are explained by factors other than health status. The Department's risk-adjustment methodology is cost-based, meaning a member's claims are used to predict future cost, and higher predicted future costs are used to indicate higher health acuity. This methodology excludes behavioral health costs and therefore has limitations.
[20] RAE ED utilization over time is not shown here, but these data are available on the Department's public reporting webpage at https://hcpf.colorado.gov/accountable-care-collaborative-public-reporting

Figure 4. Regional ED Rates (Risk-Adjusted) Per 1,000 Members by RAE Pre-COVID-19 (April 2019 - March 2020)



Source: Health First Colorado fee-for-service claims data. ED visits that result in a hospital admission are not included in these rates. Data are risk adjusted, allowing a comparison by RAE region. These rates are used in the RAE key performance indicators. This time period was selected to show ED utilization prior to the changes brought about by COVID-19.

Unfortunately, it is challenging to assess whether Health First Colorado members are using the ED more or less often than Medicaid members in other states. This comparison is difficult because of the variation in how rates are calculated and because of limited data availability.

Box 3. Role of the RAEs

The Regional Accountable Entities, or RAEs, are responsible for managing their ED utilization trend to ensure that their members are receiving care in the setting appropriate to meet their needs. The Department rewards RAEs financially when they meet performance goals for reducing ED rates at a population level. RAEs have several tools for managing their ED trend. Most importantly, RAEs are responsible for maintaining an adequate primary care medical provider (PCMP) and behavioral health provider network, which includes access to telemedicine and after-hours care. RAEs also form relationships with hospitals, PCMPs, and community-based organizations to address utilization challenges and provide care coordination to address unmet social determinants of health needs, such as housing insecurity.

V. The Impact of COVID-19 on ED Utilization

Health First Colorado members collectively went to the ED less frequently during the first year of the pandemic compared to the year prior despite increases in Health First Colorado enrollment. This change equates to a decrease in ED rates from 63 visits per 1,000 members to 38 visits per 1,000 members, or 218,000 fewer visits. However, in some instances, members went to the ED for different reasons. Table 1 below depicts the top 10 reasons that members went to the ED before and during COVID-19.

For members as a whole, abdominal pain was the number one reason for ED utilization both before and during COVID-19, at just under 8% of total visits in both periods. However, the total number of visits for abdominal pain decreased by 16,000 visits. This decline is not surprising given the tremendous decline in overall ED visits during the pandemic. Abdominal pain can be attributed to a number of causes, such as gastroenteritis or anxiety, though a substantial percentage of Colorado ED visits for abdominal pain are deemed to have an undetermined cause.[21]

"Nonspecific chest pain" moved from the fifth most common diagnosis before the pandemic to the second most common diagnosis in the first year of the pandemic. This phenomenon of fewer ED visits for cardiac conditions occurred nationwide, with people potentially delaying or avoiding necessary care due to COVID-19 or experiencing challenges accessing care.[22] [23]

Immunizations and screenings for infectious disease was the 13th most common reason for ED visits during the first year of the pandemic. COVID-19 suspected exposure and treatment also accounted for 2% of ED visits during the first year of the pandemic, although this number may be higher if ED visits that resulted

[21] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data*. [Data set]. Note: The analysis was also informed by the Department's clinical team.
[22] Centers for Disease Control and Prevention. (2020). *Potential indirect effects of the COVID-19 pandemic on use of emergency departments for acute life-threatening conditions – United States, January – May 2020*. United States Department of Health and Human Services. https://www.cdc.gov/mmwr/volumes/69/wr/mm6925e2.htm
[23] American College of Cardiology. (2021). *COVID-19 pandemic indirectly disrupted heart disease care*. https://www.acc.org/about-acc/press-releases/2021/01/11/16/40/covid19-pandemic-indirectly-disrupted-heart-disease-care

in hospital admissions for acutely ill members were included.[24] Especially in the early months, hospitals were the primary places to receive COVID-19 tests. Upper respiratory infections (2nd most common) and lower respiratory infections (3rd) also dropped in the rankings during the COVID-19 period to 7th and 8th respectively. Like other respiratory illnesses (e.g., influenza) early in the pandemic, individuals were less likely to become sick with illnesses due to reduced community exposure and spread early in the pandemic.[25] Additionally, those who got sick may have used other options, such as primary care and/or telemedicine.

There also were several notable behavioral health changes in ED utilization. In particular, alcohol-related disorders made it into the top 10 (ranked 5th) for most common reasons for visiting the ED in the first year of the pandemic.[26] Section VII describes these behavioral health utilization changes in greater detail.

[24] There may be inconsistencies with how ED physicians coded COVID-19 visits, particularly in the early stages of the pandemic. Currently, there are multiple codes that can be used to identify a COVID-19 ED visit.
[25] Centers for Disease Control and Prevention. (2021). *Changes in influenza and other respiratory virus activities during the COVID-19 pandemic – United States, 2020-2021.* United States Department of Health and Human Services. https://www.cdc.gov/mmwr/volumes/70/wr/mm7029a1.htm
[26] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data.* [Data set].

Table 1. Most Prevalent Diagnoses for ED Visits, Before and During COVID-19, All Members

Before COVID-19 (March 15, 2019 - March 14, 2020)			
Rank	**Primary Diagnosis**	**% of Total ED Visits**	**Visits**
1	Abdominal pain	7.7%	64,498
2	Other upper respiratory infections	5.8%	48,339
3	Other lower respiratory disease	3.8%	31,686
4	Superficial injury; contusion	3.6%	29,716
5	Nonspecific chest pain	3.4%	28,251
6	Sprains and strains	3.1%	25,924
7	Other injuries and conditions due to external causes	2.8%	23,601
8	Headache; including migraine	2.6%	21,818
9	Spondylosis; intervertebral disc disorders; other back problems	2.5%	20,856
10	Fever of unknown origin	2.4%	20,251
Total ED visits (all diagnoses): 836,464			

During COVID-19 (March 15, 2020 - March 14, 2021)			
Rank	**Primary Diagnosis**	**% of Total ED Visits**	**Visits**
1	Abdominal pain	7.8%	48,443
2	Nonspecific chest pain	3.9%	23,878
3	Superficial injury; contusion	3.4%	20,754
4	Other injuries and conditions due to external causes	3.1%	19,262
5	Alcohol-related disorders	3.1%	19,102
6	Sprains and strains	2.9%	18,080
7	Other upper respiratory infections	2.6%	16,118
8	Other lower respiratory disease	2.5%	15,530
9	Skin and subcutaneous tissue infections	2.5%	15,513
10	Spondylosis; intervertebral disc disorders; other back problems	2.4%	15,060
Total ED visits (all diagnoses): 618,839			

Note: Only the top ten visit reasons are shown and therefore, percentages will not add to 100%. The other proportion of visits not shown are individually less frequent but together comprise about 60% of visits.

Source: Health First Colorado fee-for-service claims data. Please refer to Appendices C through G for more detailed tables by member group of top reasons for visiting the ED.

VI. Potentially Preventable ED Visits

Members with infectious diseases and chronic conditions can often be better served within their primary care medical home where their condition history is known and can be managed over time, rather than at the ED.[27] Medical homes have been a foundational Health First Colorado feature since 2018. However, reducing preventable ED visits is not always as simple as directing members to their assigned primary care medical provider (PCMP) or educating them on where to go the next time they have a health concern. There are many factors that influence ED utilization for non-acute conditions, such as convenience, cost-trade-offs, preferences, and barriers, like transportation. Nonetheless, accessible primary care can be one pathway to reducing potentially preventable ED visits.

Box 4. Potentially Preventable ED Visits Defined

ED visits for the following conditions are considered potentially preventable because they could have been treated in other settings. The conditions are listed in order of prevalence for Health First Colorado members using the ED.

- Urinary tract infections
- Asthma
- Diabetes mellitus with complications
- Chronic obstructive pulmonary disease and bronchiectasis
- Essential hypertension
- Pneumonia
- Hypertension with complications and secondary hypertension
- Congestive heart failure
- Other diseases of the kidneys and ureters

The Department analyzed two types of potentially preventable ED visits. One type is a set of chronic and acute conditions (Box 4) defined by the national Prevention Quality Indicators.[28] Hospital discharge data is used to identify when ED care could have been avoided if high-quality outpatient care had been used. The definition was selected because the conditions have concrete interventions. For example, members visiting the ED for uncontrolled diabetes may benefit from assistance with medication management. The second type of potentially preventable ED visits

[27] National Center for Quality Assurance. (2019). *Benefits of NCQA patient-centered medical home recognition*. https://www.ncqa.org/wp-content/uploads/2019/09/20190926_PCMH_Evidence_Report.pdf

[28] Agency for Healthcare Research and Quality. (2021). *Prevention quality indicators overview*. United States Department of Health and Human Services. https://qualityindicators.ahrq.gov/measures/pqi_resources

are infections that can typically be treated in primary care, specifically respiratory infections. Refer to Box 5 for why the term "potentially preventable" ED visits is used.

Box 5. Terminology

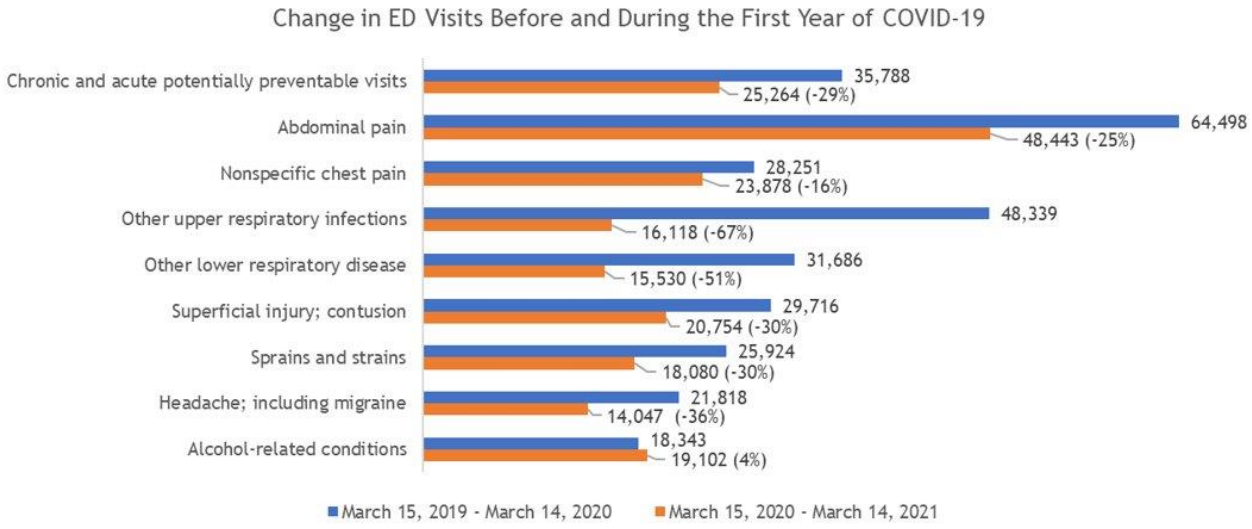
Language matters when describing ED visits that are not true emergencies. This brief intentionally does not use language that identifies ED visits as inappropriate. There are two lenses by which to view the appropriateness of visits. First, it is difficult to assess until after a visit whether an ED visit for a specific condition was appropriate. For example, a member presenting at the ED with chest pain could be having a mild heart attack, acid reflux, or a panic attack. Second, members are sometimes put in the difficult position of assessing the severity of their illness or the necessity of whether or not to seek immediate care, which is not always black and white.

Potentially Preventable Conditions: Chronic and Acute

Chronic and acute potentially preventable ED visits constitute approximately 5% of total ED visits for adult Health First Colorado members.[29] During the first year of the pandemic, ED utilization declined by 29% for these conditions despite an increase in enrollment.[30] Figure 5 below highlights the changes in total visits for various conditions in the first year of the pandemic compared to the year before.

[29] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data*. Note: Data are from March 15, 2020 – March 14, 2021. When considering the year before the pandemic, the percentage is slightly higher (6%).
[30] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data*.

Figure 5. Potentially Preventable Chronic and Acute Conditions Declined 29% in the First Year of the Pandemic, Less Than Respiratory Infections



Source: Health First Colorado claims data, Pre-COVID-19 year (March 15, 2019 – March 14, 2020) versus first year of COVID-19 (March 15, 2020 – March 14, 2021). The percentages represent change between years.

Although these conditions are a small percentage of ED visits, they present opportunities to promote the appropriate lower level of care to improve continuity of health services and to lower costs. One notable example is urinary tract infections (UTIs) in RAE 4, which covers Pueblo and the San Luis Valley and Southeast regions. UTIs were the 8th most common diagnosis in the ED before COVID-19 and 9th most common during the first year of COVID-19. According to RAE 4 Health Colorado staff, this region of the state has fewer urgent care centers available, and there is an opportunity to expand access to primary care providers including after-hours care.[31]

ED visits for these conditions may have been lower during the pandemic because Health First Colorado members went without needed care. A metro Denver study of health systems data found that missed care not only occurred early in the pandemic but through the end of 2020.[32] Telemedicine only

[31] Program and Data Meeting between the Department and RAE 4 staff, 2021.
[32] Colorado Health Institute. (2021). *Fear and missing out: Postponed care during COVID-19.* https://www.coloradohealthinstitute.org/research/missed-health-care-during-covid-19 Note: This report included payers in addition to Health First Colorado.

partially offset missed appointments, and individuals with chronic conditions were the most likely to miss appointments. For example, visit volume for individuals with hypertension (across all health care payers) declined 38% in the first approximately 10 months of the pandemic when compared to 2019.[33]

In looking at Health First Colorado inpatient data, there are fewer hospital admissions during the COVID-19 period, but longer stays.[34] This might suggest that when members put off necessary care, their conditions worsened to levels requiring more acute interventions.[35]

According to the CDC, missed care in the United States was more common among people with multiple underlying conditions, people with disabilities, and Black or African American and Latinx or Hispanic adults.[36]

Potentially Preventable ED Visits: Respiratory Illnesses

There are other potentially preventable ED visits for conditions such as respiratory illnesses, which are not included in the 5% figure, and visits for these conditions also decreased in the first year of the pandemic. Ideally, members who did get sick saw their primary care provider – either in person or by telemedicine – instead of visiting the ED. A look at upper respiratory infections data for children suggests telemedicine did not meaningfully offset ED utilization (Figure 6). During the first year of the pandemic, ED visits for upper respiratory infections fluctuated over time, but in most instances,

Box 6. Telemedicine

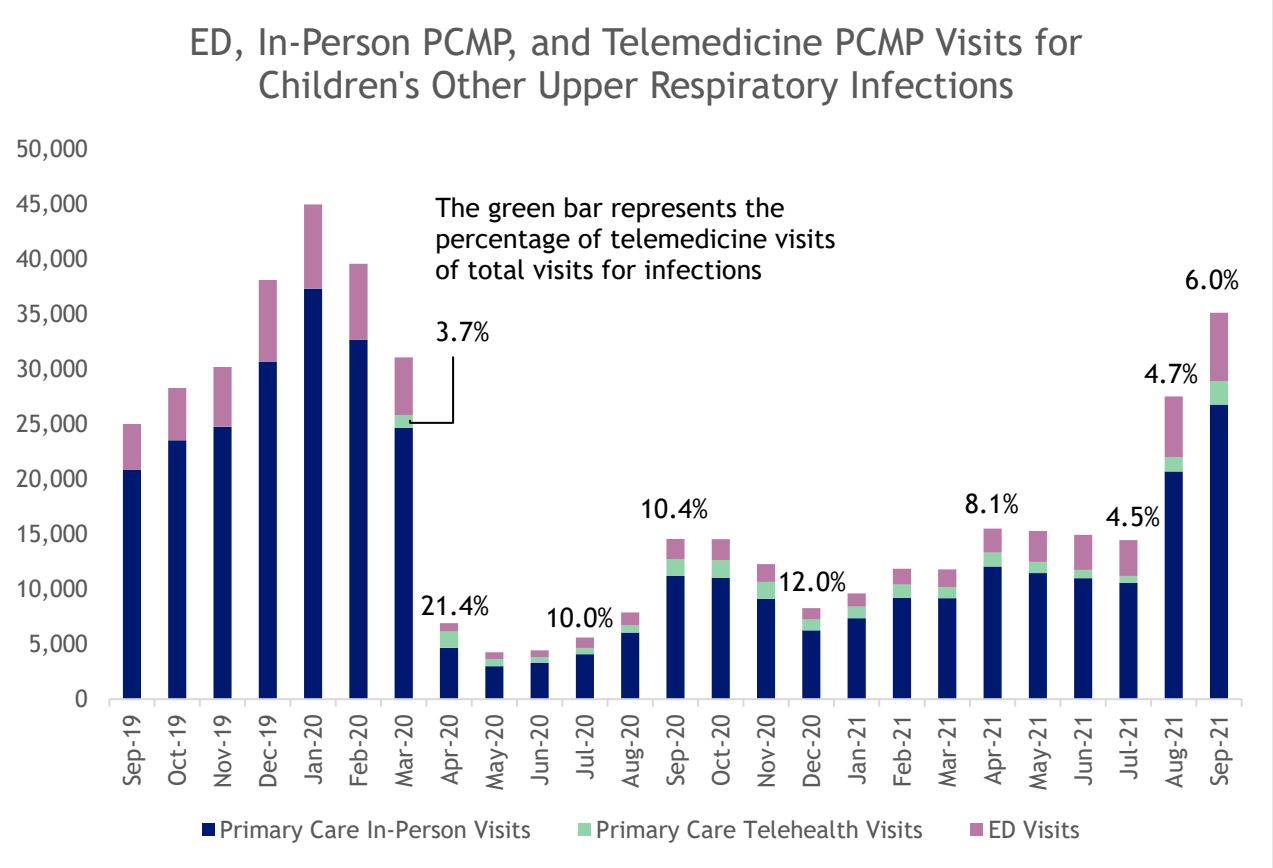
Telemedicine utilization has fluctuated over time. When the pandemic began, telemedicine accounted for up to 33% of physical health visits, but more recently (August – December 2021), use has stabilized at under 10%. Behavioral health telemedicine has experienced higher telemedicine use, but rates have also stabilized over time. Telemedicine is an important option for accessing care, but it is not used widely enough for physical health conditions to offset ED utilization in a meaningful way at this point in time. Access barriers remain and in-person visits are still valued by members.

[33] Colorado Health Institute. (2021). *Fear and missing out: Postponed care during COVID-19.* https://www.coloradohealthinstitute.org/research/missed-health-care-during-covid-19 Note: This report included payers in addition to Health First Colorado.
[34] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data.* Note: The interpretation of this data was made by the data and clinical teams.
[35] Informed by the Department's clinical and data teams.
[36] Centers for Disease Control and Prevention. (2020). *Delay or avoidance of medical care because of COVID-19-related concerns – United States, June 2020.* United States Department of Health and Human Services. https://www.cdc.gov/mmwr/volumes/69/wr/mm6936a4.htm

the majority of primary care appointments during this time period were in person, not telemedicine. Moreover, even when ED visits increased in late summer and early fall of 2021, the percentage of total upper respiratory visits that took place by telemedicine remained relatively small. There are likely many reasons why telemedicine use was not higher. In particular, it is important to remember that many members experience access challenges (e.g., broadband connectivity, technology access, digital literacy).[37] While telemedicine is an important option for members seeking care outside the ED, its utilization is not widespread enough to suggest that changes in ED visits for respiratory conditions were due to higher telemedicine use (Box 6). The Department is currently in the process of developing a second telemedicine report on utilization and access to care. A link to our first report is available on the website.

[37] Colorado Department of Health Care Policy & Financing. (2021). *Health First Colorado telemedicine evaluation: An analysis of telemedicine during the COVID-19 pandemic*. https://hcpf.colorado.gov/sites/hcpf/files/HCPF%20Telemedicine%20Evaluation%20March%208%2C%2021.pdf

Figure 6. Telemedicine Utilization Appears to Marginally Offset ED visits for Children's Upper Respiratory Infections



Source: Health First Colorado claims data. ED data do not include members eventually admitted to the hospital.

What Are The Challenges to Reducing Preventable ED Visits?

As previously discussed, there were fewer ED visits for potentially preventable conditions, but that may be partially due to skipped care and fewer cases of respiratory infections initially.[38] [39] There are a number of other factors that influence whether a potentially preventable ED visit occurs or whether other forms of care are used instead. These include provider behaviors, such as

[38] Colorado Health Institute. (2021). *Fear and missing out: Postponed care during COVID-19.* https://www.coloradohealthinstitute.org/research/missed-health-care-during-covid-19 Note: This report included payers in addition to Health First Colorado.
[39] Centers for Disease Control and Prevention. (2021). *Changes in influenza and other respiratory virus activities during the COVID-19 pandemic – United States, 2020-2021.* United States Department of Health and Human Services. https://www.cdc.gov/mmwr/volumes/70/wr/mm7029a1.htm

primary care physicians referring members to the ED; community factors, such as the convenience of the ED and access to primary care; and personal factors, such as how severe a member evaluates their condition to be. We dive deeper into a few areas below that are particularly relevant to Health First Colorado.

- Members who used the ED less during the first year of the pandemic may have used urgent care centers more. Unfortunately, the Department's data do not reliably identify urgent care providers, so it is difficult to determine how many members chose urgent care over the ED or how many simply let their respiratory infections, for instance, resolve on their own. The Department is in the process of changing this now to allow for future analysis of urgent care utilization.

- Members also may have accessed the statewide Nurse Advice Line to obtain medical advice about whether or not to go to the ED. This advice line is available to members 24 hours a day. From July 2019 through June 2020 – the latest data available, meaning mostly pre-COVID-19 – approximately 34% of Nurse Advice Line calls were downgraded to lower levels of care, which can include facilitating members access to urgent care or their primary care provider instead of the ED. Alternately, 16% of calls were upgraded to higher levels of care to ensure patient safety.[40] It is important to acknowledge that providers, including PCMPs, sometimes advise members to go to the ED because it is an emergency or out of caution. The Nurse Advice Line is helpful to members who may lack access to care provided after hours, but the service could do more if additional funding and partnerships existed.[41] For example, in the future Nurse Advice Line staff could potentially prescribe medications to members for more minor needs, such as urinary tract infections or for nausea and vomiting in pregnancy.

- Another factor at play is members' return to pre-pandemic behavior and preferences in terms of when and how to access care. Health First Colorado members generally pay zero dollars in co-pays to access the

[40] Colorado Department of Health Care Policy & Financing. (2020). *Funding request for the FY 2021-22 budget cycle*. https://hcpf.colorado.gov/sites/hcpf/files/FY%202021-22%2C%20HCPF%2C%20R-7%20Nurse%20Advice%20Line.pdf

[41] Informed by the Department's clinical team.

ED,[42] but they are charged co-pays for primary care visits. The ED is also always open and does not require appointments, which makes it not only financially more convenient, but potentially more convenient for members who work shift jobs or struggle to set up child care or take time off work.

- Perceptions of quality care also matter. Research indicates that some individuals choose the ED for non-urgent reasons because they believe they will receive the best care there, and ED utilization also was associated with dissatisfaction with primary care or other providers.[43] In Colorado, one RAE interviewed members about their ED use and found that some do not feel listened to by their PCMP and prefer the ED instead.[44] ED physicians in this region shared anecdotally that EDs offer all services in one location, reducing follow up labs, which create patient time and cost trade-offs.[45]

- Access to primary care is not always available when members need it, which makes it difficult to avoid the ED for less acute conditions. The percentage of providers reporting after-hours care did not substantively change during the pandemic as compared to before the pandemic, and only a minority of providers offer access to care outside of regular business hours, which varies by region.[46] ED physicians in the metro Denver area report they have seen primary care providers reduce evening and weekend hours due to staff shortages as a result of the pandemic, suggesting primary care does not have the capacity to take members who may typically use the ED.[47] Members also report through

[42] A relatively small percentage of Health First Colorado members are charged a $6 co-pay for ED visits deemed not to be an emergency. This co-pay amount has been approved to increase to $8 in the future.
[43] Ucher-Pines, L., Pines, J., & Kellermann, A. (2013). Emergency department visits for nonurgent conditions: systematic literature review. *The American Journal of Managed Care, 19*(1), 47-59.
[44] Information request from the Department to Colorado Access, 2021
[45] Information request from the Department to Colorado Access, 2021
[46] Colorado Department of Health Care Policy & Financing. (2020-2021). *RAE network adequacy reports*. Note: This percentage is the average across RAE regions. The percentage varies by region from 7% in region 1 to 60% in region 6. RAEs report this data in their quarterly network adequacy reports. The Department recognizes that more accurate data are needed.
[47] Information request from the Department to Colorado Access, 2021

surveys that primary care is not as accessible as they need it to be. In 2020, just 45% of adults and 57% of children reported that they had access to PCMP appointments as soon as they needed them or received answers to medical questions within the same day.[48] Currently, the Department does not collect data on the number of practices offering same day, next day appointments, and walk-in appointments, but expanding access in this way might be beneficial, especially if paired with ED efforts to set up PCMP appointments prior to discharge.[49] However, the research is generally mixed or more evidence is needed when it comes to the effectiveness of linking members with primary care and longer-term reductions in preventable ED visits.[50] [51] [52] [53]

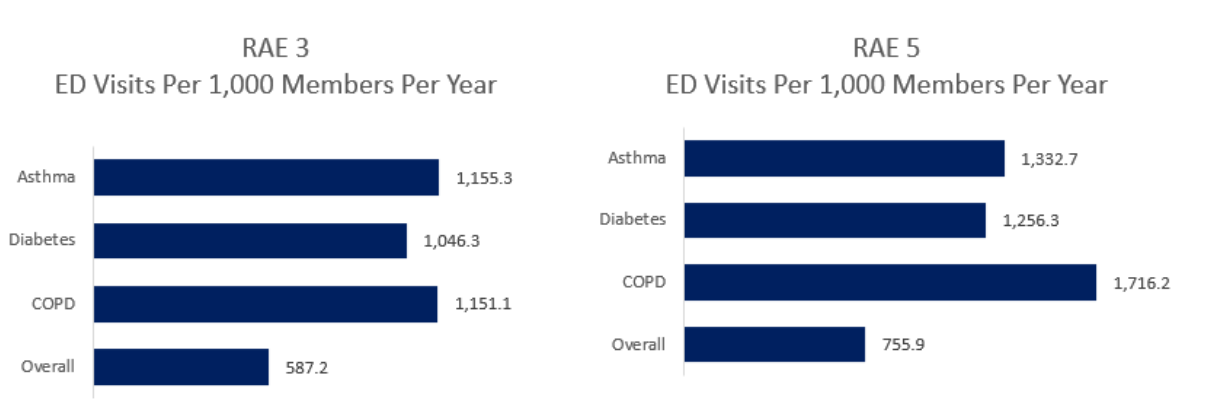
Case Study 1: Colorado Access, Regions 3 and 5 (Denver and Surrounding Counties)[54]

Colorado Access's strategy to reduce preventable ED visits emphasizes supporting members with chronic conditions to manage their care in the best location for their needs. They have done this by primarily focusing on improving wrap around support for members and expanding collaborations among hospitals and primary care clinics. It is important to note that while members with chronic conditions are not driving the total number of ED visits

[48] Colorado Department of Health Care Policy & Financing. (2021). *Member experience of care/client satisfaction surveys (CAHPS)*. https://hcpf.colorado.gov/client-satisfaction-surveys-cahps Note: See the 2021 Adult PCMH survey and the 2021 Child PCMH survey.
[49] Atzema, C.L., & Maclagan, L.C. (2017). The transition of care between emergency department and primary care: A scoping study. https://doi.org/10.1111/acem.13125 *Academic Emergency Medicine, 24*(2): 201-215.
[50] Atzema, C.L., & Maclagan, L.C. (2016). The transition of care between emergency department and primary care: a scoping study. *Academic Emergency Medicine, (24)*2, 201-215. https://doi.org/10.1111/acem.13125
[51] Wexler, R., Hefner, J.L., & Sieck, C. (2015). Connecting emergency department patients to primary care. *Journal of the American Board of Family Medicine, 28*(6), 722-732. https://doi.org/10.3122/jabfm.2015.06.150044
[52] DeHaven, M., Kitzman-Ulrich, H., & Gimpel, N. (2012). The effects of a community-based partnership, Project Access Dallas (PAD), on emergency department utilization and costs among the uninsured. *Journal of Public Health (Oxford), 34*(4), 577-583. https://doi.org/10.1093/pubmed/fds027
[53] Horwitz, S.M., Busch, S.H. & Balestracci, K.M. (2005). Intensive intervention improves primary care follow-up for uninsured emergency department patients. *Journal of Emergency Medicine, 12*(7), 647-652. https://doi.org/10.1197/j.aem.2005.02.015
[54] Information request from the Department to Colorado Access, 2021

in these regions, they do have higher rates of ED utilization and often may be better served through a medical home (Figure 7).

Figure 7. ED Utilization Rates Are Higher for Members with Certain Chronic Conditions in Regions 3 and 5 than the Overall ED Utilization Rate (October 2020 – September 2021)



Source: Colorado Access claims data, October 2020 – September 2021. Data are not risk-adjusted. The overall rate indicates the ED rate for all members and all visit reasons in each region. The ED rates specific to chronic conditions are inclusive of ED visits for reasons other than that condition.

The hospital and clinic collaborations promote access to primary care and faster follow up appointments, medication adherence and education on how to manage conditions, and assistance with social and economic needs. They also share real-time data to better coordinate care for members. For example, Children's Hospital of Colorado partners with Every Child Pediatrics to support children with difficult-to-control asthma. The hospital identifies high-risk asthma patients at discharge and screens them for social determinants of health needs before sharing that list of members with the PCMP. The PCMP then follows up with the member post discharge to check in on their health status, schedule appointments, review the medications they were prescribed, and discuss the recent hospitalization and what options exist to avoid a similar situation in the future.

In a different example, the University of Colorado Hospital-Anschutz partners with several PCMPs including Clinica Family Health. The hospital reconciles the member's medications and shares this information through a data system

linked to the PCMP. The PCMP schedules a follow up appointment with the member before they leave the hospital via warm-handoff and then follows up with them within three days after discharge to remind them of their appointment and that they should bring their medications with them. The goal is better transition of care and increased access to care for members.

Colorado Access's role has been to support the matching process of these hospital/PCMP collaborations through fostering connections among key staff, providing funding, and scaling efforts across the region. It is still too early to know the impact of these efforts, but evaluation is forthcoming.

VII. ED Visits for Behavioral Health Conditions

During the pandemic when ED visits were mostly in decline, visits for certain behavioral health issues increased in term of raw counts. In particular, members made more visits to the ED for alcohol-related conditions, substance use disorders, and anxiety during COVID-19 than before COVID-19. Some of this increase may be attributed to a greater number of newly enrolled members who used the ED for these reasons.[55] Additionally, the pandemic exacerbated many behavioral health issues, [56] which could have also impacted existing members.

Alcohol-related causes rose from the 13th most frequent reason for ED visits to the 5th during the first year of the pandemic. Members who used the ED for alcohol-related conditions were also more likely than most members to have repeat visits. While the total increase in visits and members was relatively small – 759 more visits and 238 additional members – this increase is important for what it suggests about behavioral health needs. Some of these visits were mostly likely by newly enrolled Health First Colorado members. Additionally, members with existing or new alcohol-related health conditions may have needed treatment that was difficult to access during the pandemic. According to a 2022 report by the National Institute on Alcohol Abuse and Alcoholism,[57] the number of deaths involving alcohol increased 25.9% from 2019 to 2020 during the first year of the pandemic, and in Colorado, this increase occurred at a similar rate.[58]

There was also an increase in raw ED visits for substance use disorders – 30th pre-COVID-19 to 22nd during COVID-19. National data show an increase in overdose deaths during the pandemic, which was also the case in Colorado and

[55] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data*. The ED utilization rate for these conditions – which accounts for enrollment growth - declined marginally during the first year of the pandemic, indicating that the increase in raw visits was impacted to some extent by new members with behavioral health conditions.
[56] Kaiser Family Foundation. (2021). *The implications of COVID-19 for mental health and substance use*. https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/
[57] White, A.M., Castle, I.P., & Powell, P.A. (2022). Alcohol-related deaths during the COVID-19 pandemic. *JAMA*, https://doi.org/10.1001/jama.2022.4308
[58] Wingerter, M. (2022, April 17). Alcohol deaths jumped by nearly 30% in Colorado in 2020 with less treatment, more drinking alone. *The Denver Post*. https://www.denverpost.com/2022/04/17/colorado-alcohol-deaths-pandemic/

could be related to the increase in ED visits.[59] [60] Anxiety disorders comprised a smaller percentage of overall ED visits (0.4%) but increased by 921 visits during the first year of the pandemic. Again, some of this increase was due to newly enrolled Health First Colorado members using the ED for these diagnoses. Keep in mind that the exclusion of secondary diagnoses likely means these increases were even larger in reality. Similarly, members admitted to inpatient care for behavioral health conditions were excluded.

The pandemic particularly impacted the mental health of children and teenagers in Colorado and nationally,[61] [62] but due to several limitations, it is challenging to capture this effect in the Department's ED data. The claims data do reveal a higher percentage of visits for "suicide and intentional self-inflicted injury" in the first year of the pandemic than in the year before the pandemic. This diagnosis category includes suicidal ideation, suicide attempts, and various forms of self-harm such as poisoning, but it is likely an undercount. For teenagers in particular (ages 12-17), "suicidal ideation" was the #1 reason for ED visits during COVID-19; however, this was the most common reason for an ED visit for teenagers pre-COVID-19 as well.

However, the larger picture is more complicated. In particular, these numbers do not include children who were admitted to inpatient care for a psychiatric evaluation and care. Suicide and self-harm may present as other conditions, such as injuries from accidents, that are not as easily identifiable in the data. The increase in the percent of ED visits for suicide and self-harm may also be because other children's ED visits dropped. All in all, this issue is one particular area that would be prime for additional analysis from the Department. Notably,

---

[59] Kaiser Family Foundation. (2021). *Substance use issues are worsening alongside access to care*. https://www.kff.org/policy-watch/substance-use-issues-are-worsening-alongside-access-to-care/

[60] Colorado Department of Public Health and Environment. (2021). *Counts of drug overdose deaths due to any drug in Colorado, 2000-2020*. https://cohealthviz.dphe.state.co.us/t/PSDVIP-MHPPUBLIC/views/DrugOverdoseDashboard/PoisoningDeathFrequencies?%3AshowAppBanner=false&%3Adisplay_count=n&%3AshowVizHome=n&%3Aorigin=viz_share_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y

[61] Kaiser Family Foundation. (2021). *Mental health and substance use considerations among children during the COVID-19 pandemic*. https://www.kff.org/coronavirus-covid-19/issue-brief/mental-health-and-substance-use-considerations-among-children-during-the-covid-19-pandemic/

[62] Children's Hospital Colorado. (2021). *Children's Hospital Colorado declares a 'State of Emergency' for youth mental health*. https://www.childrenscolorado.org/about/news/2021/may-2021/youth-mental-health-state-of-emergency/

Health First Colorado children in foster care visit the ED most frequently for suicidal ideation. “Suicide and self-inflicted injury” was the top reason for ED visits both before and during the pandemic, emphasizing the tremendous mental health challenges experienced by this population. This pattern is true across most regions of the state. The Department is collaborating with other state agencies, including the Colorado Department of Human Services, on training, treatment, and therapeutic foster homes as potential solutions.

There is some evidence that telemedicine can be utilized to support faster psychiatric evaluations for children and to help them return home for outpatient treatment.[63] [64] There may be other opportunities to encourage tele-psych evaluations from other locations and to use telemedicine to extend access to behavioral health care providers in shortage areas.

[63] Brent, A., & Thomas, J. (2018). The clinical utility of telemedicine in pediatric mental health emergencies in the ED/UC setting. *Pediatrics, 141*(1). https://publications.aap.org/pediatrics/article/141/1_MeetingAbstract/365/1924/The-Clinical-Utility-of-Telemedicine-in-Pediatric?autologincheck=redirected

[64] Thomas, J.F., Novins, D.K., & Hosokawa, P.W. (2017). The use of telepsychiatry to provide cost-efficient care during pediatric mental health emergencies. *Psychiatric Services, 69*, 1-8. https://doi.org/10.1176/appi.ps.201700140

VIII. ED Visits for Unhoused Health First Colorado Members

The percentage of ED visits attributable to unhoused adults (Box 7) rose from 11% to 14% during the first year of the pandemic even though fewer unhoused members went to the ED overall.[65] Members who lack a stable, safe home generally use emergency services at higher rates than those who are stably housed due to exposure to violence and traumatic injury, poor health, and challenges with consistently accessing providers.[66] Because of these reasons, it is not surprising that ED utilization declined less for unhoused adults compared to housed adults in the first year of the pandemic. However, another contributing factor may be that the population of unhoused people in Colorado also increased in metro Denver during COVID-19. [67]

Box 7. Unhoused Definition
There are three ways that a member is identified as potentially unhoused in Health First Colorado data: (1) they select an unhoused option on the medical assistance application; (2) they select a housing status, such as motel, that is considered to be unhoused; or (3) their address matches a list of shelters that serve unhoused people or service provider addresses. The Department is working on improving the accuracy of the data, which is currently imperfect. Some members who originally were unhoused may have found housing while others may be unhoused but do not register in the data.

Compared to housed adults, unhoused adults visited the ED more frequently based on the percentage of ED visits for substance use disorders including alcohol, skin infections, and injuries due to a variety of external causes.

SUD was the third reason for ED visits during the pandemic for unhoused adults compared with 24th for housed adults.[68] Additionally, the number of ED visits

[65] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data.*
[66] Colorado Coalition for the homeless. (2019). *Health and homelessness issue brief 2019.* https://www.coloradocoalition.org/sites/default/files/2019-04/Issue%20Brief-Health%20and%20Homelessness%20FINAL.pdf
[67] Metro Denver Homeless Initiative. (2022). *State of homelessness: Summary of homelessness in metro Denver 2021-2022.* https://static1.squarespace.com/static/5fea50c73853910bc4679c13/t/61eaf51014758102851febc8/1642788119525/SoH-Final.pdf
[68] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data.*

for SUD among unhoused adults was greater than the number of ED visits for SUD among housed adults, despite housed adults being a larger member group.

Skin infections treated in the ED are sometimes – but certainly not always – related to intravenous drug use, and in the first year of the pandemic, "skin and subcutaneous tissue infections" rose in the ranking from 10th to 5th among all adults. Unhoused adults used the ED more frequently for these infections, though only a portion of these visits was potentially for drug use.

Alcohol was a shared reason that adults, both housed and unhoused, ended up in the ED during the pandemic. In several regions of the state, it was the third reason for ED visits among housed adults and often the most common reason (#1) for ED visits among unhoused adults. Regardless of housing status, there are many members using the ED for this reason. A future analysis of community-based treatment options for alcohol dependence would be beneficial.

An especially concerning data point is that suicide and self-inflicted injury ranks 8th for unhoused adults (2.7% of ED visits) as compared to 20th for housed adults (1.5% of ED visits). The percentage of visits for injury and trauma was also higher for unhoused members. See Appendix F and G for a more detailed comparison of ED visits for housed and unhoused members.

Unhoused members were also more likely to use the ED for an administrative or social admission than prior to the start of the pandemic. Administrative or social admissions are ED visits that are not tied to a specific, treatable medical condition; rather, they are visits due to unmet social needs. For example, an unhoused member may visit the ED for wound care but stay in the ED longer than usual if they cannot be discharged safely due to their housing status during inclement weather. When unhoused members are admitted to an inpatient setting, they can stay for long periods of time, requiring substantial staff capacity and resources.[69]

One example of a hospital's effort to safely discharge unhoused members and connect them to services is the Housing Transitions Team at the University of

[69] Informed by the Department's clinical staff

Colorado Hospital in metro Denver, funded by the University of Colorado School of Medicine. This team of social workers provides streamlined transitions of care (e.g., scheduling follow-up appointments, medication continuity) for unhoused patients at the hospital, either in the emergency department, inpatient settings, or within ambulatory service settings. The teams also work with the patient after discharge from the hospital to connect them with community resources. This program expanded in the fall of 2021, and evaluation is currently underway.

IX. Higher ED Utilization Among Member Groups

Approximately four percent of members visit the ED six or more times a year, accounting for 21% of total ED visits (Table 2). Some members use the ED significantly more. In particular, 824 members (representing 0.2% of Health First Colorado members) used the ED 20 or more times during the year, accounting for 4% of all ED visits. It is important to note that these are not necessarily the same individuals each year, which can complicate efforts to outreach and support members with complex needs.

Table 2. A Small Percentage of Members Comprise 21% of All ED Visits

	November 2020 - October 2021	
Frequency of ED Visits in 12 Months	% Visits	% Members
1	29%	58%
2	21%	21%
3	14%	9%
4	9%	5%
5	6%	2%
6 or more	21%	4%
Total (count)	746,422	370,792

Source: Health First Colorado fee-for-service claims data. The percentages for members do not total 100% in the table due to rounding.

Members who are unhoused are more likely to use the ED at higher rates. Unhoused members accounted for 30% of ED visits in the "six or more visits" category. There are also outliers worth noting. Nearly 400 unhoused members (1% of the unhoused member group) used the ED 20 or more times. Additionally, members with disabilities, who can have higher medical needs or face barriers to accessible and disability culturally competent care in the community, comprised about 18% of visits falling in the six or more visits category.

Members who used the ED more often (six or more times in a year) have higher unmet behavioral health needs. In particular, substance use disorders, including alcohol, and suicide and self-inflicted injury are more common reasons for frequent ED visits when compared to all ED utilizers. Beyond behavioral health, "other complications of pregnancy" diagnoses were more common for members using the ED six or more times when compared to all ED utilizers.

It can be incredibly challenging to reduce ED utilization and costs among those who rely on the ED the most. High-intensity case management – which includes wrap-around supports for unmet medical, social, and economic needs – is considered a promising intervention, but more research is needed.[70] The more complex a member's circumstances, the more difficult it is to move the needle and to understand what intervention specifically results in change. It may not be realistic to significantly reduce utilization and costs in short periods of time for members with complex conditions as they often warrant even greater investment than Health First Colorado members without complex conditions. Currently, the Department works with the RAEs to identify and better understand members with complex needs, and there are opportunities to share and scale best practices. Figuring out what works is also complicated by a phenomenon known as "regression to the mean," in which some members would have used fewer health services in the subsequent year regardless of the intervention.[71] Interventions also can be complicated by inaccessible resources, such as case mangers or care coordinators having too few housing options or SUD rehabilitation programs available to members.[72]

The Orange Flag Project – administered by the Mile High Health Alliance in metro Denver and funded by the COPIC Medical Foundation – is an example of a program that aims to identify individuals (many of whom will be Health First

[70] Iovan, S., Lantz, P.M., & Allan, K. (2019). Interventions to decrease use in prehospital and emergency care settings among super-utilizers in the United States: A systematic review. *Medical Care Research and Review, 77*(2), 99-111. https://doi.org/10.1177/1077558719845722
[71] Johnson, T.L., Rinehart, D.J. & Durfee, J. (2015). For many patients who use large amounts of health care services, the need is intense yet temporary. *Health Affairs, 34*(8), 1312-1319. https://doi.org/10.1377/hlthaff.2014.1186
[72] Finkelstein, A., Zhou, A., & Taubman, S. (2020). Health care hotspotting –a randomized, controlled trial. *The New England Journal of Medicine, 382*, 152-162. https://doi.org/10.1056/NEJMsa1906848

Colorado members) who frequently use the ED and to mobilize resources and connections to providers and support organizations. Hospitals will code these individuals in the health information exchange with an orange flag, so that upon entry to another hospital, staff have more complete information about their health history and needs. The Alliance will collaborate with stakeholders to develop a protocol that hospital staff can use to address their complex needs, which ideally will also lead to broader system coordination. Colorado Access is already involved in this effort, and Department staff will follow their progress to learn from this pilot.

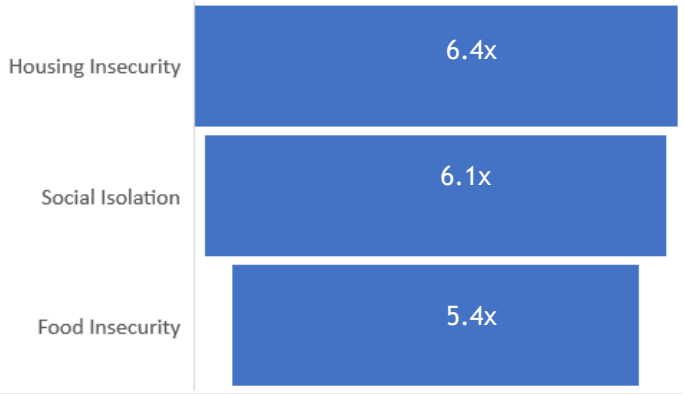
At Denver Health, the Comprehensive Care Center[73] identifies and serves individuals who use the ED frequently or who are hospitalized often to provide follow-up support. Practitioners are available to quickly connect these individuals to primary care, substance use treatment, and social supports. Another goal is to help establish long-term connections to the Denver Health primary care medical home for those who do not have a regular source of care. This program is in the process of expanding and also offers a wound care clinic as well as home monitoring that incorporates telemedicine.

Case Study 2: Rocky Mountain Health Plans (RMHP), Region 1 (Western Slope and Larimer County)[74]

Rocky Mountain Health Plans focuses their ED intervention efforts on the 500 highest ED utilizers in Region 1. This group accounts for 10% of total ED utilization. Members tend to have unmet social needs and/or have substance use disorders. Based on RMHP's social screening data, members who are housing insecure are more than six times as likely to use the ED in a given year than those who are securely housed (Figure 8). The graph in Figure 8 shows the proportion of ED visits for people with social determinants of health needs compared to those without them.

[73] Information request from Denver Health, 2022
[74] Information request from the Department to Rocky Mountain Health Plans, 2021

Figure 8. Members with Social Determinants of Health Needs Are More Likely to Use the ED than Members Who Do Not Report These Challenges



Source: Rocky Mountain Health Plans

In rural areas, meeting social and medical health needs can be particularly challenging due to longer drive times to access care and fewer community resources. Care coordinators and PCMP staff in RAE 1 receive electronic alerts telling them that a member has been discharged from the ED. They then follow up within one week with an outreach call to understand why they went to the ED, provide patient education on when to use lower levels of care, schedule follow up appointments, and connect them with resources, such as food or safe housing. For example, Western Valley Family Practice creates care plans for the members who comprise the most ED utilizations. They also ensure that these members have access to primary care on a consistent basis with the goal of seeing them at least monthly. Pediatric Associates of Montrose calls members after they leave the ED to promote access to primary care the next time an issue arises as appropriate. They also place nurses in the local ED to help triage non-urgent members and connect them to primary care. These practices make use of the health information exchange on the Western Slope to reach members and proactively connect them with their medical home.

X. Conclusion and Next Steps

One-quarter of Health First Colorado members utilize the ED at some point during the year, but they go for many different reasons. The ED is often the site of care for medical emergencies but also for conditions that are not medical emergencies, and for members whose health is compromised by unmet social needs like housing. During the initial year of the pandemic, ED visits declined by 218,000 visits. Respiratory infections, including the flu, dropped substantially in the early months of COVID-19 but later increased particularly for children. Notably, some behavioral health ED visits (e.g., alcohol-related conditions) actually increased in raw counts during the pandemic, but this increase was also impacted by the growth in Health First Colorado enrollment during that time. Potentially preventable ED visits for conditions such as diabetes or urinary tract infections declined. Although these conditions account for just five percent of all ED visits, they represent opportunities for increasing access to lower levels of care and telemedicine alternatives.

Some member groups utilize the ED at higher rates than others. In particular, pregnant adults have higher ED utilization for conditions including pregnancy complications. Children, on the other hand, have among the lowest ED utilization rates. A small subset of members tend to use the ED more frequently for repeat visits. Four percent of members went to the ED six or more times in a 12-month time period and account for more than 20% of ED visits. These members tend to have higher behavioral health needs and are more likely to be potentially unhoused than those who use the ED less frequently.

This report has outlined the many challenges and opportunities for reducing ED utilization to promote high-quality care in the appropriate setting. RAEs have implemented targeted efforts to enhance care coordination to members who visit the ED often or who rely on the ED for uncontrolled chronic conditions. These efforts, among others spotlighted in this report, hold potential for improving health outcomes and the experience of Health First Colorado members. To make progress, it will be necessary to continue to evaluate interventions for specific populations including those with complex medical and social needs.

The Department's Research & Analysis Section has identified the following areas for potential future research:

- Improving access to care for children with mental health emergencies;
- Evaluating the health care needs of children in foster care, including but not limited to ED visits, and identifying opportunities to improve system coordination;
- Expanding the analysis to include a deeper dive on members who were ultimately admitted to inpatient settings as well as missing capitated mental health ED visits and secondary diagnoses;
- Identifying and scaling approaches to address the medical and social needs of members, especially unhoused members;
- Assessing effectiveness of RAE efforts to connect members with primary care as soon as needed and to improve access to lower levels of care; and
- Exploring the ways in which telemedicine can reduce barriers to high quality care when needed.

Lastly, the Department invites stakeholder feedback on this report, particularly around opportunities to improve access to care for members outside the ED and how to more holistically support members with complex conditions. You can contact the report's author, Liana Major, at liana.major@state.co.us.

XI. Appendix A: Map of Regional Accountable Entity (RAE) Regions

Note: Rocky Mountain Health Prime and Denver Health Medicaid Choice are managed care organizations (MCOs) that have not been discussed specifically in this report. ED utilization data in this report exclude these MCOs.

XII. Appendix B: ED Utilization Trend Since March 2021

Beginning in March 2021, ED utilization began to increase for many, but not all, member subgroups.[75] In fact, with the use of claims forecasting, ED spending approached pre-pandemic levels around July 2021 with some fluctuation, but it is yet to be seen whether this level will be sustained going forward.[76] Based on ED utilization data, this increase is attributed to many factors, especially a rise

[75] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data*. [Data set].
[76] Colorado Department of Health Care Policy & Financing. (2021). *Fee-for-service claims data*. [Data set]. Note: Forecasting models used by the Data Analysis Section at the Department.

in infectious disease (upper respiratory infections, fevers, bronchitis), COVID-19 testing and treatment, and injuries. Children comprised a majority of the increase in visits. For example, 77% of the increase in upper respiratory infections can be attributed to children seeking care in the ED.

Table B.1 ED Visits for All Members, Percent Change from September 2021 Compared to February 2021

	All members	
Reasons for Visiting the ED Based on Diagnosis	Change in Visits (count)	Change in Visits (percentage)
Other upper respiratory infections	3,656	265%
COVID-19	1,768	307%
Contact with and exposure to COVID-19	1,322	94%
Superficial injury; contusion	940	62%
Viral infection	916	190%
Other lower respiratory disease	600	58%
Fracture of upper limb	570	99%
Fever of unknown origin	523	126%
Open wounds of extremities	499	52%
Acute bronchitis	455	455%
Otitis media and related conditions	418	171%

Source: Health First Colorado fee-for-service claims data. These data are from the dashboard version dated Jan. 20, 2022. In updated versions, numbers may vary slightly due to claims runout.

Note: February 2021 was chosen as the comparison month because ED visits began increasing in March 2021. Data should be interpreted with caution because in some cases diagnoses fluctuate with the time of year in addition to being impacted by other factors.

XIII. Appendix C: ED Utilization for All Members

All Members, March 15, 2019 - March 14, 2020

Diagnosis	% of Total Visits	Distinct Members	Rank	Visits	Visits Per Utilizer
Abdominal pain	7.7%	46,630	1	64,498	1.4
Other upper respiratory infections	5.8%	41,504	2	48,339	1.2
Other lower respiratory disease	3.8%	27,099	3	31,686	1.2
Superficial injury; contusion	3.6%	27,397	4	29,716	1.1
Nonspecific chest pain	3.4%	22,568	5	28,251	1.3
Sprains and strains	3.1%	23,944	6	25,924	1.1
Other injuries and conditions due to external causes	2.8%	21,715	7	23,601	1.1
Headache; including migraine	2.6%	17,315	8	21,818	1.3
Spondylosis; intervertebral disc disorders; other back problems	2.5%	17,202	9	20,856	1.2
Fever of unknown origin	2.4%	17,940	10	20,251	1.1
Other complications of pregnancy	2.4%	11,406	11	19,846	1.7
Skin and subcutaneous tissue infections	2.3%	14,917	12	18,911	1.3
Alcohol-related disorders	2.2%	8,515	13	18,343	2.2
Nausea and vomiting	2.1%	15,698	14	17,969	1.1
Other connective tissue disease	2.0%	15,200	15	16,988	1.1
Open wounds of extremities	1.9%	14,286	16	15,861	1.1
Other non-traumatic joint disorders	1.7%	12,758	17	14,376	1.1
Urinary tract infections	1.7%	11,859	18	14,038	1.2
Suicide and intentional self-inflicted injury	1.6%	9,540	19	13,268	1.4
Open wounds of head; neck; and trunk	1.5%	11,530	20	12,807	1.1

All Members, March 15, 2020 - March 14, 2021

Diagnosis	% of Total Visits	Distinct Members	Rank	Visits	Visits Per Utilizer
Abdominal pain	7.8%	35,268	1	48,443	1.4
Nonspecific chest pain	3.9%	19,014	2	23,878	1.3
Superficial injury; contusion	3.4%	19,366	3	20,754	1.1
Other injuries and conditions due to external causes	3.1%	17,733	4	19,262	1.1
Alcohol-related disorders	3.1%	8,753	5	19,102	2.2
Sprains and strains	2.9%	16,927	6	18,080	1.1
Other upper respiratory infections	2.6%	14,639	7	16,118	1.1
Other lower respiratory disease	2.5%	13,754	8	15,530	1.1
Skin and subcutaneous tissue infections	2.5%	12,335	9	15,513	1.3
Spondylosis; intervertebral disc disorders; other back problems	2.4%	12,514	10	15,060	1.2
Open wounds of extremities	2.4%	13,607	11	14,996	1.1
Other complications of pregnancy	2.4%	9,221	12	14,825	1.6
Immunizations and screening for infectious disease	2.3%	12,731	13	14,119	1.1
Headache; including migraine	2.3%	11,227	14	14,047	1.3
Other connective tissue disease	2.0%	11,333	15	12,667	1.1
Suicide and intentional self-inflicted injury	1.9%	8,411	16	11,986	1.4
Urinary tract infections	1.8%	9,736	17	11,433	1.2
Open wounds of head; neck; and trunk	1.8%	10,172	18	11,195	1.1
Other non-traumatic joint disorders	1.7%	9,067	19	10,254	1.1
Nausea and vomiting	1.6%	8,448	20	10,086	1.2

Source: Health First Colorado fee-for-service claims data. These data are from the dashboard version dated Jan. 20, 2022. In updated versions, numbers may vary slightly due to claims runout.

XIV. Appendix D: ED Utilization for Adults

"Adults" are members ages 19-64 who do not fall into other member categories.

Adults, March 15, 2019 - March 14, 2020					
Diagnosis	**% of Total Visits**	**Distinct Members**	**Rank**	**Visits**	**Visits Per Utilizer**
Abdominal pain	10.2%	27,677	1	39,323	1.4
Nonspecific chest pain	4.5%	13,972	2	17,317	1.2
Alcohol-related disorders	3.6%	6,380	3	13,856	2.2
Sprains and strains	3.5%	12,609	4	13,681	1.1
Spondylosis; intervertebral disc disorders; other back problems	3.5%	11,164	5	13,534	1.2
Other lower respiratory disease	3.5%	11,548	6	13,512	1.2
Other upper respiratory infections	3.4%	11,729	7	13,245	1.1
Headache; including migraine	3.4%	10,497	8	13,220	1.3
Superficial injury; contusion	3.3%	11,575	9	12,653	1.1
Skin and subcutaneous tissue infections	2.9%	8,591	10	11,229	1.3
Other connective tissue disease	2.5%	8,684	11	9,791	1.1
Other injuries and conditions due to external causes	2.2%	7,729	12	8,482	1.1
Open wounds of extremities	2.2%	7,459	13	8,358	1.1

Other non-traumatic joint disorders	2.1%	7,001	14	7,986		1.1
Nausea and vomiting	1.9%	6,053	15	7,253		1.2
Urinary tract infections	1.8%	5,830	16	6,779		1.2
Suicide and intentional self-inflicted injury	1.7%	4,856	17	6,764		1.4
Other complications of pregnancy	1.7%	4,253	18	6,717		1.6
Substance-related disorders	1.7%	4,437	19	6,484		1.5
Other nervous system disorders	1.5%	4,994	20	5,653		1.1

Adults, March 15, 2020 - March 14, 2021

Diagnosis	% of Total Visits	Distinct Members	Rank	Visits	Visits Per Utilizer	
Abdominal pain	9.3%	22,713	1	31,532		1.4
Nonspecific chest pain	4.7%	12,575	2	15,792		1.3
Alcohol-related disorders	4.5%	6,784	3	15,172		2.2
Sprains and strains	3.2%	10,107	4	10,806		1.1
Skin and subcutaneous tissue infections	3.0%	7,916	5	10,210		1.3
Superficial injury; contusion	3.0%	9,318	6	10,109		1.1
Spondylosis; intervertebral disc disorders; other back problems	3.0%	8,368	7	10,046		1.2
Headache; including migraine	2.7%	7,430	8	9,273		1.2

Immunizations and screening for infectious disease	2.6%	8,009	9	8,971	1.1
Other lower respiratory disease	2.6%	7,849	10	8,835	1.1
Open wounds of extremities	2.4%	7,463	11	8,285	1.1
Other injuries and conditions due to external causes	2.4%	7,379	12	8,132	1.1
Other connective tissue disease	2.3%	6,900	13	7,707	1.1
Substance-related disorders	2.0%	4,580	14	6,843	1.5
Other upper respiratory infections	1.9%	5,779	15	6,356	1.1
Suicide and intentional self-inflicted injury	1.8%	4,508	16	6,197	1.4
Other non-traumatic joint disorders	1.8%	5,379	17	6,054	1.1
Urinary tract infections	1.8%	5,132	18	5,955	1.2
Other complications of pregnancy	1.7%	3,759	19	5,716	1.5
Nausea and vomiting	1.6%	4,454	20	5,505	1.2

Source: Health First Colorado fee-for-service claims data. These data are from the dashboard version dated Jan. 20, 2022. In updated versions, numbers may vary slightly due to claims runout.

XV. Appendix E: ED Utilization for Children

"Children" are members ages 0-18 who do not fall into other member categories. Specifically, children with disabilities are not included in this category, nor are children in foster care.

Children, March 15, 2019 - March 14, 2020					
Diagnosis	**% of Total Visits**	**Distinct Members**	**Rank**	**Visits**	**Visits Per Utilizer**
Other upper respiratory infections	12.6%	25,463	1	30,157	1.2
Fever of unknown origin	6.5%	13,683	2	15,710	1.1
Other lower respiratory disease	4.6%	9,719	3	11,012	1.1
Superficial injury; contusion	4.5%	10,244	4	10,781	1.1
Abdominal pain	4.4%	9,054	5	10,643	1.2
Other injuries and conditions due to external causes	4.4%	9,860	6	10,491	1.1
Otitis media and related conditions	3.8%	8,214	7	9,079	1.1
Viral infection	3.2%	7,198	8	7,789	1.1
Sprains and strains	3.2%	7,267	9	7,786	1.1
Nausea and vomiting	3.2%	7,021	10	7,614	1.1
Open wounds of head; neck; and trunk	2.7%	5,906	11	6,441	1.1
Influenza	2.6%	5,874	12	6,186	1.1
Fracture of upper limb	2.2%	4,955	13	5,336	1.1
Allergic reactions	1.9%	4,240	14	4,632	1.1
Open wounds of extremities	1.9%	4,177	15	4,507	1.1
Other gastrointestinal disorders	1.9%	4,089	16	4,466	1.1
Acute bronchitis	1.7%	3,606	17	4,198	1.2
Other skin disorders	1.6%	3,606	18	3,779	1.0
Asthma	1.5%	2,913	19	3,670	1.3
Headache; including migraine	1.5%	3,119	20	3,624	1.2

Children, March 15, 2020 - March 14, 2021

Diagnosis	% of Total Visits	Distinct Members	Rank	Visits	Visits Per Utilizer
Other upper respiratory infections	6.6%	7,163	1	7,883	1.1
Other injuries and conditions due to external causes	6.1%	7,014	2	7,389	1.1
Superficial injury; contusion	5.3%	6,216	3	6,431	1.0
Abdominal pain	5.1%	5,247	4	6,138	1.2
Open wounds of head; neck; and trunk	4.5%	5,026	5	5,397	1.1
Fever of unknown origin	3.7%	4,073	6	4,413	1.1
Fracture of upper limb	3.6%	4,042	7	4,381	1.1
Sprains and strains	3.6%	4,068	8	4,278	1.1
Open wounds of extremities	3.5%	3,902	9	4,173	1.1
Viral infection	2.3%	2,664	10	2,814	1.1
Immunizations and screening for infectious disease	2.3%	2,649	11	2,811	1.1
Other gastrointestinal disorders	2.2%	2,396	12	2,668	1.1
Allergic reactions	2.1%	2,390	13	2,577	1.1
Suicide and intentional self-inflicted injury	2.1%	1,925	14	2,570	1.3
Nausea and vomiting	2.1%	2,282	15	2,494	1.1
Other lower respiratory disease	2.0%	2,241	16	2,358	1.1
Urinary tract infections	1.7%	1,870	17	2,105	1.1
Otitis media and related conditions	1.6%	1,829	18	1,967	1.1
Skin and subcutaneous tissue infections	1.6%	1,730	19	1,933	1.1
Other skin disorders	1.4%	1,584	20	1,641	1.0

Source: Health First Colorado fee-for-service claims data. These data are from the dashboard version dated Jan. 20, 2022. In updated versions, numbers may vary slightly due to claims runout.

XVI. Appendix F: ED Utilization for Housed Adults

"Housed Adults" are members ages 19-64 who do not fall into other member categories and are not potentially unhoused based on the Department's methodology (described in Section VIII above).

Housed Adults, March 15, 2019 - March 14, 2020					
Diagnosis	**% of Total Visits**	**Distinct Members**	**Rank**	**Visits**	**Visits Per Utilizer**
Abdominal pain	11.1%	23,272	1	32,570	1.4
Nonspecific chest pain	4.6%	11,351	2	13,513	1.2
Sprains and strains	3.8%	10,430	3	11,242	1.1
Headache; including migraine	3.8%	8,850	4	11,072	1.3
Other upper respiratory infections	3.8%	9,821	5	11,067	1.1
Spondylosis; intervertebral disc disorders; other back problems	3.7%	9,098	6	10,892	1.2
Other lower respiratory disease	3.5%	9,057	7	10,345	1.1
Superficial injury; contusion	3.2%	8,745	8	9,384	1.1
Other connective tissue disease	2.5%	6,590	9	7,265	1.1
Skin and subcutaneous tissue infections	2.4%	5,708	10	7,162	1.3
Alcohol-related disorders	2.4%	4,081	11	7,076	1.7
Open wounds of extremities	2.2%	5,713	12	6,335	1.1
Other non-traumatic joint disorders	2.1%	5,443	13	6,036	1.1
Other injuries and conditions due to external causes	2.0%	5,539	14	5,927	1.1
Other complications of pregnancy	2.0%	3,752	15	5,848	1.6
Nausea and vomiting	2.0%	4,791	16	5,754	1.2
Urinary tract infections	1.9%	4,799	17	5,571	1.2
Other nervous system disorders	1.5%	3,857	18	4,327	1.1
Suicide and intentional self-inflicted injury	1.4%	3,298	19	4,096	1.2
Disorders of teeth and jaw	1.3%	3,304	20	3,840	1.2

Housed Adults, March 15, 2020 - March 14, 2021

Diagnosis	% of Total Visits	Distinct Members	Rank	Visits	Visits Per Utilizer
Abdominal pain	10.2%	18,831	1	25,715	1.4
Nonspecific chest pain	4.9%	10,136	2	12,261	1.2
Sprains and strains	3.5%	8,236	3	8,731	1.1
Alcohol-related disorders	3.2%	4,447	4	8,128	1.8
Spondylosis; intervertebral disc disorders; other back problems	3.2%	6,726	5	7,935	1.2
Headache; including migraine	3.0%	6,192	6	7,573	1.2
Superficial injury; contusion	2.9%	6,947	7	7,396	1.1
Immunizations and screening for infectious disease	2.7%	6,037	8	6,692	1.1
Other lower respiratory disease	2.6%	5,992	9	6,596	1.1
Skin and subcutaneous tissue infections	2.5%	5,064	10	6,309	1.2
Open wounds of extremities	2.5%	5,708	11	6,292	1.1
Other connective tissue disease	2.3%	5,213	12	5,694	1.1
Other injuries and conditions due to external causes	2.2%	5,111	13	5,444	1.1
Other upper respiratory infections	2.0%	4,664	14	5,131	1.1
Other complications of pregnancy	2.0%	3,286	15	4,910	1.5
Urinary tract infections	1.9%	4,125	16	4,752	1.2
COVID-19	1.8%	3,845	17	4,528	1.2
Other non-traumatic joint disorders	1.8%	4,053	18	4,430	1.1
Nausea and vomiting	1.8%	3,557	19	4,411	1.2
Suicide and intentional self-inflicted injury	1.5%	3,074	20	3,832	1.2

Source: Health First Colorado fee-for-service claims data. These data are from the dashboard version dated Jan. 20, 2022. In updated versions, numbers may vary slightly due to claims runout.

XVII. Appendix G: ED Utilization for Unhoused Adults

"Unhoused Adults" are members ages 19-64 who do not fall into other member categories and are potentially unhoused based on the Department's methodology (described in Section VIII above).

Unhoused Adults, March 15, 2019 - March 14, 2020					
Diagnosis	**% of Total Visits**	**Distinct Members**	**Rank**	**Visits**	**Visits Per Utilizer**
Alcohol-related disorders	7.3%	2,401	1	6,780	2.8
Abdominal pain	7.3%	4,546	2	6,753	1.5
Skin and subcutaneous tissue infections	4.4%	2,927	3	4,067	1.4
Nonspecific chest pain	4.1%	2,664	4	3,804	1.4
Substance-related disorders	3.9%	2,311	5	3,611	1.6
Superficial injury; contusion	3.5%	2,856	6	3,269	1.1
Other lower respiratory disease	3.4%	2,534	7	3,167	1.2
Suicide and intentional self-inflicted injury	2.9%	1,611	8	2,668	1.7
Spondylosis; intervertebral disc disorders; other back problems	2.8%	2,095	9	2,642	1.3
Other injuries and conditions due to external causes	2.8%	2,206	10	2,555	1.2
Other connective tissue disease	2.7%	2,118	11	2,526	1.2
Sprains and strains	2.6%	2,200	12	2,439	1.1
Other upper respiratory infections	2.3%	1,931	13	2,178	1.1
Headache; including migraine	2.3%	1,677	14	2,148	1.3
Open wounds of extremities	2.2%	1,757	15	2,023	1.2
Other non-traumatic joint disorders	2.1%	1,582	16	1,950	1.2
Residual codes; unclassified	1.9%	1,410	17	1,745	1.2
Epilepsy; convulsions	1.7%	777	18	1,559	2.0
Disorders of teeth and jaw	1.6%	1,261	19	1,502	1.2
Nausea and vomiting	1.6%	1,274	20	1,499	1.2

Unhoused Adults, March 15, 2020 - March 14, 2021					
Diagnosis	**% of Total Visits**	**Distinct Members**	**Rank**	**Visits**	**Visits Per Utilizer**
Alcohol-related disorders	8.0%	2,417	1	7,044	2.9
Abdominal pain	6.6%	3,956	2	5,817	1.5
Substance-related disorders	4.5%	2,471	3	3,978	1.6
Skin and subcutaneous tissue infections	4.5%	2,889	4	3,901	1.4
Nonspecific chest pain	4.0%	2,467	5	3,531	1.4
Superficial injury; contusion	3.1%	2,381	6	2,713	1.1
Other injuries and conditions due to external causes	3.1%	2,283	7	2,688	1.2
Suicide and intentional self-inflicted injury	2.7%	1,469	8	2,365	1.6
Immunizations and screening for infectious disease	2.6%	1,987	9	2,279	1.1
Other lower respiratory disease	2.6%	1,873	10	2,239	1.2
Spondylosis; intervertebral disc disorders; other back problems	2.4%	1,663	11	2,111	1.3
Sprains and strains	2.4%	1,876	12	2,075	1.1
Other connective tissue disease	2.3%	1,695	13	2,013	1.2
Open wounds of extremities	2.3%	1,760	14	1,993	1.1
Residual codes; unclassified	2.0%	1,429	15	1,770	1.2
Headache; including migraine	1.9%	1,248	16	1,700	1.4
Other non-traumatic joint disorders	1.9%	1,332	17	1,624	1.2
Administrative/social admission	1.7%	1,205	18	1,509	1.3
Epilepsy; convulsions	1.6%	766	19	1,372	1.8
Open wounds of head; neck; and trunk	1.5%	1,142	20	1,332	1.2

Source: Health First Colorado fee-for-service claims data. These data are from the dashboard version dated Jan. 20, 2022. In updated versions, numbers may vary slightly due to claims runout.

XVIII. Appendix H: ED Utilization for Members with Disabilities

"Members with Disabilities" include both adults and children. This category includes members with home-and-community-based services waivers as well as members who are not receiving long-term services and supports but have a disability.

Members with Disabilities, March 15, 2019 - March 14, 2020					
Diagnosis	**% of Total Visits**	**Distinct Members**	**Rank**	**Visits**	**Visits Per Utilizer**
Abdominal pain	7.5%	4,764	1	7,271	1.5
Nonspecific chest pain	4.8%	3,364	2	4,642	1.4
Other lower respiratory disease	3.8%	2,980	3	3,707	1.2
Spondylosis; intervertebral disc disorders; other back problems	3.3%	2,403	4	3,150	1.3
Superficial injury; contusion	3.3%	2,744	5	3,139	1.1
Headache; including migraine	2.9%	1,954	6	2,800	1.4
Epilepsy; convulsions	2.8%	1,531	7	2,737	1.8
Skin and subcutaneous tissue infections	2.7%	1,959	8	2,582	1.3
Other connective tissue disease	2.6%	2,155	9	2,524	1.2
Other upper respiratory infections	2.5%	2,152	10	2,442	1.1
Sprains and strains	2.5%	2,158	11	2,390	1.1
Alcohol-related disorders	2.4%	988	12	2,307	2.3
Other injuries and conditions due to external causes	2.3%	1,965	13	2,250	1.1
Other non-traumatic joint disorders	2.2%	1,797	14	2,098	1.2
Urinary tract infections	2.1%	1,513	15	1,983	1.3
Suicide and intentional self-inflicted injury	2.0%	1,222	16	1,883	1.5
Residual codes; unclassified	1.9%	1,555	17	1,838	1.2
Other nervous system disorders	1.9%	1,488	18	1,798	1.2
Nausea and vomiting	1.7%	1,392	19	1,667	1.2
Chronic obstructive pulmonary disease and bronchiectasis	1.6%	1,092	20	1,556	1.4

Members with Disabilities, March 15, 2020 - March 14, 2021					
Diagnosis	**% of Total Visits**	**Distinct Members**	**Rank**	**Visits**	**Visits Per Utilizer**
Abdominal pain	7.7%	3,688	1	5,872	1.6
Nonspecific chest pain	4.8%	2,671	2	3,657	1.4
Other lower respiratory disease	3.1%	1,918	3	2,365	1.2
Spondylosis; intervertebral disc disorders; other back problems	3.0%	1,761	4	2,303	1.3
Superficial injury; contusion	2.8%	1,945	5	2,154	1.1
Epilepsy; convulsions	2.8%	1,183	6	2,129	1.8
Skin and subcutaneous tissue infections	2.6%	1,570	7	2,019	1.3
Alcohol-related disorders	2.6%	915	8	2,006	2.2
Other connective tissue disease	2.6%	1,649	9	1,955	1.2
Other injuries and conditions due to external causes	2.5%	1,669	10	1,918	1.1
Headache; including migraine	2.5%	1,322	11	1,874	1.4
Suicide and intentional self-inflicted injury	2.3%	1,052	12	1,758	1.7
Residual codes; unclassified	2.2%	1,341	13	1,689	1.3
Sprains and strains	2.2%	1,490	14	1,645	1.1
Other non-traumatic joint disorders	2.1%	1,277	15	1,588	1.2
Urinary tract infections	2.1%	1,202	16	1,576	1.3
Other nervous system disorders	1.9%	1,167	17	1,426	1.2
Immunizations and screening for infectious disease	1.8%	1,232	18	1,409	1.1
Open wounds of extremities	1.7%	1,100	19	1,272	1.2
Other gastrointestinal disorders	1.6%	1,000	20	1,229	1.2

Source: Health First Colorado fee-for-service claims data. These data are from the dashboard version dated Jan. 20, 2022. In updated versions, numbers may vary slightly due to claims runout.