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Colorado's Primary Care Workforce

A Study of Regional Disparities

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Acknowledgments

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Introduction

How many primary care physicians treat patients in Colorado? Do we have enough working physicians, and are they in the right places, to provide primary care for all Coloradans? Most importantly, what can policymakers do to address these issues?

While it might seem that these are simple questions to answer, they are, in fact, quite complex.

First, there is no central location for these data. While Colorado licenses physicians, the state did not, until recently, collect information on where they practice, how many hours a week they work, how many patients they treat, or whether they see patients at all.

At the same time, there is no magic number to determine how many primary care physicians are needed to provide adequate care.

The Colorado Health Institute in 2011 conducted a study estimating the state's future health care workforce needs in light of an expected influx of people who would gain health insurance under the Affordable Care Act and other federal and state health policies. While that information was eye-opening, many policymakers and stakeholders asked for follow-up data on Colorado's current workforce level.

We need to know where we are now in order to educate, recruit and retain the health care workforce of the future, they said.

In response, the Colorado Health Institute undertook this analysis, the first in the state to calculate the number of full-time equivalent (FTE) primary care physicians and to measure workforce capacity at the regional level.

Comparing primary care physician FTEs to the population, while not a complete measure of access to health care, allows for direct comparisons across regions and provides an overall view of the state's primary care capacity.

The new study finds the equivalent of 2,812 full-time primary care physicians among Colorado's 3,332 practicing primary care physicians. This breaks down to an average Colorado panel size of 1,873 people for each practicing full-time primary care physician.

What Is a Health Statistics Region (HSR)?

The Colorado Department of Public Health and Environment has established 21 of these geographic areas for public health planning.[3] Some more populous counties are designated as an HSR, while less-populated counties are aggregated into one HSR.

From a big-picture perspective, that's an adequate ratio.

When you look closer, though, our study shows that while many areas have enough primary care physicians to care for the population, a number of others – primarily rural and underserved urban areas – likely do not have enough. And in many regions, low-income Coloradans enrolled in the Medicaid program may have limited access to primary care physicians who accept their insurance.

Why is this important?

New ways to deliver better and more cost-effective health care are being tested across Colorado. These efforts aim to slow the unsustainable growth in costs while still providing high-quality care. Because studies show that effective primary care leads to improved health outcomes,[1] a good deal of the innovative work is focused in this area.

In order for this systemic transformation to be successful, Colorado must ensure that it has a primary care workforce that is ready to meet the challenges of the future.

This analysis provides four unique data points that, considered together, create the baseline metric of Colorado's practicing primary care physician workforce, statewide and in the 21 health statistics regions.

Colorado's Primary Care Workforce: A Baseline

1. **Practicing Primary Care Physician Full-time Equivalents (FTEs) in Each Region.** This method allows for standardized comparisons across regions, reflecting the fact that not all doctors practice full-time.

2. **A Benchmark Panel Size of 1,900 Patients for Each Primary Care Physician FTE.** This yardstick allows comparisons across regions and across time. While there is no one correct panel size, the Colorado Health Institute settled on this level after extensive research. The average panel size in a region, compared to the 1,900-patient benchmark, is an indication of whether the supply of primary care doctors is relatively adequate.

3. **Primary Care Nurse Practitioner and Physician Assistant FTEs in Each Region.** Understanding the distribution of these crucial primary care team members by region is an important component of understanding the big picture of primary care capacity.

4. **Medicaid Enrollees Per Medicaid Primary Care Physician FTE.** This ratio indicates how easy or difficult it may be for Coloradans covered by Medicaid to get access to needed primary care. Medicaid is a publicly sponsored program that provides coverage to low-income people.

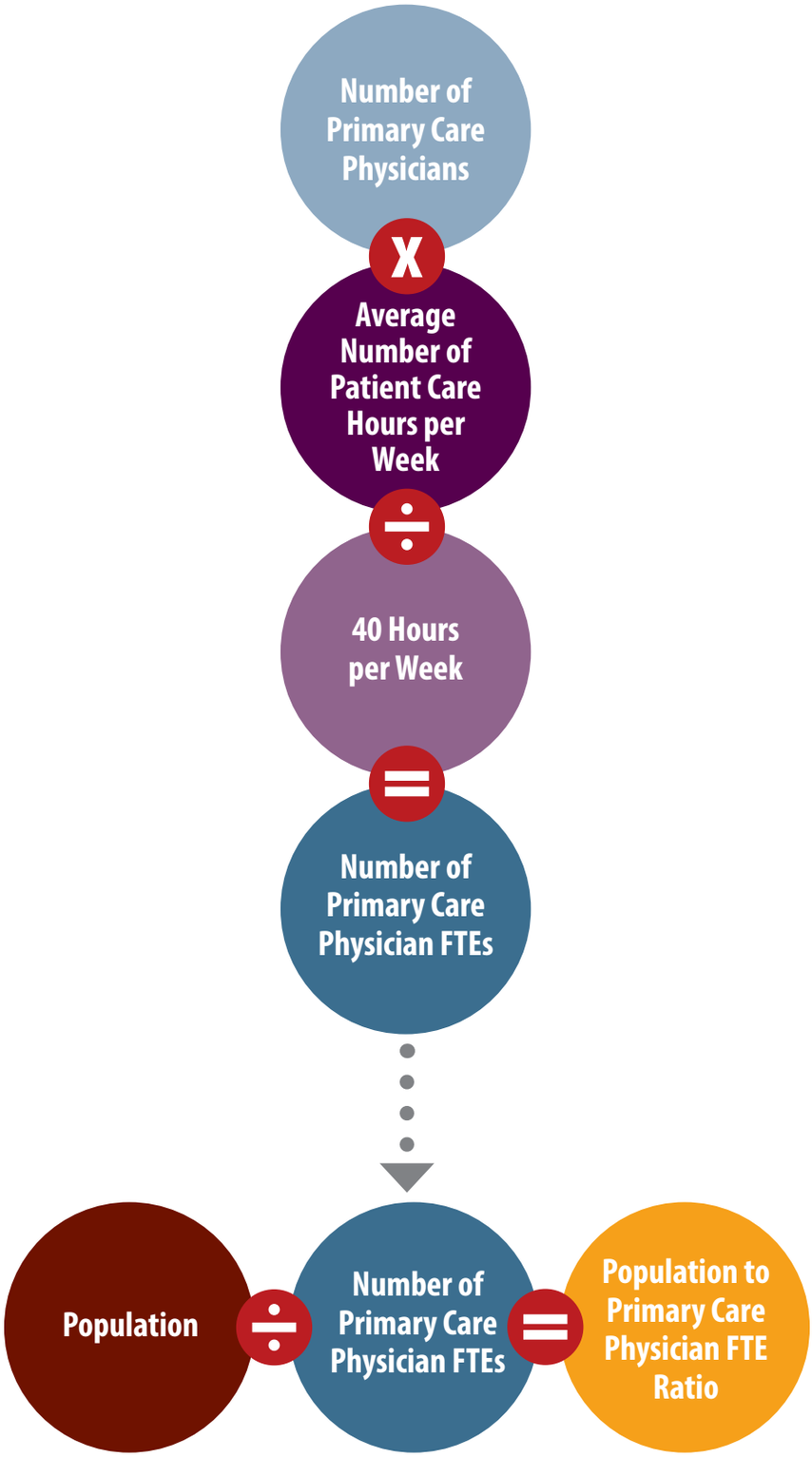
It is important to think about how to use this new information.

Investing in the workforce pipeline and creating local training opportunities will be important. It is not realistic to expect patients to commute great distances for care or to count on a drastic redistribution of the current workforce. Regional planning efforts will need to look at how to efficiently deliver primary care, how to encourage innovative care models, and how to develop strategies to attract professionals to places that need them.

Finally, Colorado's current workforce generally reflects the fee-for-service payment system, which creates incentives to provide as many medical services as possible and reimburses non-primary care clinicians at higher rates than their primary care counterparts.[2]

The health care system is changing, and new models of payment and delivery may significantly change the workforce requirements necessary to meet the needs of Coloradans. The most successful planning for the future will reflect these changes.

The Formula: Colorado's Primary Care Physician Workforce



Analysis: It Matters Where You Live

Denver County has 1,348 residents for each full-time practicing primary care physician. Less than an hour's drive to the east, in a rural region consisting of Cheyenne, Elbert, Kit Carson and Lincoln counties, there are 5,636 residents for each full-time primary care physician – or more than four times as many.

The Colorado Health Institute study found wide variations in the primary care workforce across Colorado (see Map 1), both for the overall population as well as for people who are covered by Medicaid, the federal-state public insurance program.

Colorado averages 1,873 people for each full-time primary care physician. Based on a comparison panel size of 1,900, Colorado appears to have a suitable number of practicing primary care physicians. It is important to delve deeper, though, to understand the full story.

Nine regions face significant and ongoing challenges in establishing adequate levels of primary care physicians, but five are "hot spots" of particular concern (see box at right).

Compared to the benchmark panel size, these regions need to increase their number of primary care physicians by at least 10 percent as well as augment their capacity to serve Medicaid enrollees.

The data show that, collectively, the nine regions with less robust primary care physician capacity – those that have more residents per physician than the 1,900:1 panel size yardstick – need an additional 258 primary care physician FTEs.

Colorado's Primary Care Hot Spots

- El Paso County (HSR 4)
- Cheyenne, Elbert, Kit Carson and Lincoln counties (HSR 5)
- Eagle, Garfield, Grand, Pitkin and Summit counties (HSR 12)
- Chaffee, Custer, Fremont, and Lake counties (HSR 13)
- Clear Creek, Gilpin, Park, and Teller counties (HSR 17)

TERMS TO KNOW

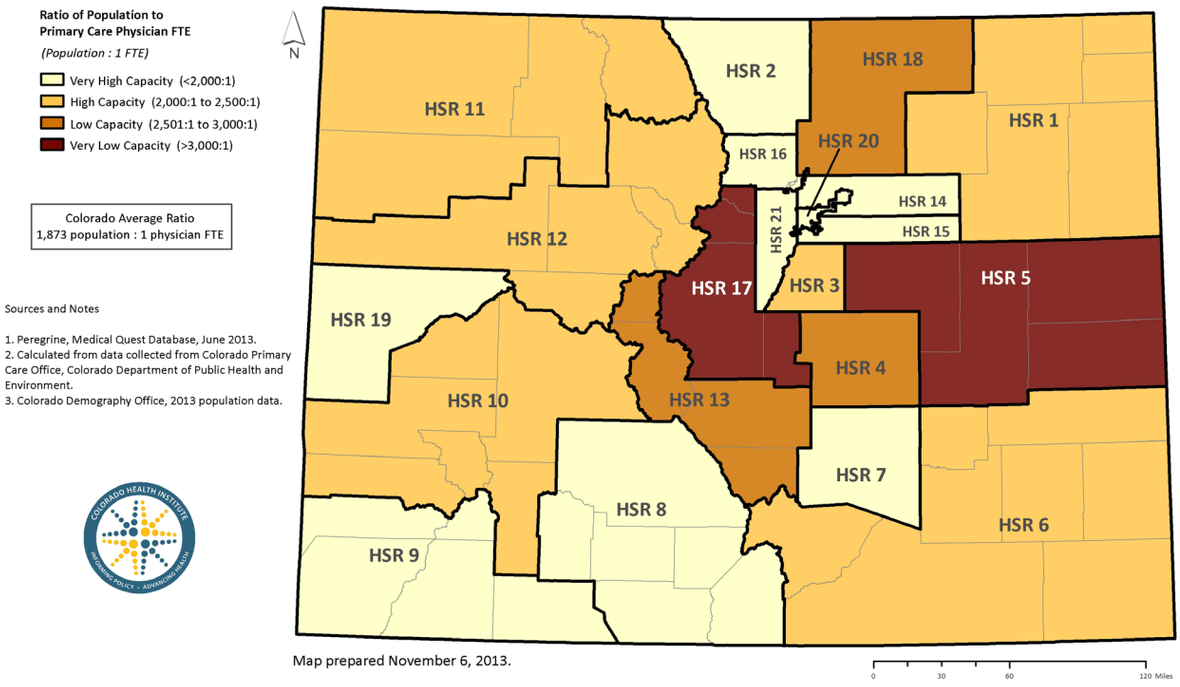
Primary Care Physicians

The Colorado Health Institute study includes family, internal, general or pediatric physicians in its definition of primary care providers. It does not include physicians with specialties in obstetrics and gynecology.

Panel Size

The number of individual patients under the care of a specific provider. This study designates a panel size of 1,900 residents for each primary care physician FTE and 1,500 Medicaid enrollees for each Medicaid primary care provider FTE.

Map 1. Ratio of Population to Primary Care Physician Full-Time Equivalents (FTEs), by Health Statistics Region, 2013



Regions with the most pressing issues face a daunting task (see Table 1). Cheyenne, Elbert, Kit Carson and Lincoln counties (HSR 5), for example, need three times their current number of primary care physician FTEs, increasing from seven to 21, to reach the 1,900:1 benchmark panel size. Clear Creek, Gilpin, Park and Teller counties (HSR 17) need nearly double the number of primary care physician FTEs, up to 29 from 16.

More populous regions will need smaller percentage increases to reach the 1,900:1 panel size, but this translates to large numbers. For example, El Paso County (HSR 4) needs an additional 120 primary care physician FTEs, growing 54 percent from 224 to 344. Weld County (HSR 18) needs an additional 34 FTEs, increasing 32 percent from 107 to 141.

Meanwhile, 12 regions have relatively high primary care capacity, meaning they are either very close to the benchmark or have a better ratio (see Table 2). Denver County (HSR 20) leads these regions, followed by Boulder and Broomfield counties (HSR 16), Mesa County (HSR 19), Pueblo County (HSR 7), and Larimer County (HSR 2). These tend to be Colorado's more urban and more populous regions.

TERMS TO KNOW

Primary Care

This care includes health promotion, disease prevention, health maintenance, counseling, patient education, diagnosis and treatment of acute and chronic illnesses. A primary care practice serves as the patient's first point of entry into the health care system and as the continuing focal point for all needed health care services. (Definition from the American Academy of Family Physicians.)

Table 1: Regions with the Worst (Highest) Ratios of Patients to Full-Time Primary Care Physicians [4]

Rank	HSR	Counties	Additional FTEs Needed to Reach 1,900:1 Benchmark	Percentage Increase to Reach Benchmark
1	HSR 5	Cheyenne, Elbert, Kit Carson, Lincoln	13.8	197%
2	HSR 17	Clear Creek, Gilpin, Park, Teller	12.8	79%
3	HSR 4	El Paso	120.1	54%
4	HSR 13	Chaffee, Custer, Fremont, Lake	14.8	54%
5	HSR 18	Weld	34.4	32%
6	HSR 12	Eagle, Garfield, Grand, Pitkin, Summit	21.5	30%
7	HSR 6	Baca, Bent, Crowley, Huerfano, Kiowa, Las Animas, Otero, Prowers	7.5	25%
8	HSR 3	Douglas	29.0	22%
9	HSR 1	Logan, Morgan, Phillips, Sedgwick, Washington, Yuma	4.2	12%
	Total		**258**	

Table 2. Regions with the Best (Lowest) Ratios of Patients to Full-Time Primary Care Physicians

Rank	HSR	Counties	HSR Population to Primary Care Physician FTE Ratio
1	HSR 20	Denver	1,348:1
2	HSR 16	Boulder, Broomfield	1,412:1
3	HSR 19	Mesa	1,578:1
4	HSR 7	Pueblo	1,664:1
5	HSR 2	Larimer	1,709:1
6	HSR 21	Jefferson	1,803:1
7	HSR 14	Adams	1,849:1
8	HSR 9	Archuleta, Dolores, La Plata, Montezuma, San Juan	1,923:1
9	HSR 15	Arapahoe	1955:1
10	HSR 8	Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache	1,978:1
11	HSR 10	Delta, Gunnison, Hinsdale, Montrose, Ouray, San Miguel	2,003:1
12	HSR 11	Jackson, Moffat, Rio Blanco, Routt	2,080:1

Nurse Practitioners and Physician Assistants

Practicing primary care nurse practitioners (NPs) and physician assistants (PAs), along with other primary care team clinicians, are a critical – and expanding – component of Colorado's primary care workforce.

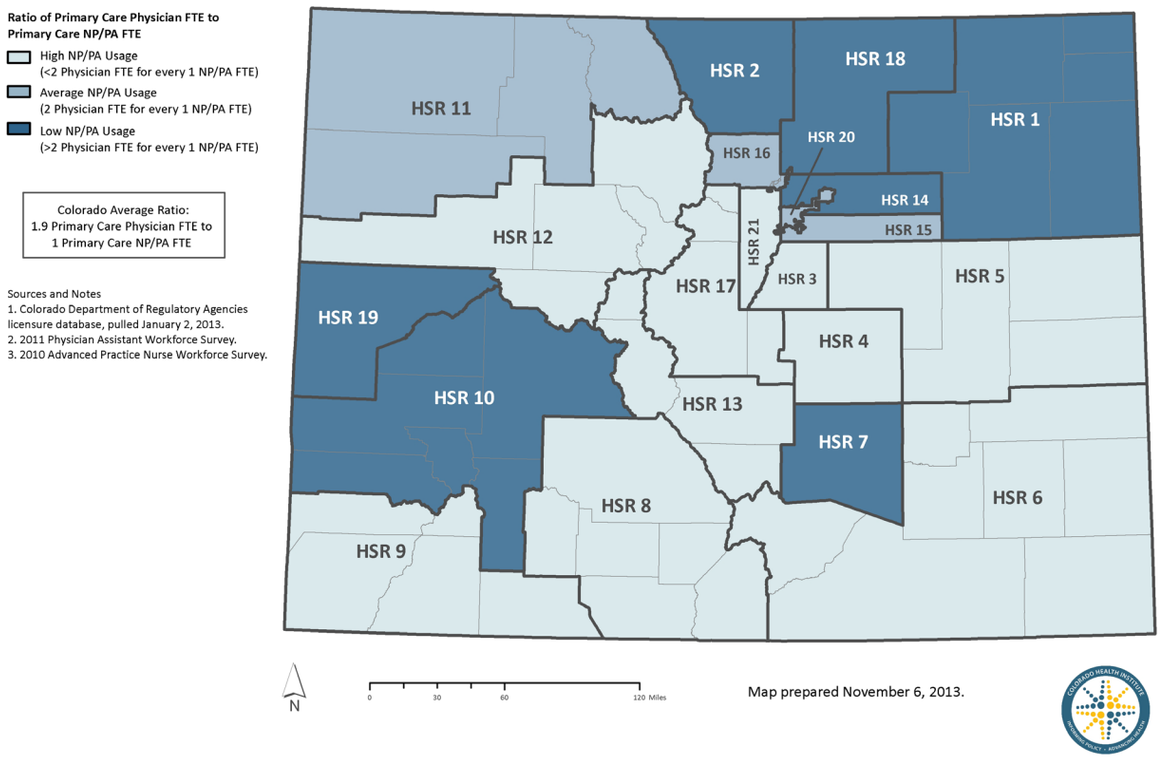
The Colorado Health Institute study finds the equivalent of 1,476 full-time NPs and PAs among the 2,490 practicing in Colorado. Approximately 56 percent of the NPS and 38 percent of the PAs most likely practice in a primary care setting.[5,6]

Use of NPs and PAs appears to be fairly uniform statewide (see Map 2). All but seven regions have the full-time equivalent of at least one NP or PA for every two full-time primary care physicians. No region has less than one full-time equivalent NP or PA for every four full-time primary care physicians.

NPs and PAs are likely helping to fill health care gaps in regions with fewer physicians providing primary care. For example, there is at least one full-time equivalent NP or PA for every .8 primary care physician FTE in Cheyenne, Elbert, Kit Carson and Lincoln counties (HSR 5), the region with the most pressing need for primary care physicians.

Meanwhile, the data show there is at least one NP or PA for each primary care physician FTE in Colorado's federally qualified health clinics (FQHCs).[7] In some practices and FQHCs, nurse practitioners are assigned their own panel of patients in order to expand the primary care capacity available at the clinic.

Map 2. Ratio of Primary Care Physician FTEs to Primary Care Nurse Practitioner and Physician Assistant Full-Time Equivalents (FTEs), by Health Statistics Region, 2013



Medicaid Enrollees and Access to Physicians

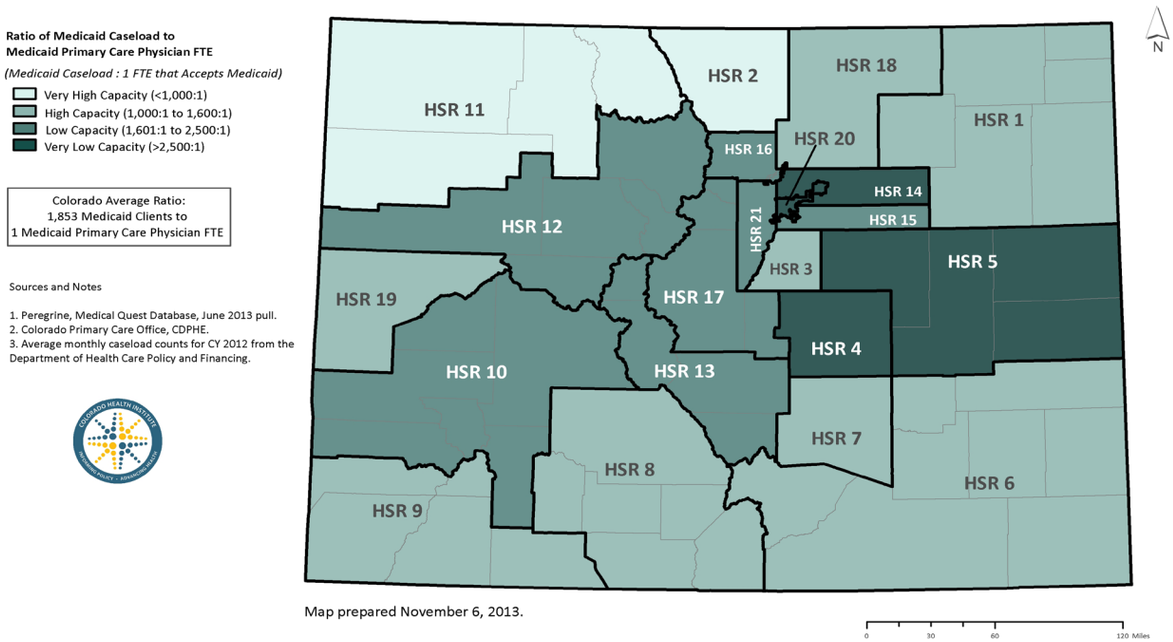
Primary care capacity doesn't just depend on location. It also reflects type of insurance.

The Colorado Health Institute compared the number of Medicaid enrollees in Colorado with the number of Medicaid primary care physician FTEs. The findings show stark regional variations in the level of available health care, differences that will become even more pronounced as Medicaid eligibility expands (see Map 3).

Colorado averages a panel size of 1,853 Medicaid enrollees for each Medicaid primary care physician FTE. That's nearly the same as the benchmark panel size for the general population. (Note that the physicians who participate in Medicaid are a subset of all practicing primary care physicians.)

Regional variations range from a low of 694 Medicaid enrollees for one full-time Medicaid primary care physician in Jackson, Moffat, Rio Blanco and Routt counties (HSR 11) to a high of nearly 3,500 to one in Cheyenne, Elbert, Kit Carson and Lincoln counties (HSR 5).

Map 3. Ratio of Medicaid Caseload to Medicaid Primary Care Physician Full-Time Equivalents (FTEs), by Health Statistics Region, 2013



The Colorado Health Institute identified regions most in need of more primary care physicians who actively participate in Medicaid by applying a benchmark panel size of 1,500 Medicaid enrollees to one Medicaid primary care physician FTE.

This Medicaid benchmark translates to fewer patients per physician than the general benchmark because Medicaid enrollees generally have more acute health care needs than the general population. This is consistent with the panel size often used by FQHCs, an important source of care for Medicaid enrollees.[8]

Overall, 12 regions are close to or better than the 1,500:1 benchmark (see Table 3). Nine regions need more primary care physicians providing care to Medicaid enrollees (see Table 4).

Table 3. Regions with the Best (Lowest) Ratios of Medicaid Enrollees to Medicaid Full-Time Primary Care Physicians

Rank	HSR	Counties	Medicaid Enrollment to Medicaid Primary Care Physician FTE Ratio
1	HSR 11	Jackson, Moffat, Rio Blanco, Routt	694:1
2	HSR 2	Larimer	939:1
3	HSR 19	Mesa	1,063:1
4	HSR 9	Archuleta, Dolores, La Plata, Montezuma, San Juan	1,096:1
5	HSR 3	Douglas	1,361:1
6	HSR 7	Pueblo	1,389:1
7	HSR 6	Baca, Bent, Crowley, Huerfano, Kiowa, Las Animas, Otero, Prowers	1,526:1
8	HSR 1	Logan, Morgan, Phillips, Sedgwick, Washington, Yuma	1,576:1
9	HSR 18	Weld	1,583:1
10	HSR 8	Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache	1,590:1
11	HSR 16	Boulder, Broomfield	1,610:1
12	HSR 21	Jefferson	1,634:1

Table 4. Regions with the Worst (Highest) Ratios of Medicaid Enrollees to Medicaid Full-Time Primary Care Physicians [9]

Rank	HSR	Counties	Additional FTEs Needed to Reach 1,500:1 Benchmark	Percentage Increase
1	HSR 5	Cheyenne, Elbert, Kit Carson, Lincoln	0.9	133%
2	HSR 4	El Paso	22.1	122%
3	HSR 14	Adams	18.8	85%
4	HSR 20	Denver	21.9	69%
5	HSR 15	Arapahoe	13.8	61%
6	HSR 12	Eagle, Garfield, Grand, Pitkin, Summit	1.4	23%
7	HSR 10	Delta, Gunnison, Hinsdale, Montrose, Ouray, San Miguel	1.1	19%
8	HSR 13	Chaffee, Custer, Fremont, Lake	0.7	17%
9	HSR 17	Clear Creek, Gilpin, Park, Teller	0.2	10%

TERMS TO KNOW

Nurse Practitioner (NP)

A registered nurse with an advanced degree in nursing and national certification to work across all populations and provide expert direct care in the form of health assessments, prevention and diagnosis, and management of common acute and chronic illnesses. In Colorado, NPs can also prescribe medicines after fulfilling requirements for obtaining prescriptive authority. Nurse practitioners in Colorado can practice independently of physicians.

Physician Assistant (PA)

Health care providers nationally certified and state-licensed to practice medicine under the supervision of a licensed physician. PAs are educated to examine patients, diagnose injuries and illnesses, and provide treatment.

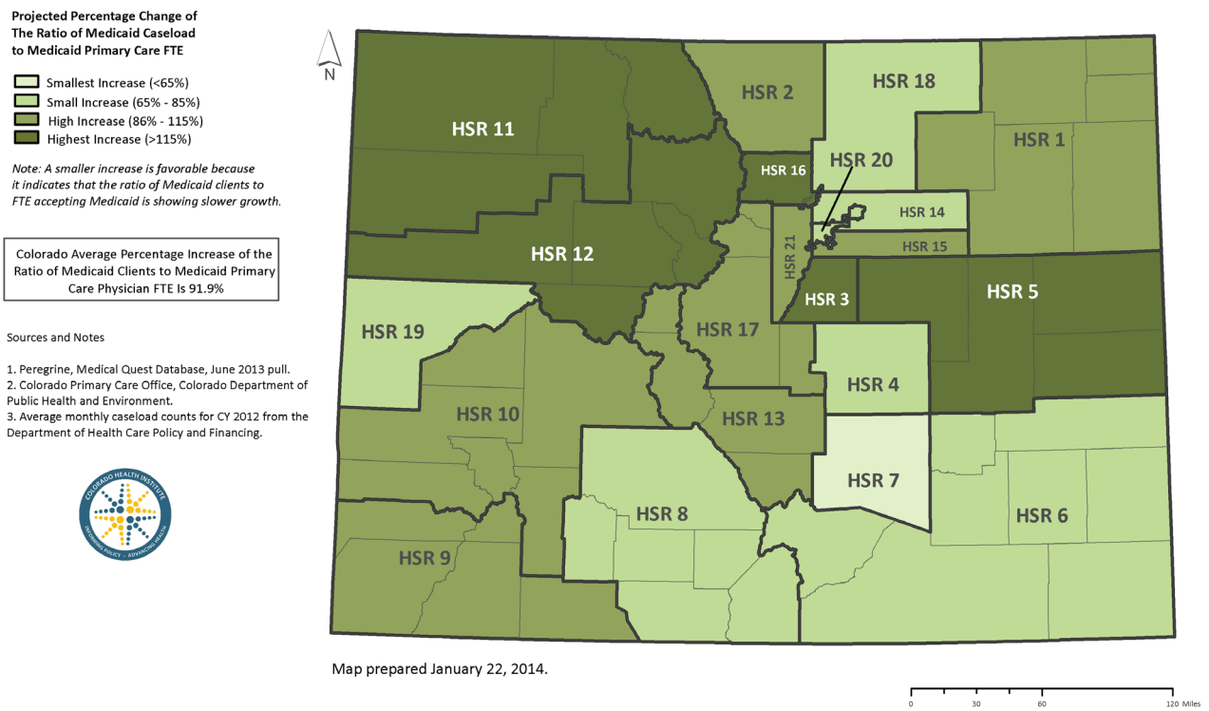
Federally Qualified Health Center (FQHC)

Federally designated and funded nonprofit health clinics that provide comprehensive primary care services regardless of patients' ability to pay. These clinics, which provide care for underserved areas or populations, receive cost-based reimbursement for Medicare and Medicaid patients and must use a sliding-fee schedule.

The two regions most in need of more primary care physicians who provide care to Medicaid enrollees are Cheyenne, Elbert, Kit Carson and Lincoln counties (HSR 5) and El Paso County (HSR 4). Other regions in this category include Adams County (HSR 14) and Denver County (HSR 20).

The Colorado Health Institute estimates that expanding Medicaid eligibility in Colorado, coupled with population growth, will result in an additional 440,000 Coloradans enrolled in Medicaid by 2016.[10] Looking ahead, unless more primary care providers actively participate in Medicaid, this expansion will exacerbate the Medicaid primary care workforce problem (see Map 4).

Map 4. Projected Percentage Change of the Ratio of Medicaid Caseload to Medicaid Primary Care Physician Full-Time Equivalents (FTEs), by Health Statistics Region, 2012 to 2016



TERMS TO KNOW

Patient-Centered Medical Home

A health care model that is based on an ongoing and personal relationship between a patient, clinician and the patient's care team. The patient has a trusted clinician and care team that provides or coordinates comprehensive and integrated care, including preventive, acute, chronic and end-of-life care.

Where Does Colorado Go From Here?

A number of organizations in Colorado are working to build a health care system that provides a primary care medical home (PCMH) for each Coloradan, aiming to ensure appropriate treatment is delivered in a timely, cost-effective and coordinated manner. Each medical home would emphasize preventive care and would proactively manage chronic illnesses.

An adequate primary care workforce is essential for this transformation to succeed.

The new data showing significant regional variations in the availability of primary care places this issue at the forefront of the discussion about creating the best health care workforce now and for the future.

There are many reasons for the challenges Colorado faces in building its primary care workforce.

First, fewer Colorado physicians are choosing to specialize in primary care. This mirrors a national trend that is fueled, in part, by lower compensation for primary care physicians than for physicians in other specialties, according to national studies.[11]

While Colorado saw a net increase of about 100 practicing primary care physicians over the five-year period between 2008 and 2013, the percentage of physicians delivering primary care during this time declined to 28 percent from 30.5 percent.[12]

The primary care landscape is also being shaped by demographics.

Our population is aging, and so are our health care providers. The number of Colorado seniors – those 65 and older – will double from 650,000 to 1.3 million over the next 20 years.[13]

This "senior tsunami" will have important implications. Seniors comprised around 13 percent of the U.S. population in 2002, but they contributed 36 percent of personal health care expenses. Their average health care expense is more than three times that of working-age people between 19 and 64.[14]

Meanwhile, a Colorado Health Institute study of rural physicians found that more than a third (35 percent) are 55 or older, with plans to retire in the coming decade.[15] This is particularly concerning since rural areas face the biggest challenges in recruiting physicians.

And by a number of measures, Coloradans have relatively good access to health care. More than 80 percent of Colorado residents have a personal doctor or health care provider, nearly 10 percentage points higher than the national rate of 71.7 percent. And 85.3 percent of Coloradans say that they can get medical care if needed – higher than the national rate of 81.1 percent.[16]

Still, the new Colorado Health Institute data clearly show that Colorado must think about each community's geography, demographics and infrastructure in order to develop unique and innovative local solutions. Plans targeting regional needs must spot trends, identify gaps, and develop long-term solutions to recruit and retain providers. A local focus is important in answering fundamental questions: Why do some physicians locate in rural communities and why do some stay away?

Recruiting primary care physicians can be challenging. Increasingly, women are making up a greater proportion of the primary care physicians workforce, both in Colorado and nationally.[17] Female physicians are less likely to practice in rural areas, studies show, adding to recruitment difficulties. Another obstacle for rural communities is fewer professional employment opportunities for spouses.[18]

More than four of five medical residents indicate that geographic location is the most important

factor in choosing where to practice, a higher rating than any other consideration, according to one survey.[19] Many providers choose to work near where they grew up or where they trained, recruiters say. Graduates of rural residency programs are three times more likely to practice in rural areas than graduates of urban residencies, according to a 2010 University of Washington study.[20]

These findings are not lost on Colorado. The University of Colorado – through the Rural Track program – creates medical training opportunities in underserved areas of the state.[21] The state legislature in 2013 appropriated $500,000 to expand the number of rural residency programs, with the goal of leveraging federal money to create additional or expanded training programs.[22] Since 2009, through a combination of state, federal, and private support, Colorado's Health Service Corps has provided nearly $14 million in loan repayment to health care trainees who agree to work in underserved urban and rural settings.[23]

Once a physician is in place, retention is another challenge. To better understand whether loan repayment programs are encouraging providers to remain in underserved areas after their terms are complete, 11 states formed the Multi-State/National Health Service Corps Retention Collaborative. An online survey of clinicians who received funding, commissioned by the collaborative, found that:

- Sixty-nine percent of respondents stayed, or anticipated staying, at their service sites at least one year beyond their service terms; 48 percent anticipated staying at least an additional three years; and 20 percent anticipated remaining at least 10 years.
- Physicians and mental health clinicians were more likely to remain at their service sites than nurse practitioners and physician assistants.
- State primary care offices provided adequate assistance when clinicians were seeking a service site, but only a minority of respondents indicated that the offices offered adequate help during the service term.[24]

These findings suggest that providing greater support to primary care clinicians after they select a rural or urban underserved site may help lengthen their terms of service in these areas.

Meanwhile, policymakers can consider a range of promising policy solutions to expand the number and capacity of primary care clinicians in underserved areas.

Options to expand the number of primary care clinicians in underserved areas

- **Provide additional loan repayment assistance for service in rural areas:** The Colorado Commission on Family Medicine recommends a new loan repayment program to place more primary care physicians in rural and underserved areas. Preference would be given to physicians who participate in rural tracks while in training. Proposed funding is $600,000 annually.
- **Provide tax credits to encourage primary care physicians to practice in rural communities:** After repaying their loans, primary care physicians practicing in underserved areas may have little incentive to stay when their loan repayment award ends. As an incentive, physicians who commit to practice in underserved areas could be eligible for tax credits. A number of states have successfully implemented this policy option.
- **Continue required rural rotations of residents:** All family medicine residents currently must complete a rotation in a rural community in Colorado. Rural training increases the likelihood of rural primary care practice following graduation. Maintaining this requirement is likely to help primary care re-distribution in the state over time.
- **Add rural fellowship training positions to existing residencies:** Physicians completing rural fellowships would undergo an additional year of training specific to rural practice. In

return for the fellowship, physicians would be required to practice in a rural location for a specific amount of time.

- **Create loan repayment programs to recruit family medicine residency faculty:** Filling the gap for faculty physicians is critical for expanding the capacity of residencies. One option to encourage primary care physicians to serve in faculty roles is to provide loan repayment options.

Options to increase the capacity and reach of the existing primary care workforce

- **Hub-and-spoke care:** In this model, clinicians employed by a primary care clinic travel to rural areas that don't have a full-time clinician. For example, physicians from Salida Family Medicine travel one day a week to the towns of Saguache and Cotopaxi in southern Colorado to provide primary care services. For more urgent services, patients drive to the Salida Family Medicine clinic. To offset costs, Saguache County provides free space for the clinicians to practice.

- **Telemedicine:** Several policies have paved the way for increased use of telemedicine, including Medicaid reimbursement for telemedicine "visits." Colorado also has created basic regulatory guidelines, saying that health insurance plans for patients in counties with fewer than 150,000 residents can't require face-to-face interactions between a patient and clinician if the service could be delivered by telemedicine.[25] However, more could be done. One idea is to streamline licensure requirements to allow physicians to provide telemedicine services across state borders.[26] While the impacts of telemedicine are still being evaluated, some studies show that telemedicine has reduced emergency department use.[27, 28]

- **Scopes of practice:** Efforts are underway to ensure that all primary care clinicians are treating patients at the highest level of their education, training and authority – making the care team as efficient as possible. Studies show that primary care clinics leaning heavily on non-physician licensed practitioners such as NPs, PAs, pharmacists, behavioral health providers and medical assistants who can provide preventive care, coaching, and some acute treatment are able to allow more highly trained clinical staff to focus on patients who need more complex care.

Conclusion

Colorado's health care landscape is changing dramatically. The state's population is aging, health insurance rolls are growing, and new models of health care delivery are coming on board, particularly those focused on ensuring robust primary care.

These changes will require Colorado to plan for how it will educate, recruit and retain a primary care health care workforce that is flexible, efficient and adequate to care for all Coloradans, no matter where they live.

How well Colorado responds to these challenges will have an enormous impact on the well-being of each Coloradan.

The data from this Colorado Health Institute study will help provide an evidence basis for this conversation. It uses, for the first time, a more precise yardstick – the number of full-time equivalent primary care providers – to measure the availability of primary care physicians, nurse practitioners and physician assistants statewide and broken down by region.

Simply put, the analysis shows that where you live matters.

The Colorado Health Institute study found wide variations in primary care workforce capacity across Colorado, both for residents in the general population as well as people who are covered by Medicaid. It identifies places where the primary care capacity is adequate and places where capacity challenges pose barriers to getting health care.

Promising initiatives are underway to attract primary care physicians and other providers to underserved areas, both rural and urban. Still, increasing the number of primary care physicians to meet demand will not be the ultimate solution, considering demographic changes and transformations in the delivery and payment of health services. Much work remains to be done.

The value that Colorado places on providing primary care to all Coloradans – and the innovative efforts to create a flexible and adequate workforce – will be crucial.

Methodology

This methodology section details the data sources used by the Colorado Health Institute in this study and explains the calculations involved in the model used to determine full-time equivalent numbers and panel-size comparison levels for the general population and for Medicaid enrollees.

Primary Care Physician Capacity

1. Number of Practicing Primary Care Physicians:

Data Source: Peregrine MedicalQuest, a statewide survey of practicing physicians, including those who accept Medicaid insurance and physicians employed by federally qualified health centers (FQHCs).

Calculation: Number of physicians in each HSR with specialties in primary care, which includes family, internal, general or pediatric medicine, but not obstetrics and gynecology.

2. Average Clinical Contact Hours Per Week:

Data Source: Health Professional Shortage Area: Survey of Primary Care Providers conducted by the Colorado Department of Public Health and Environment (CDPHE), which has response rates of nearly 95 percent in rural counties and 70 percent in urban counties.

Calculation: Data were averaged by HSR.

3. Primary Care Physician FTEs:

Calculation: Practicing primary care physicians per HSR multiplied by the average clinical

contact hours per week in that HSR. Total primary care physician contact hours per HSR were then divided by 40.

4. Population to Primary Care Physician FTE Ratio:

Data Source: Colorado State Demography Office provided population estimates.

Calculation: HSR population divided by the number of primary care physician FTEs in the HSR.

5. Additional Primary Care Physician FTEs Needed:

Data Source: Benchmark panel size of 1,900 people to one primary care physician is supported by published research that recommends panel sizes ranging from 1,200:1 to 2,300:1, depending on level of care integration and other factors. Federally qualified health centers tend to use a panel size closer to 1,500:1, while areas that receive a designation as a Health Professional Shortage Area (HPSA) use a measure of 3,500:1.

Calculation: HSR Ratio compared to the 1,900:1 benchmark panel size.

6. Percentage Increase in Primary Care Physician FTE Needed:

Calculation: The percentage associated with the number of additional (or fewer) primary care physicians needed.

Medicaid Primary Care Physician Capacity

1. Number of Practicing Primary Care Physicians Who Accept Medicaid:

Data Source: Peregrine MedicalQuest database.

Calculation: Number in each HSR.

2. Average Weekly Medicaid Clinical Contact Hours Per Primary Care Physician:

Data Source: Health Professional Shortage Area: Survey of Primary Care Providers conducted by the Colorado Department of Public Health and Environment (CDPHE).

Calculation: For each HSR, the Colorado Health Institute analyzed the average primary care physician's percentage of Medicaid patients, multiplying that number by total HSR clinical contact hours to arrive at the average Medicaid clinical contact hours for each HSR.

3. Practicing Medicaid Primary Care Physician FTE:

Calculation: Multiplied the number of practicing Medicaid primary care physicians in each HSR by the average Medicaid clinical contact hours per week in the respective HSR for estimated number of Medicaid primary care physician contact hours for each HSR. This number was divided by 40.

4. Medicaid Enrollee Population:

Data Source: Average monthly caseload counts for enrollees under the age of 65 for calendar year 2012 from the Colorado Department of Health Care Policy and Financing.

5. Medicaid Enrollee Population to Primary Care Physician FTE Ratio:

Calculation: Medicaid Enrollee Population divided by the number of Medicaid primary care physician FTEs in each HSR.

6. Additional (or Fewer) Medicaid Primary Care Physician FTE Needed:

Data Source: Benchmark panel size of 1,500 Medicaid enrollees to one Medicaid primary care physician FTE is supported by general guidance for staffing federally qualified health centers (FQHCs).

Calculation: HSR Ratio compared to the 1,500:1 benchmark panel size.

7. Percentage Change in Primary Care Physician FTE Needed:

Calculation: The percentage associated with the number of additional (or fewer) Medicaid primary care physicians needed.

Physician Assistants

1. Number of Licensed Physician Assistants (PAs):

Data Source: Colorado Department of Regulatory Agencies licensure database.

Calculation: Data aggregated by HSR.

2. Estimated Number of Licensed PAs in Primary Care:

Data Source: The Colorado Health Institute's 2011 Physician Assistant Workforce Survey, which asked PAs whether they were currently employed and whether they spent more than 50 percent of their time in family/general medicine, general internal medicine, general pediatrics or preventive medicine, found that 38.4 percent worked in primary care.

Calculation: Multiplied total number of licensed PAs in each HSR by 38.4 percent.

3. Average Clinical Contact Hours of Physician Assistants, Urban and Rural:

Data Source: The Colorado Health Institute's 2011 Physician Assistant Workforce Survey, which found that licensed PAs in urban areas averaged 27.0 hours per week of clinical contact and licensed PAs in rural areas averaged 28.9 hours.

4. Estimated Licensed Primary Care Physician Assistant FTEs per HSR:

Calculation: Estimated number of licensed primary care PAs in primary care in an HSR multiplied by the average clinical contact hours per HSR, using the urban or rural breakdown.

Nurse Practitioners

1. Number of Licensed Nurse Practitioners:
Data Source: Colorado Department of Regulatory Agencies licensure database.

Calculation: Data aggregated by HSR.

2. Estimated Number of Licensed Nurse Practitioners in Primary Care:

Data Source: The Colorado Health Institute's 2010 Advanced Practice Nurse Workforce Survey, which asked NPs if they are currently employed and specializing adult, family or pediatric primary care. The survey determined that 55.7 of NPS worked in primary care.

Calculation: Multiplied the total number of NPs in each HSR by 55.7 percent.

3. Average Clinical Contact Hours of Nurse Practitioners, Urban and Rural:

Data Source: The Colorado Health Institute's 2010 Advanced Practice Nurse Workforce Survey estimated that NPs practicing in urban locations averaged 21.5 hours per week of clinical contact. While NPs practicing in rural locations averaged 24.5 hours.

4. Estimated Licensed Primary Care Nurse Practitioner FTEs per HSR:

Calculation: Estimated number of licensed primary care NPs in an HSR multiplied by the average clinical contact hours per HSR, using the urban or rural breakdown.

Combined Primary Care Nurse Practitioners and Physician Assistant FTEs per Practicing Primary Care Physician FTE

1. Practicing Primary Care Nurse Practitioner and Physician Assistant FTEs:

Calculation: Summed licensed primary care nurse practitioner and physician assistant FTEs in each HSR.

2. Practicing Primary Care Nurse Practitioners and Physician Assistants FTEs per Practicing Primary Care Physician FTE by HSR:

Calculation: Divided total practicing primary care nurse practitioner and physician assistant FTEs by the number of practicing primary care physician FTEs in each HSR.

Endnotes

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[4] A region is listed as relatively low capacity if it would require a 10% or greater increase in capacity to meet the benchmark.

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[9] A region is listed as relatively low capacity if it would require a 10% or greater increase in capacity to meet the benchmark.

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colorado health
INSTITUTE

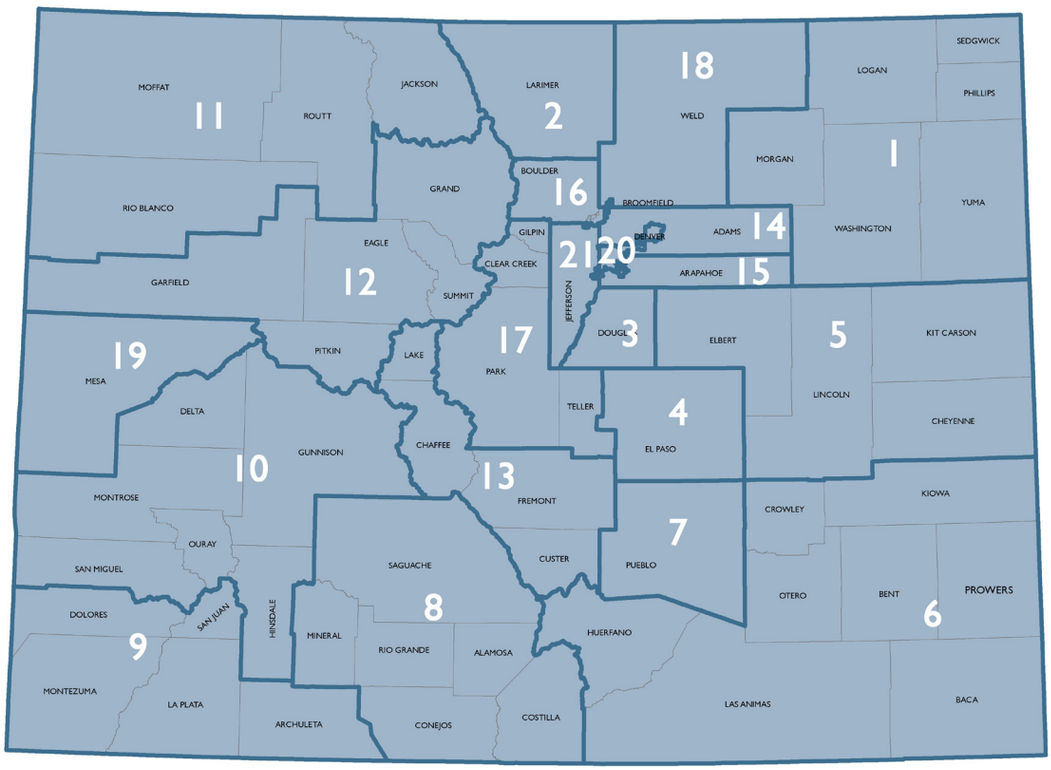
Regional Planning Guide

This data supplement is designed to help communities across Colorado compare the relative level of their primary care workforces to other communities and regions. Plans to educate, recruit and retain primary care providers – especially in underserved areas – can be informed by this information.

The data are broken down by the 21 health statistics regions created by the Colorado Department of Public Health and Environment for planning purposes.

Informing Policy. Advancing Health.

Colorado's Health Statistics Regions



Colorado Averages

Practicing Primary Care Physicians
3,332

Residents per Physician FTE
1,873

Average Weekly Patient Care Hours per Physician
33.8

Physician FTEs Needed to Reach 1,900:1 Ratio
-39.4

Practicing Primary Care Physician FTEs
2,811.9

Percentage Change Needed
-1.4%

Population
5,267,800

Medicaid Patients to Physicians FTEs Ratio:
1,853

Green indicates level is better than the benchmark.

Health Statistics Region 1

Morgan, Logan, Sedgwick, Phillips, Washington and Yuma counties

Practicing Primary Care Physicians
46

Average Weekly Patient Care Hours per Physician
29.8

Practicing Primary Care Physician FTEs
34.3

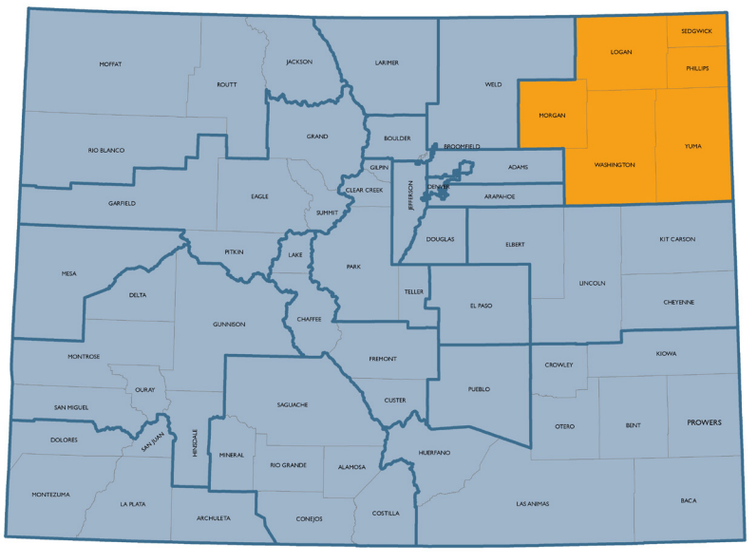
Population
73,149

Residents per Physician FTE
2,135

Physician FTEs Needed to Reach 1,900:1 Ratio
4.2

Percentage Change Needed
12.3%

Medicaid Patients to Physicians FTEs Ratio:
1,576



Health Statistics Region 2

Larimer County

Practicing Primary Care Physicians
220

Average Weekly Patient Care Hours per Physician
33.6

Practicing Primary Care Physician FTEs
185.0

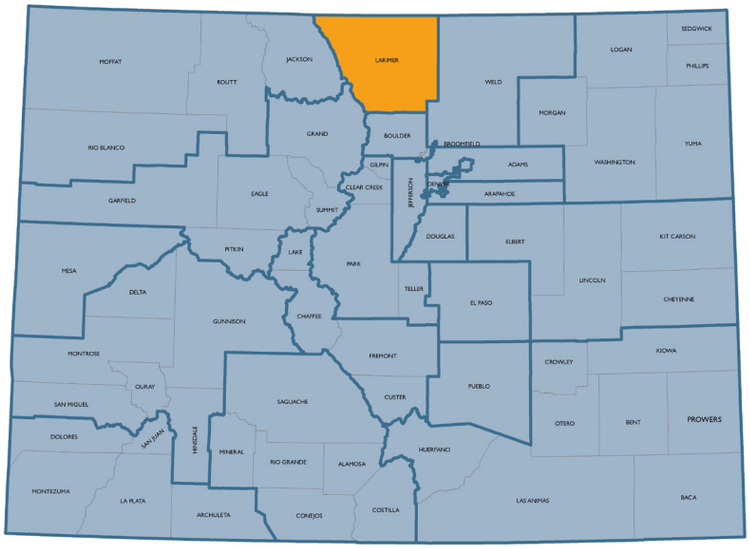
Population
316,031

Residents per Physician FTE
1,709

Physician FTEs Needed to Reach 1,900:1 Ratio
-18.6

Percentage Change Needed
-10.1%

Medicaid Patients to Physicians FTEs Ratio:
939



Health Statistics Region 3

Douglas County

Practicing Primary Care Physicians
146

Average Weekly Patient Care Hours per Physician
35.7

Practicing Primary Care Physician FTEs
130.2

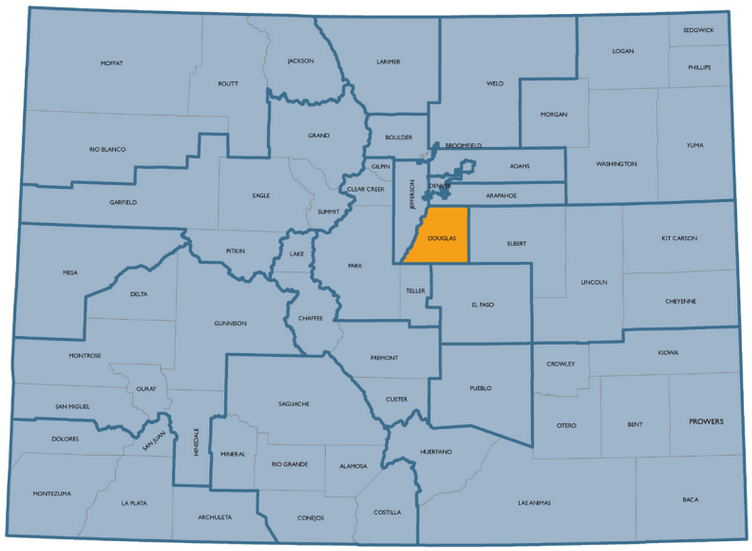
Population
302,506

Residents per Physician FTE
2,324

Physician FTEs Needed to Reach 1,900:1 Ratio
29.0

Percentage Change Needed
22.3%

Medicaid Patients to Physicians FTEs Ratio:
1,361



Health Statistics Region 4

El Paso County

Practicing Primary Care Physicians
270

Average Weekly Patient Care Hours per Physician
33.2

Practicing Primary Care Physician FTEs
224.4

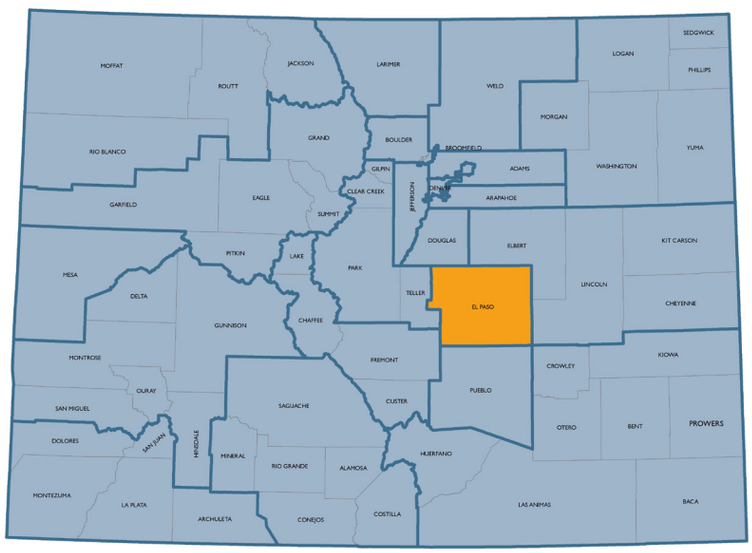
Population
654,406

Residents per Physician FTE
2,917

Physician FTEs Needed to Reach 1,900:1 Ratio
120.1

Percentage Change Needed
53.5%

Medicaid Patients to Physicians FTEs Ratio:
3,333



Health Statistics Region 5

Cheyenne, Elbert, Kit Carson, Lincoln counties

Practicing Primary Care Physicians
11

Average Weekly Patient Care Hours per Physician
25.6

Practicing Primary Care Physician FTEs
7.0

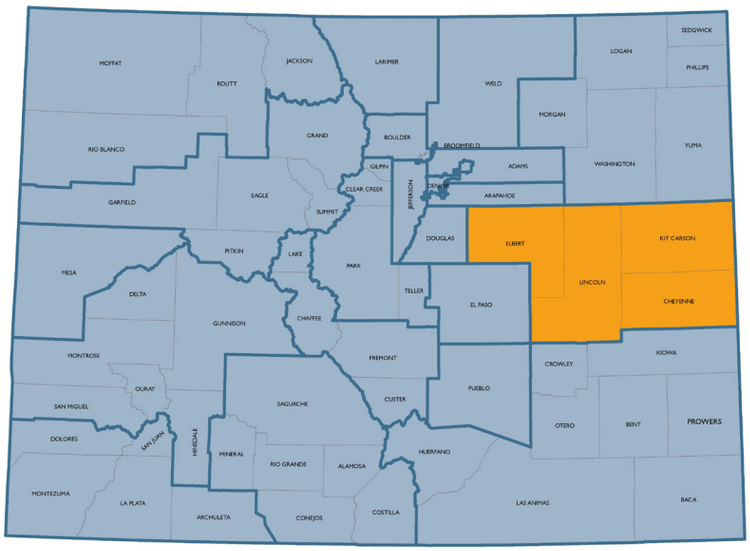
Population
39,633

Residents per Physician FTE
5,636

Physician FTEs Needed to Reach 1,900:1 Ratio
13.8

Percentage Change Needed
196.6%

Medicaid Patients to Physicians FTEs Ratio:
3,498



Health Statistics Region 6

Baca, Bent, Crowley, Huerfano, Kiowa, Las Animas, Otero, Prowers counties

Practicing Primary Care Physicians
43

Average Weekly Patient Care Hours per Physician
28.3

Practicing Primary Care Physician FTEs
30.4

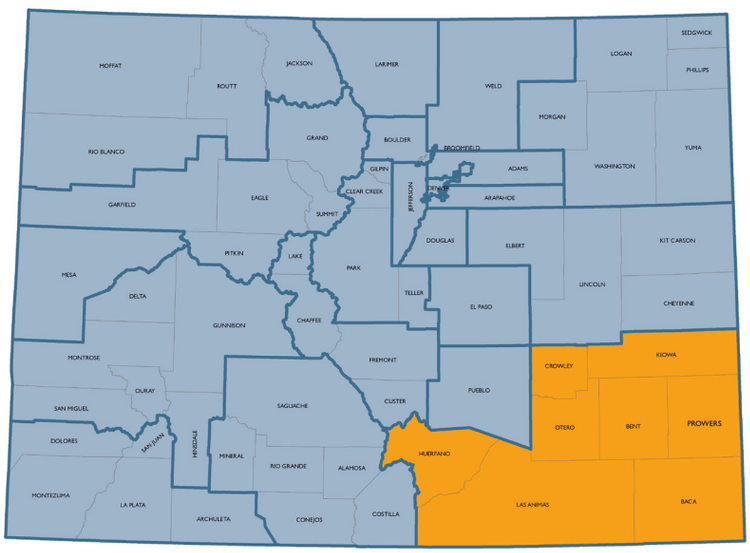
Population
71,963

Residents per Physician FTE
2,366

Physician FTEs Needed to Reach 1,900:1 Ratio
7.5

Percentage Change Needed
24.5%

Medicaid Patients to Physicians FTEs Ratio:
1,526



Health Statistics Region 7

Pueblo County

Practicing Primary Care Physicians
127

Average Weekly Patient Care Hours per Physician
31.1

Practicing Primary Care Physician FTEs
98.7

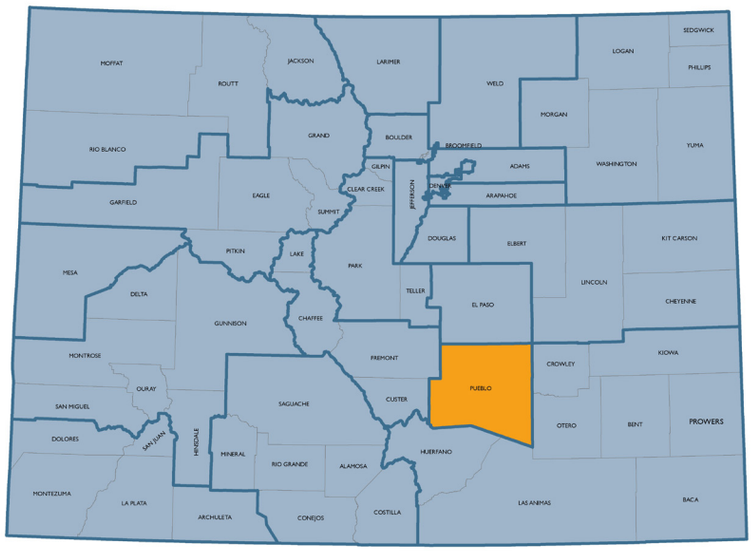
Population
164,280

Residents per Physician FTE
1,664

Physician FTEs Needed to Reach 1,900:1 Ratio
-12.2

Percentage Change Needed
-12.4%

Medicaid Patients to Physicians FTEs Ratio:
1,389



Health Statistics Region 8

Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache counties

Practicing Primary Care Physicians
35

Average Weekly Patient Care Hours per Physician
27.6

Practicing Primary Care Physician FTEs
24.1

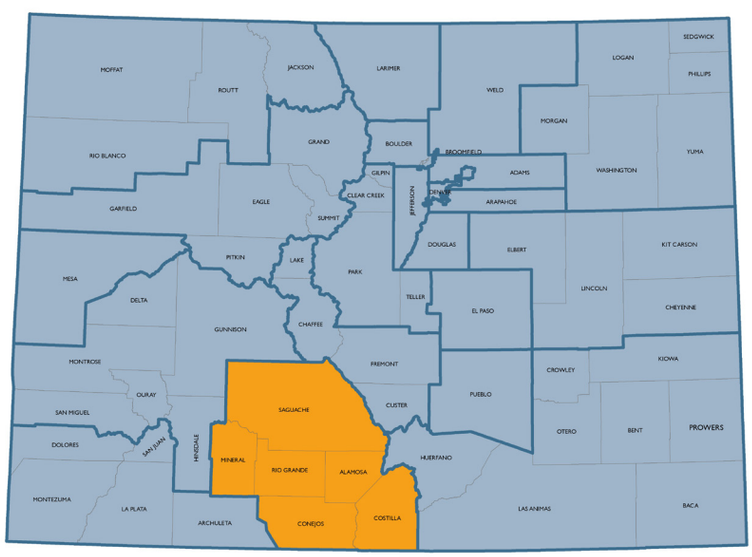
Population
47,728

Residents per Physician FTE
1,978

Physician FTEs Needed to Reach 1,900:1 Ratio
1.0

Percentage Change Needed
4.1%

Medicaid Patients to Physicians FTEs Ratio:
1,590



Health Statistics Region 9

Archuleta, Dolores, La Plata, Montezuma, San Juan counties

Practicing Primary Care Physicians
63

Average Weekly Patient Care Hours per Physician
32.1

Practicing Primary Care Physician FTEs
50.5

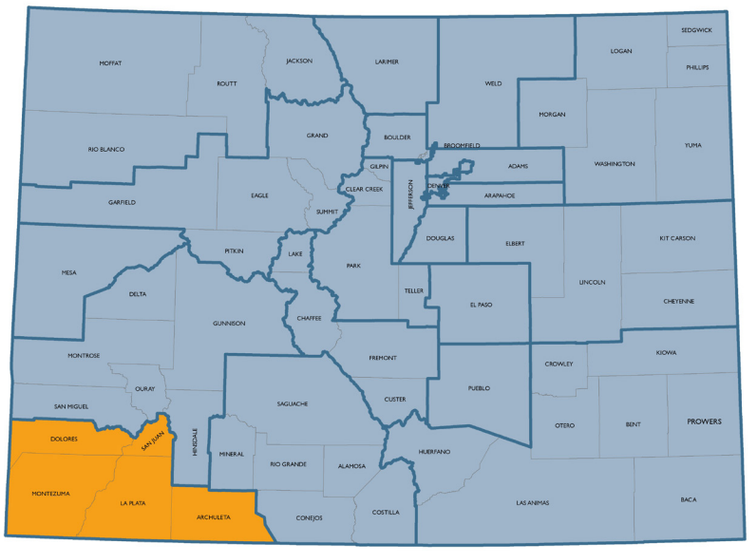
Population
97,109

Residents per Physician FTE
1,923

Physician FTEs Needed to Reach 1,900:1 Ratio
0.6

Percentage Change Needed
1.2%

Medicaid Patients to Physicians FTEs Ratio:
1,096



Health Statistics Region 10

Delta, Gunnison, Hinsdale, Montrose, Ouray, San Miguel counties

Practicing Primary Care Physicians
75

Average Weekly Patient Care Hours per Physician
27.5

Practicing Primary Care Physician FTEs
51.5

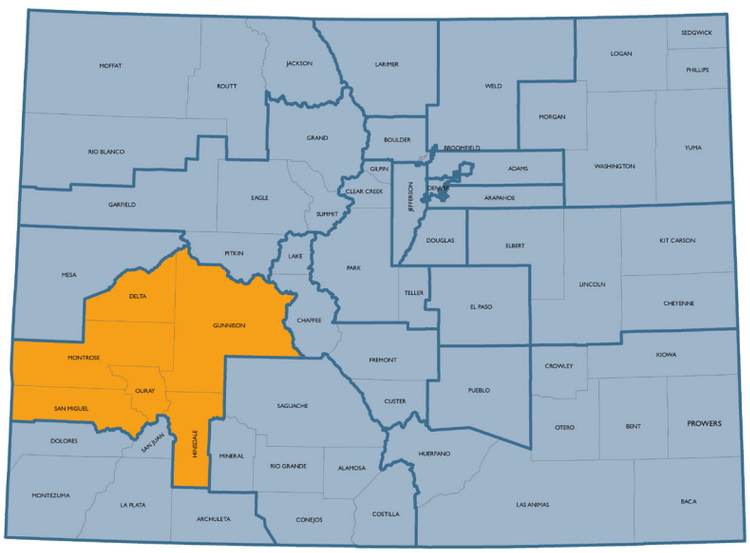
Population
103,137

Residents per Physician FTE
2,003

Physician FTEs Needed to Reach 1,900:1 Ratio
2.8

Percentage Change Needed
5.4%

Medicaid Patients to Physicians FTEs Ratio:
1,784



Health Statistics Region 11

Jackson, Moffat, Rio Blanco, Routt counties

Practicing Primary Care Physicians
34

Average Weekly Patient Care Hours per Physician
26.1

Practicing Primary Care Physician FTEs
22.2

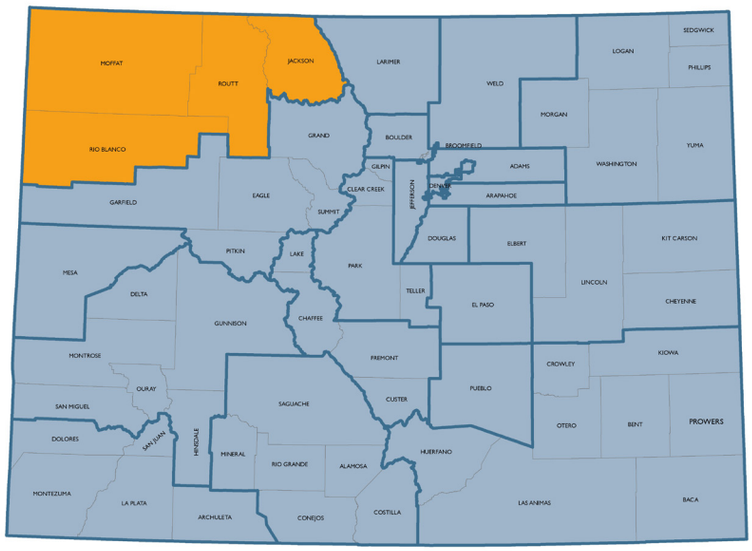
Population
46,198

Residents per Physician FTE
2,080

Physician FTEs Needed to Reach 1,900:1 Ratio
2.1

Percentage Change Needed
9.5%

Medicaid Patients to Physicians FTEs Ratio:
694



Health Statistics Region 12

Eagle, Garfield, Grand, Pitkin, Summit counties

Practicing Primary Care Physicians
113

Average Weekly Patient Care Hours per Physician
25.4

Practicing Primary Care Physician FTEs
71.6

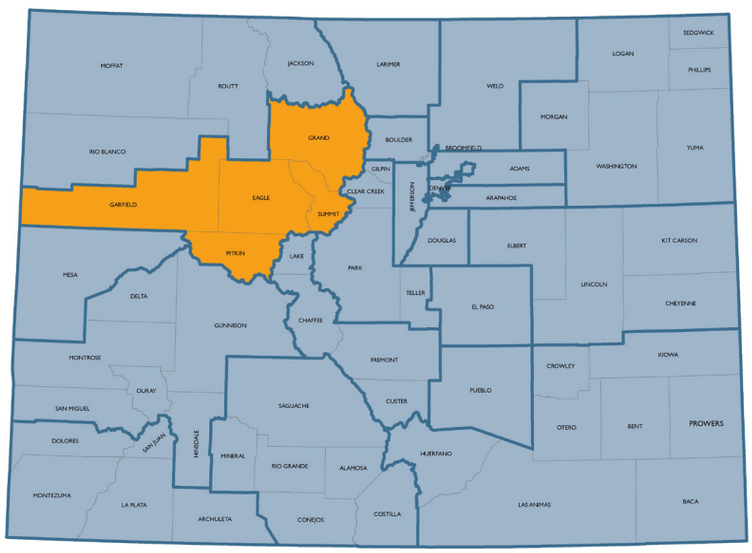
Population
177,001

Residents per Physician FTE
2,471

Physician FTEs Needed to Reach 1,900:1 Ratio
21.5

Percentage Change Needed
30.1%

Medicaid Patients to Physicians FTEs Ratio:
1,847



Health Statistics Region 13

Chaffee, Custer, Fremont, Lake counties

Practicing Primary Care Physicians
36

Average Weekly Patient Care Hours per Physician
30.3

Practicing Primary Care Physician FTEs
27.3

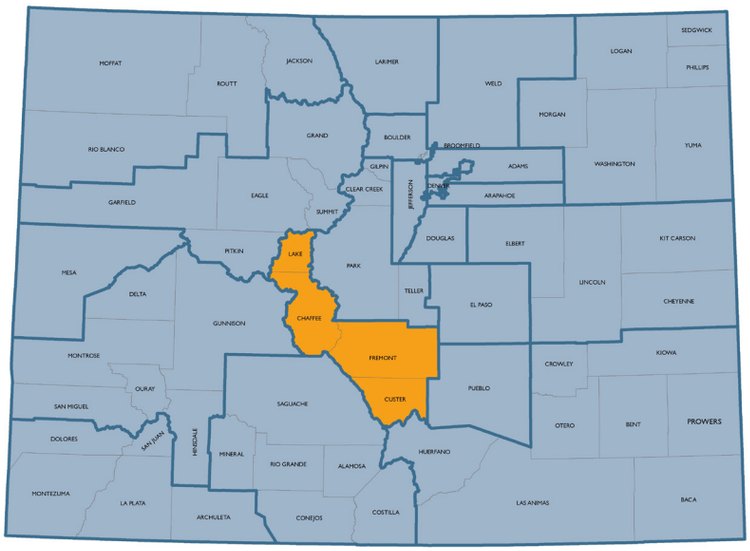
Population
79,944

Residents per Physician FTE
2,928

Physician FTEs Needed to Reach 1,900:1 Ratio
14.8

Percentage Change Needed
54.1%

Medicaid Patients to Physicians FTEs Ratio:
1,750



Health Statistics Region 14

Adams County

Practicing Primary Care Physicians
288

Average Weekly Patient Care Hours per Physician
35.1

Practicing Primary Care Physician FTEs
253.0

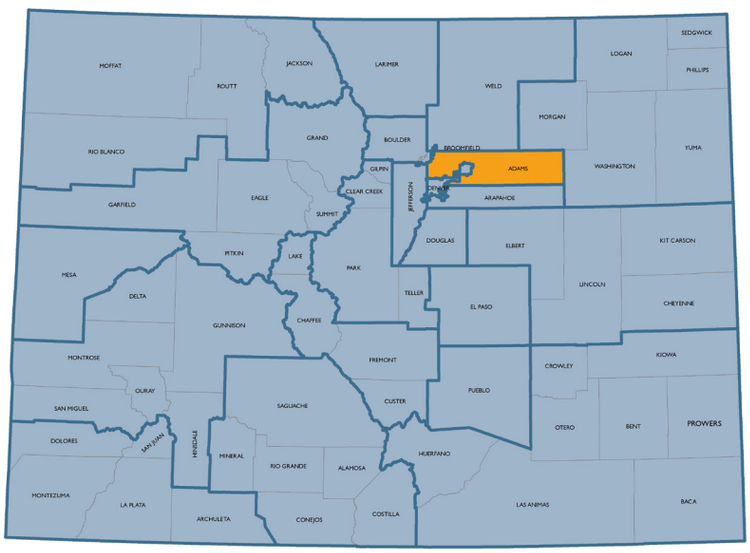
Population
467,697

Residents per Physician FTE
1,849

Physician FTEs Needed to Reach 1,900:1 Ratio
-6.8

Percentage Change Needed
-2.7%

Medicaid Patients to Physicians FTEs Ratio:
2,768



Health Statistics Region 15

Arapahoe County

Practicing Primary Care Physicians
339

Average Weekly Patient Care Hours per Physician
36.4

Practicing Primary Care Physician FTEs
308.4

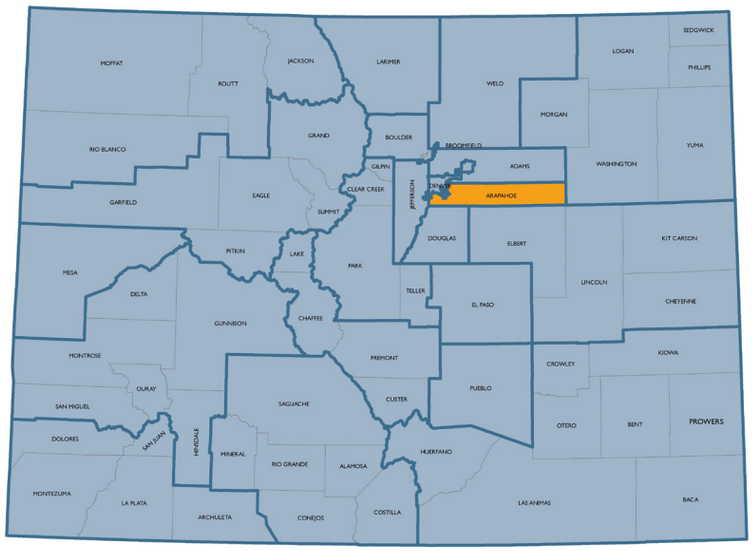
Population
602,868

Residents per Physician FTE
1,955

Physician FTEs Needed to Reach 1,900:1 Ratio
8.9

Percentage Change Needed
2.9%

Medicaid Patients to Physicians FTEs Ratio:
2,414



Health Statistics Region 16

Boulder, Broomfield counties

Practicing Primary Care Physicians
294

Average Weekly Patient Care Hours per Physician
35.5

Practicing Primary Care Physician FTEs
260.8

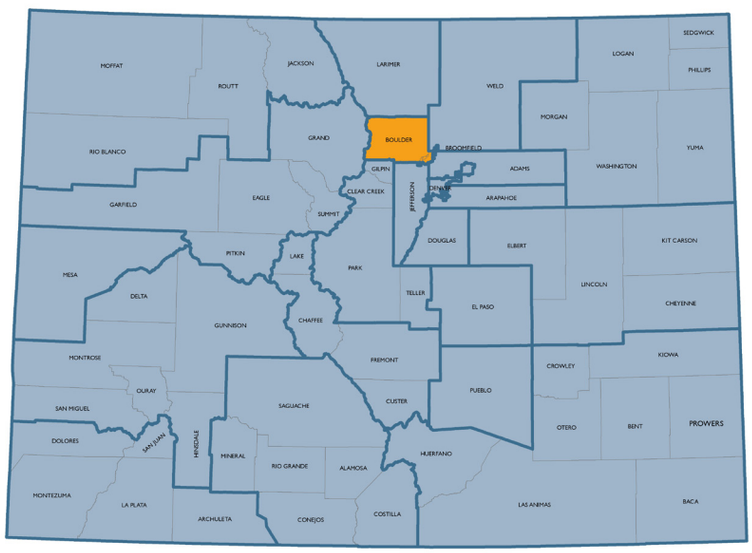
Population
368,282

Residents per Physician FTE
1,412

Physician FTEs Needed to Reach 1,900:1 Ratio
-67.0

Percentage Change Needed
-25.7%

Medicaid Patients to Physicians FTEs Ratio:
1,610



Health Statistics Region 17

Clear Creek, Gilpin, Park, Teller counties

Practicing Primary Care Physicians
18

Average Weekly Patient Care Hours per Physician
36.0

Practicing Primary Care Physician FTEs
16.2

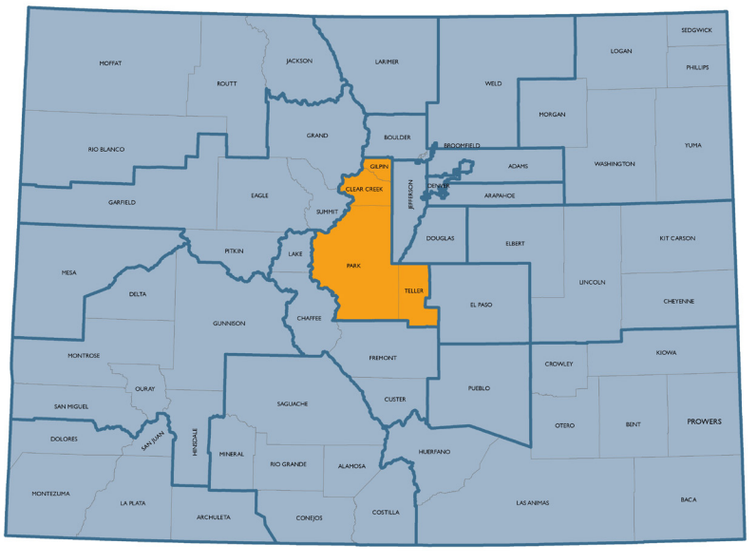
Population
55,073

Residents per Physician FTE
3,400

Physician FTEs Needed to Reach 1,900:1 Ratio
12.8

Percentage Change Needed
78.9%

Medicaid Patients to Physicians FTEs Ratio:
1,654



Health Statistics Region 18

Weld County

Practicing Primary Care Physicians
145

Average Weekly Patient Care Hours per Physician
29.5

Practicing Primary Care Physician FTEs
107.0

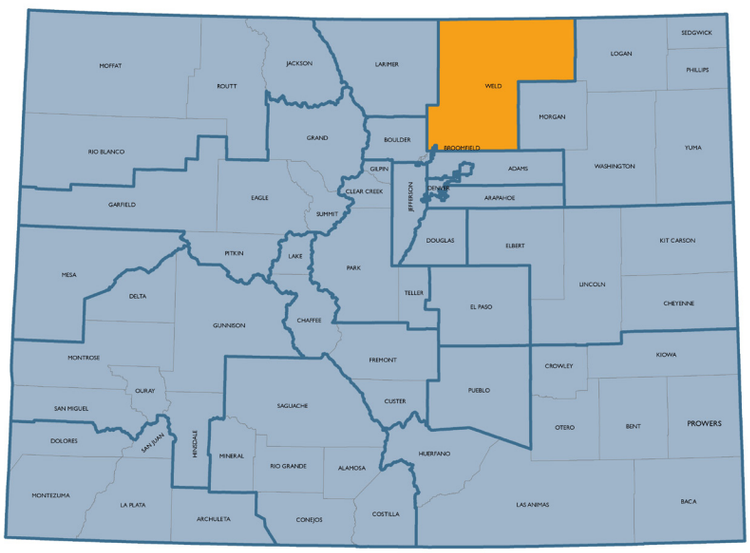
Population
268,639

Residents per Physician FTE
2,511

Physician FTEs Needed to Reach 1,900:1 Ratio
34.4

Percentage Change Needed
32.1%

Medicaid Patients to Physicians FTEs Ratio:
1,583



Health Statistics Region 19

Mesa County

Practicing Primary Care Physicians
168

Average Weekly Patient Care Hours per Physician
22.7

Practicing Primary Care Physician FTEs
95.2

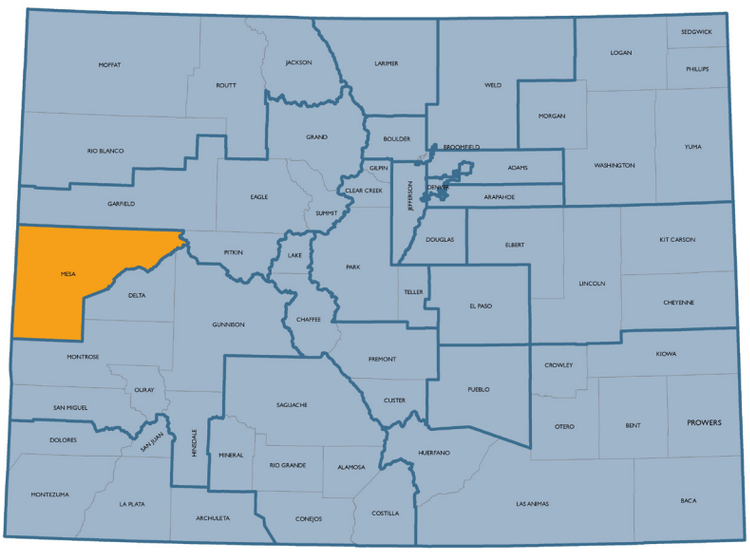
Population
150,123

Residents per Physician FTE
1,578

Physician FTEs Needed to Reach 1,900:1 Ratio
-16.1

Percentage Change Needed
-17.0%

Medicaid Patients to Physicians FTEs Ratio:
1,063



Health Statistics Region 20

Denver County

Practicing Primary Care Physicians
530

Average Weekly Patient Care Hours per Physician
35.6

Practicing Primary Care Physician FTEs
471.8

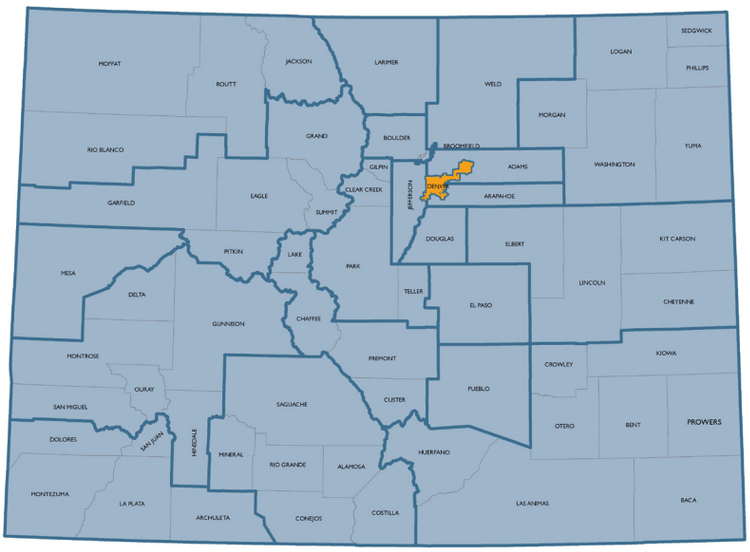
Population
636,234

Residents per Physician FTE
1,348

Physician FTEs Needed to Reach 1,900:1 Ratio
-137.0

Percentage Change Needed
-29.0%

Medicaid Patients to Physicians FTEs Ratio:
2,529



Health Statistics Region 21

Jefferson County

Practicing Primary Care Physicians
331

Average Weekly Patient Care Hours per Physician
36.6

Practicing Primary Care Physician FTEs
302.7

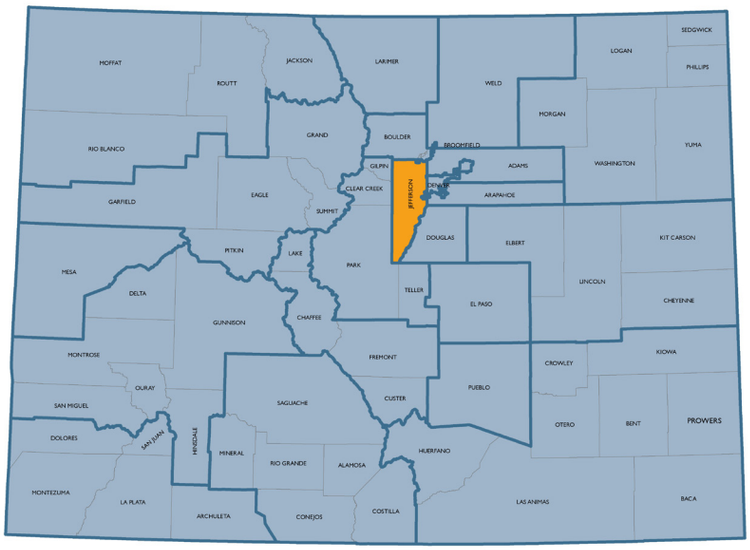
Population
545,799

Residents per Physician FTE
1,803

Physician FTEs Needed to Reach 1,900:1 Ratio
-15.4

Percentage Change Needed
-5.1%

Medicaid Patients to Physicians FTEs Ratio:
1,634



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