Colorado All Payer Claims Database (CO APCD) Research Showcase

March 26, 2026

Research Showcase | 3.26.2026 | Agenda

01

CIVHC & CO APCD Overview

02

Research Presentations

03

Q&A and Feedback

Who We Are

CIVHC
CENTER FOR IMPROVING
VALUE IN HEALTH CARE

About CIVHC

Our Mission:

To equip partners and communities in Colorado and across the nation with the resources, services and unbiased data needed to improve health and health care.

Our Vision:

Everyone has the opportunity to be healthy and has access to equitable, affordable, high-quality health care.

We Are…

- Non-profit
- Independent and objective
- Services-oriented

Our Partners

Individuals, businesses, and community organizations working to lower health care costs, improve care, and make Colorado healthier.

Our Products & Services

Leverage data from the Colorado All Payer Claims Database

Public CO APCD Data

Identify opportunities for improvement in your community through interactive reports and publications.

Licensed CO APCD Data

License data from the most comprehensive claims database in CO to address your specific project needs.

- Analytic Services
- Evaluation & Research
- Community Engagement

What's in the CO APCD

1.3+ Billion Claims (2013-2024)

70% of Covered Lives (medical only, 2023)

33 Commercial Payers* + Medicaid & Medicare (FFS and Advantage)

5.7+ Million Lives*, Including 1M (50%) of self-insured

Trend information (2013-Present)

**Reflects calendar year 2023 payers only*

What's not in the CO APCD

Federal Programs - VA, Tricare, Indian Health Services

Uninsured and self-pay claims

Majority of ERISA-based self-insured employers

Showcase Presenters

Nancy Fang, MD, MS
University of Colorado Anschutz

Mariana Guido, PhD Candidate
Stanford University

Rhonda West, MS
Center for Public Health Innovation

Dagmar Velez, MS
CIVHC

Welcome

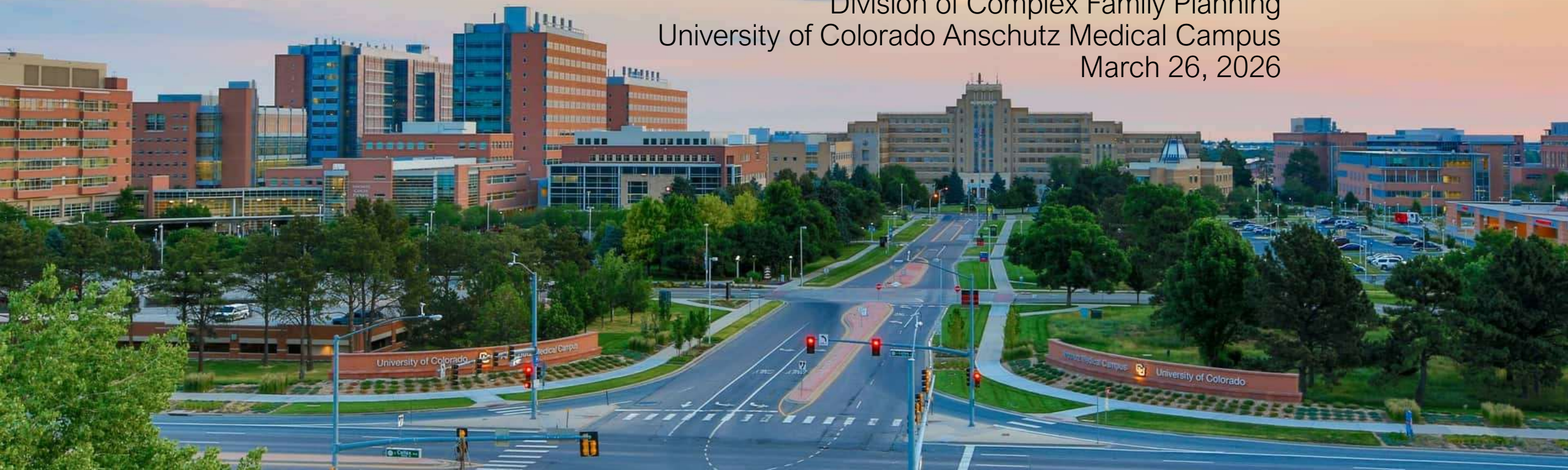
Nancy Fang, MD, MS

CIVHC
CENTER FOR IMPROVING VALUE IN HEALTH CARE

University of Colorado **Anschutz Medical Campus**

Quantifying life-threatening pregnancy complications in patients with chronic health conditions in Colorado

Nancy Fang, MD MS
Department of Obstetrics & Gynecology
Division of Complex Family Planning
University of Colorado Anschutz Medical Campus
March 26, 2026



Funding Acknowledgment

- NICHD K12HD001271
- CU Anschutz Department of OBGYN Academic Enrichment Fund

About Me

- East Coast transplant (originally from Massachusetts)
- Moved to Colorado in 2015 for residency with a 2-year hiatus in NYC (during the eventful years of 2019-2021)

Background

- At baseline, people are 14 times more likely to die during childbirth than during an abortion.
- Those with chronic health conditions or pregnancy-related diseases face even greater risk magnitude

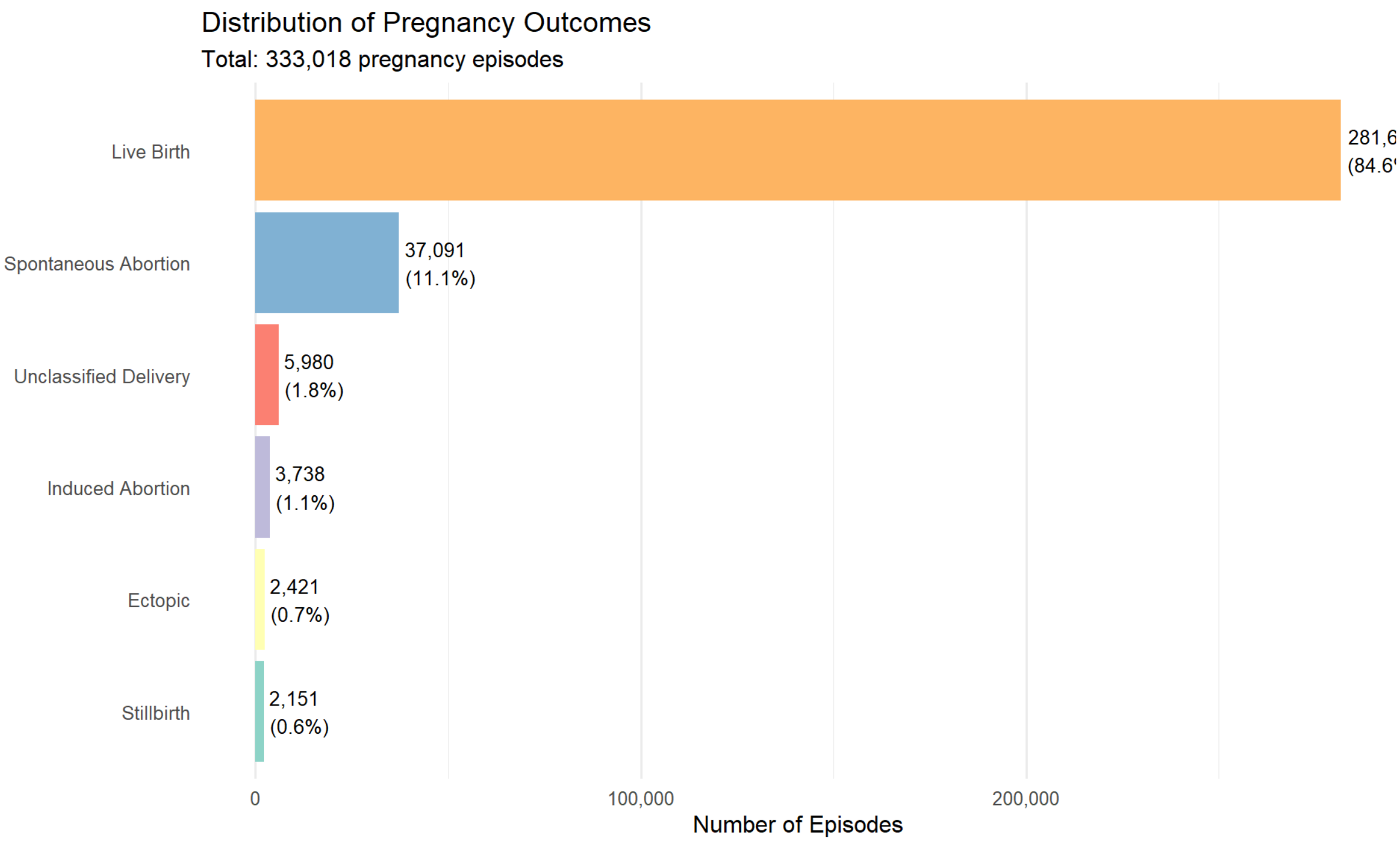
Raymond et al (2012)

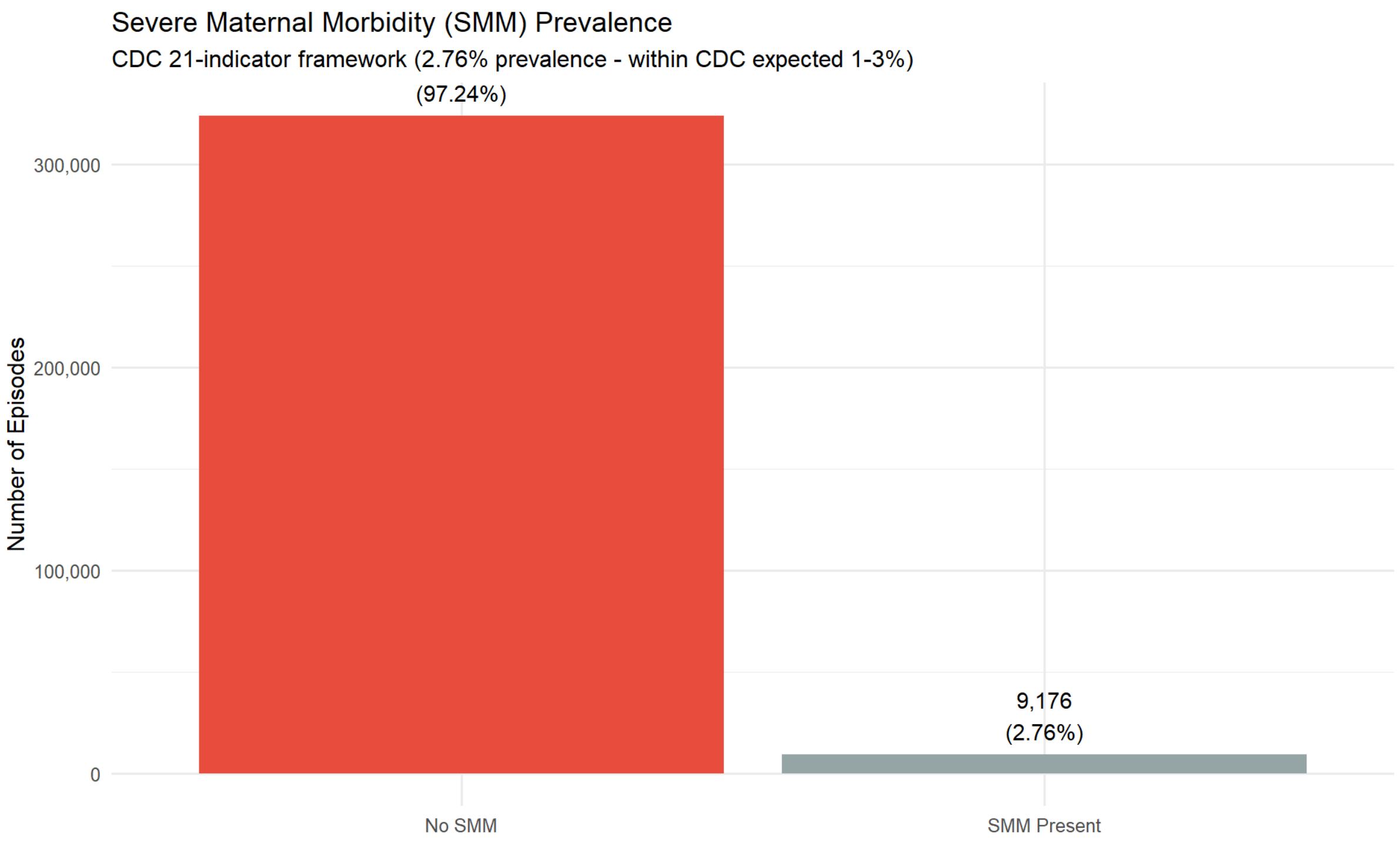
Objective

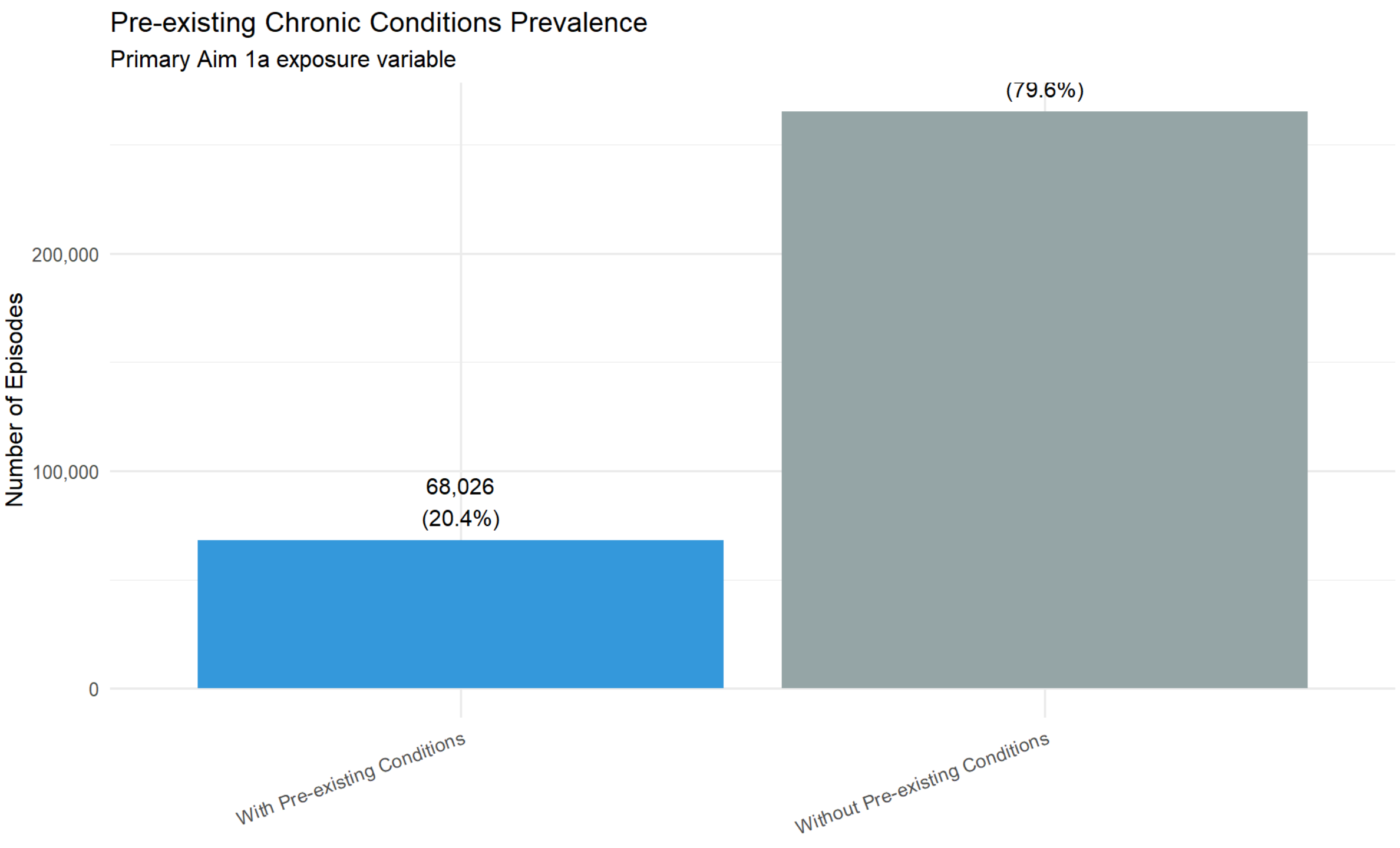
- Compare the prevalence of severe maternal morbidity and maternal mortality in pregnant patients with pre-existing health conditions to those without pre-existing health conditions delivering in Colorado

Methodology

- CO APCD Claims 2018-2022
- Females <55 years old with a pregnancy episode
- Assigned Severe Maternal Morbidity based on CDC 21-indicator SMM framework
- Assigned presence of chronic conditions based on HCUP's CCIR for ICD-10-CM

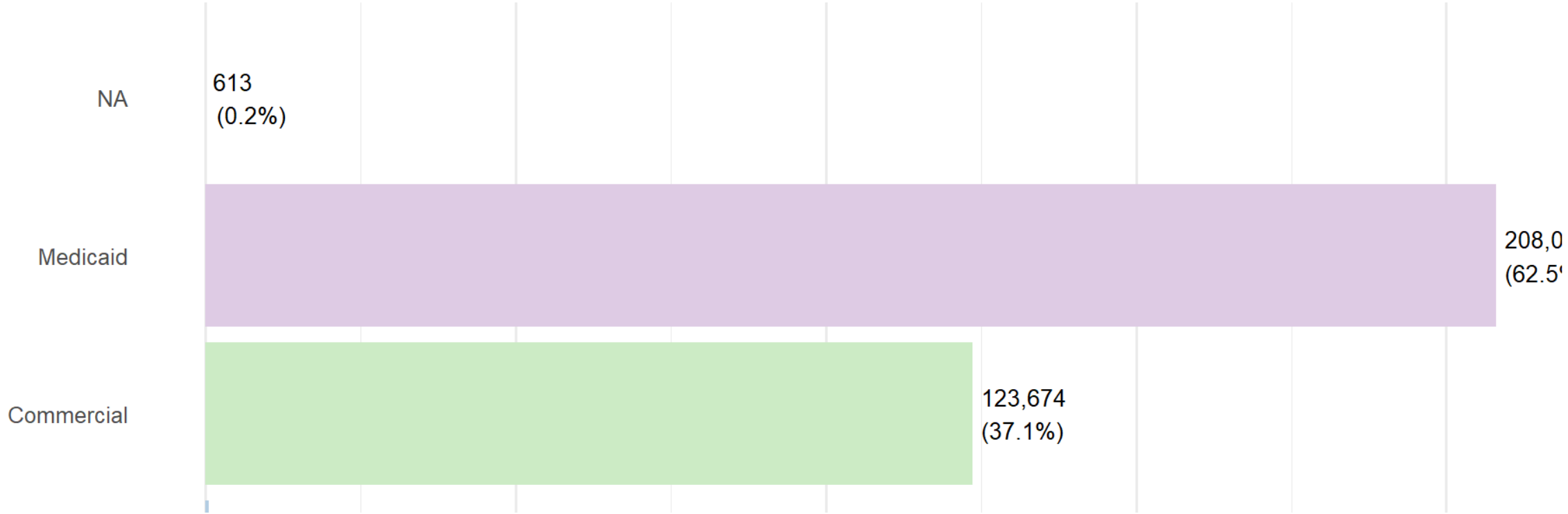

Distribution of Pregnancy Outcomes
Total: 333,018 pregnancy episodes
Live Birth
281,6
(84.6
Spontaneous Abortion
37,091
(11.1%)
Unclassified Delivery
5,980
(1.8%)
Induced Abortion
3,738
(1.1%)
Ectopic
2,421
(0.7%)
Stillbirth
2,151
(0.6%)
0
100,000
200,000
Number of Episodes


Severe Maternal Morbidity (SMM) Prevalence
CDC 21-indicator framework (2.76% prevalence - within CDC expected 1-3%)
(97.24%)
300,000
200,000
100,000
0
Number of Episodes
9,176
(2.76%)
No SMM
SMM Present


Pre-existing Chronic Conditions Prevalence
Primary Aim 1a exposure variable
Number of Episodes
200,000
100,000
0
68,026
(20.4%)
(79.6%)
With Pre-existing Conditions
Without Pre-existing Conditions

Insurance Product Type Distribution

Critical for Aim 1b: Medicaid policy context



Results

- For livebirths, patients with chronic conditions have a 1.5 times odds of mortality (95% CI 1.2-2.0) compared to patients without chronic condition.
- Patients with Medicaid have a 5.9 odds of mortality (95% CI 3.6-9.5) compared to patients with commercial coverage

Results

- For livebirths, patients with chronic conditions have a 1.7 times odds of morbidity (95% CI 1.6-1.8) compared to patients without chronic condition.
- Patients with Medicaid have a 1.5 odds of morbidity (95% CI 1.4-1.6) compared to patients with commercial coverage

Conclusions

- Patient with pre-existing chronic conditions have a higher odds of experience SMM during livebirths in Colorado
- Future studies will investigate if there are differences in morbidity (and mortality) among different pregnancy outcomes


University of Colorado Anschutz Medical Campus
THANK YOU

References

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2. Stevenson AJ. The Pregnancy-Related Mortality Impact of a Total Abortion Ban in the United States: A Research Note on Increased Deaths Due to Remaining Pregnant. *Demography*. 2021;58(6):2019-2028. doi:10.1215/00703370-9585908
3. Raymond EG, Grimes DA. The comparative safety of legal induced abortion and childbirth in the United States. *Obstet Gynecol*. 2012;119(2 Pt 1):215-219. doi:10.1097/AOG.0b013e31823fe923
4. Coursen J, Simpson CE, Mukherjee M, et al. Pregnancy Considerations in the Multidisciplinary Care of Patients with Pulmonary Arterial Hypertension. *J Cardiovasc Dev Dis*. 2022;9(8):260. doi:10.3390/jcdd9080260

Repeated measures

num_of_appearances	num_people	percent_of_sample
1	155520	88.192
2	19362	10.980
3	1385	0.785
4	70	0.040
5	6	0.003

Welcome

Mariana Guido, PhD Candidate

CIVHC
CENTER FOR IMPROVING
VALUE IN HEALTH CARE

Aligning Incentives or Gaming the System?

The Impact of Insurer-Physician Acquisitions

Nick Grasley

Mariana Guido

Vertical Healthcare Integration

- Increasing vertical integration between insurers and primary care doctors
    - Insurers are largest employers (PAI 2024)

The New York Times

Corporate Giants Buy Up Primary Care Practices at Rapid Pace

Large health insurers and other companies are especially keen on doctors' groups that care for patients in private Medicare plans.

Source: New York Times, May 2023

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- Ambiguous implications of vertical integration:
  - Competitive impacts (e.g., Hart and Tirole 1990)
  - Align incentives within the firm (Grossman and Hart 1986)

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How does vertical integration align incentives within the firm?

Incentive Alignment in Healthcare

How does insurer acquisition impact primary care doctor's behavior?

- Government pays insurer as function of doctor's diagnostic behavior:
  - Do primary care doctors change **diagnostic behavior** to deliver higher payments?

Incentive Alignment in Healthcare

How does insurer acquisition impact primary care doctor's behavior?

- Government pays insurer as function of doctor's diagnostic behavior:
  - Do primary care doctors change **diagnostic behavior** to deliver higher payments?
- Primary care doctors have influence over cost of care:
  - Control referrals for costly specialist care
  - Do primary care doctors change **referral behavior** to deliver cost savings?

Approach

How does insurer acquisition impact primary care doctor's behavior?

- Leverage rich market-wide medical claims data to empirically study one acquisition

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How does insurer acquisition impact primary care doctor's behavior?

- Leverage rich market-wide medical claims data to empirically study one acquisition
- Do primary care doctors change **diagnostic behavior** to deliver higher payments?
  - Conduct event-study to identify how integration increases government payments

  → Average increase in payments of $1508 per patient per year

Approach

How does insurer acquisition impact primary care doctor's behavior?

- Leverage rich market-wide medical claims data to empirically study one acquisition
- Do primary care doctors change **diagnostic behavior** to deliver higher payments?
  - Conduct event-study to identify how integration increases government payments

  → Average increase in payments of $1508 per patient per year
- Do primary care doctors change **referral behavior** to deliver cost savings?
  - Estimate a model of doctor referrals and simulate counterfactual spending

  → Average savings of $300 per referral

Related Literature

- Vertical Integration in Healthcare Baker et al. (2016), Johnson et al. (2017), Brot-Goldberg and de Vaan (2018), Capps et al. (2018), Cutler et al. (2020), Cooper et al. (2025), Cuesta et al. (2025), **Cho (2025)**

  → **Insurer-primary care practice vertical integration across segments**

- doctor Incentives and Regulatory Gaming Gaynor et al. (2004), Dafny and Dranove (2009), Brown et al. (2014), Clemens and Gottlieb (2014), Ho and Pakes (2014), Frandsen and Rebitzer (2014), Decarolis (2015), Einav et al. (2016), Einav et al. (2018), Curto et al. (2019), Decarolis et al. (2020), **Geruso and Layton (2020)**, Gupta (2021), Gupta and Sacarny (2025)

  → **Integration impact on reporting behavior through incentive alignment**

Roadmap

1. Empirical Setting
2. The Acquisition and Doctor Diagnostic Behavior
3. The Acquisition and Doctor Referral Behavior
4. Discussion

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- Largest Insurer (65% MA, 35% Commercial) and Primary Care Practice (4%)

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- Largest Insurer (65% MA, 35% Commercial) and Primary Care Practice (4%)
- Can leverage uniquely detailed data

Descriptives Acquisitions Non-Exclusivity

Data

Extract from the Colorado All Payer Claims Database (2015-2019):

- Every reimbursed medical encounter (41 million claims) in Commercial and Medicare Advantage
- Panel of 1.5 million patients across **all** insurers (48 plans)
- Identified acquiring insurer plans in Commercial and Medicare Advantage
- Panel of 58,000 doctors including 2,687 primary care practices
- Includes detailed procedures, diagnoses, and **prices**

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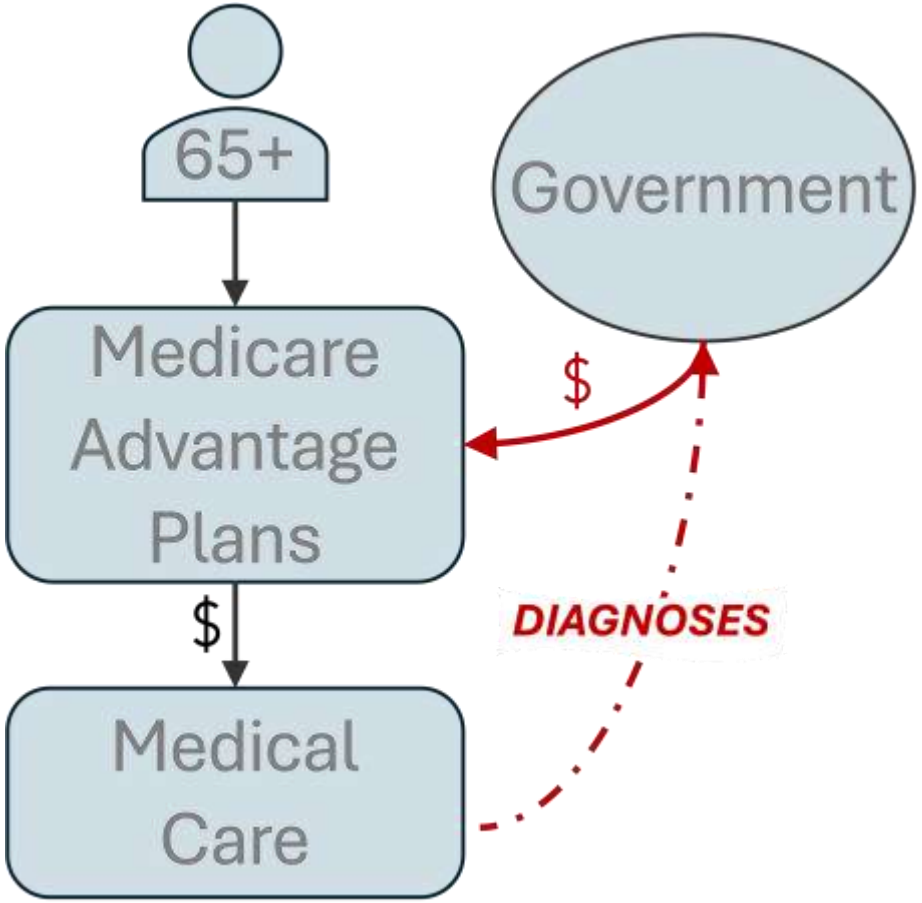
Acquisition leads to Differential Coding in Medicare Advantage

- Patients 65+ enroll in Medicare Advantage (MA):
  - Private insurer alternative to Traditional Medicare
  - Government pays insurer as a function of patient diagnoses
- Doctor controls diagnoses



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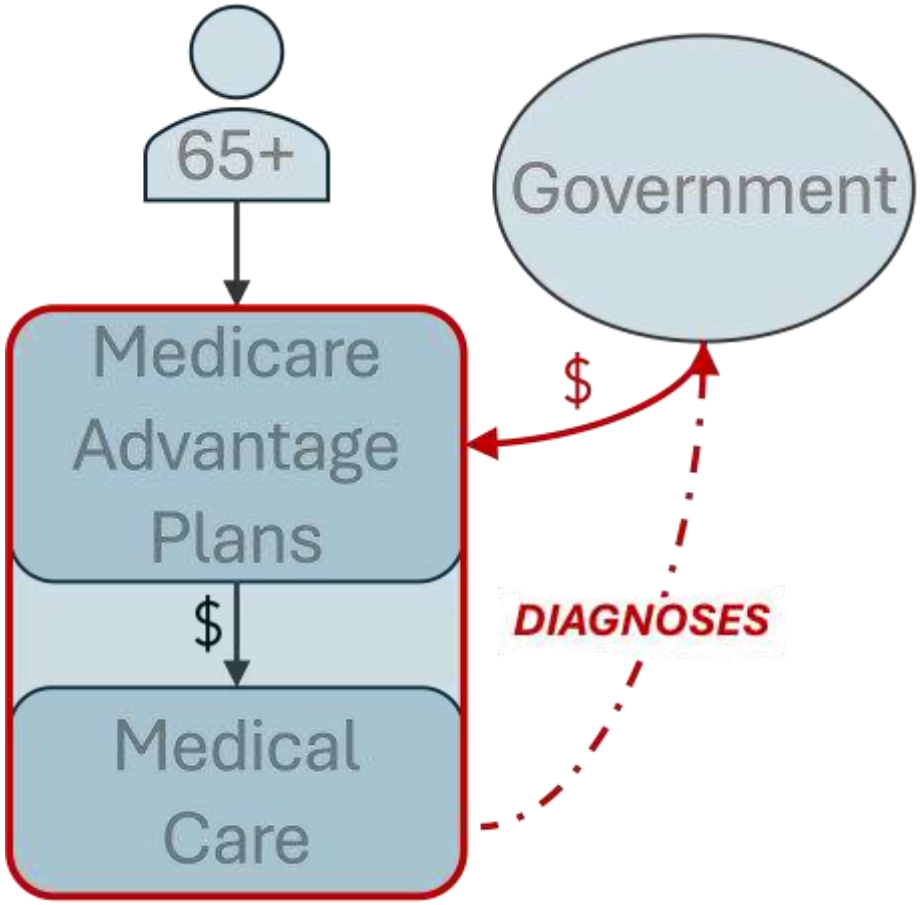


Di!erential Coding: ↑diagnostic provision → ↑ government payments

Descriptive Patterns

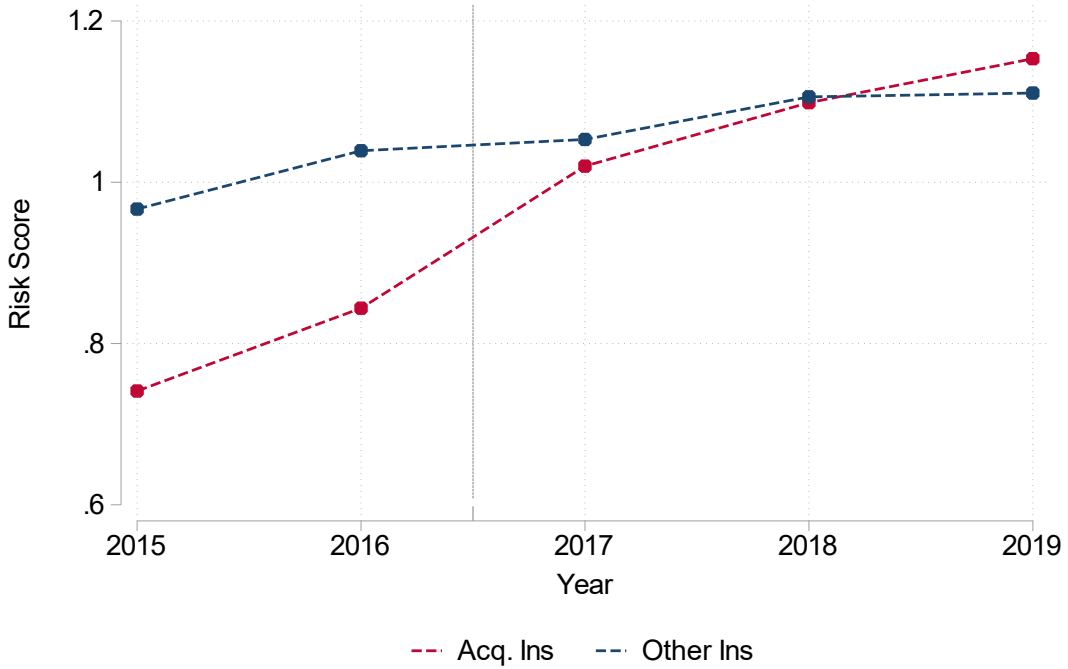
How are risk-adjustment payments determined?

- Doctor provides diagnoses (e.g., diabetes) in patient visit
- **Risk Score** ↓ weighted sum of diagnoses + demographics
- Risk-adjustment payments = p^R*Risk Score

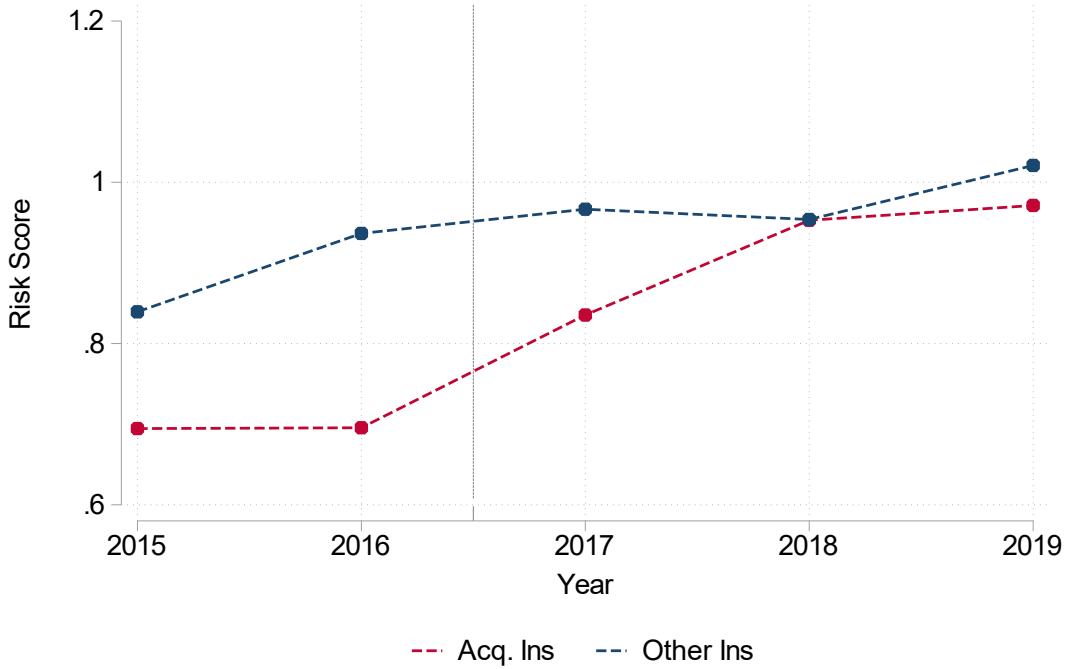
↔ **Construct risk score per patient per year**

Risk Algorithm

Descriptive Patterns



Non-Acquired Practices



Acquired Practice

Risk scores increase for Medicare Advantage beneficiaries of the acquiring insurer across practices

Commercial Segment

Descriptive Patterns

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↔**Construct risk score per patient per year**

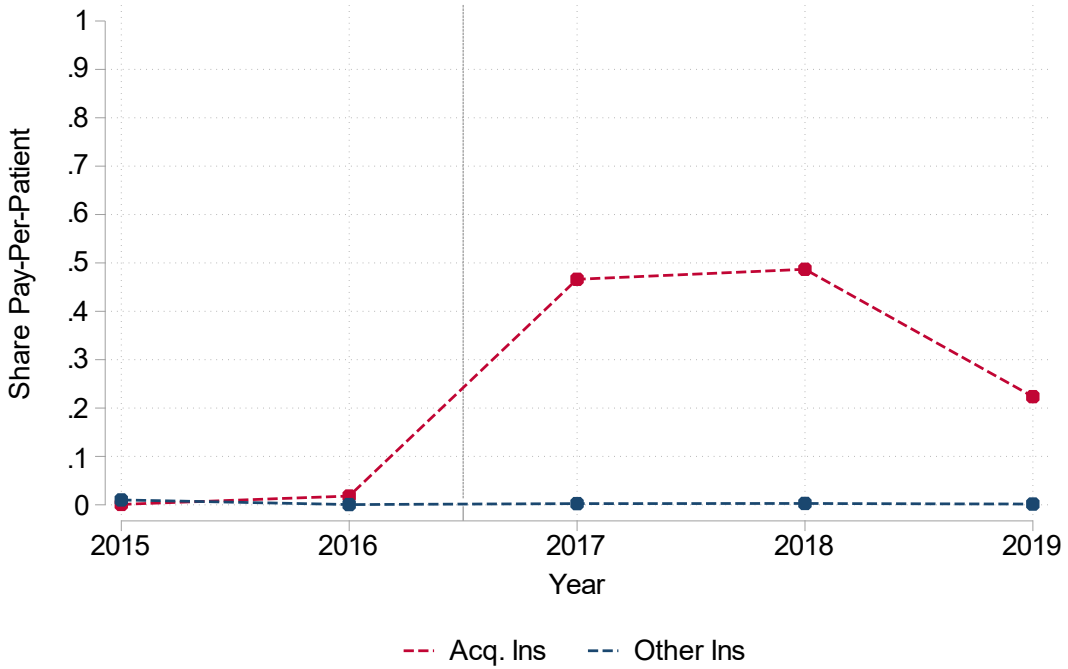
***Pay-per-patient* (capitation) contracts can also align incentives**

- Specify a fixed risk-adjusted payment per patient meant to cover all care
- We observe a claim-level indicator

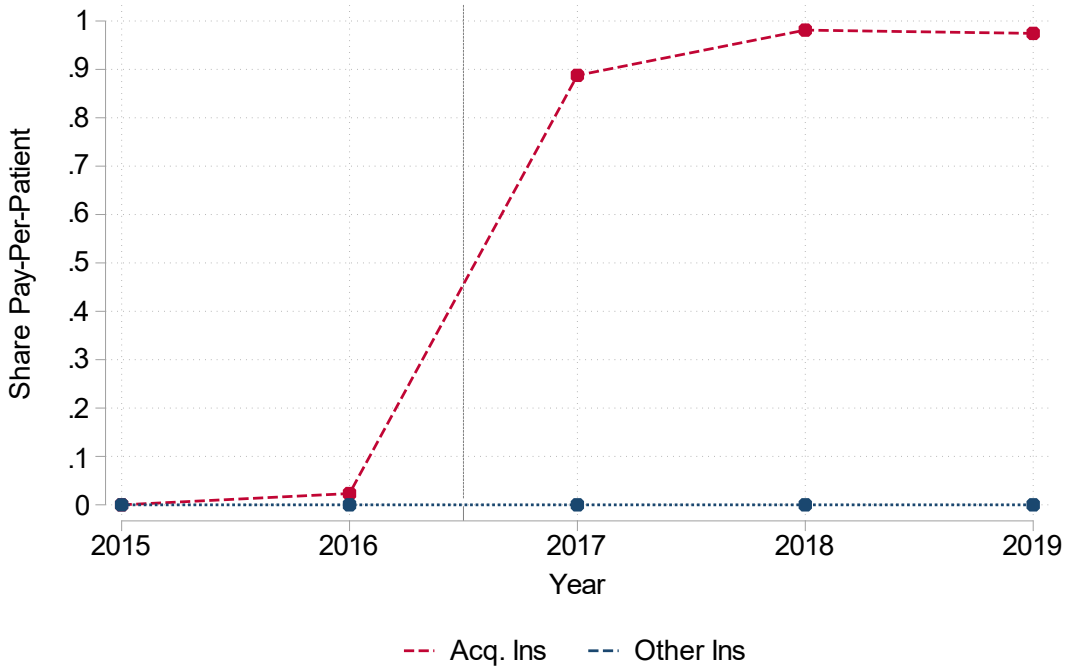
↔**Construct measure of adoption at doctor per patient per year**

Risk Algorithm

Descriptive Patterns



Non-Acquired Practices



Acquired Practice

Primary care practices adopt pay-per-patient contracts for ↓ %50 of the acquiring insurer's Medicare Avantage beneficiaries

Commercial Segment

Empirical Strategy

Compare patients of Acq. Insurer to those of Other Insurers at Acq. Practice

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Compare patients of Acq. Insurer to those of Other Insurers at Acq. Practice

- Leverage market-wide data to compare across insurers
- Treated group: Patients of the Acq. Ins. at the Acq. Practice
- Control group: Patients of Other Ins. at the Acq. Practice

Empirical Strategy

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- Concern: selection into insurers

Empirical Strategy

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  ↔ **Event study design with individual and time FEs** (Callaway and Sant'Anna 2021)

  Details

Empirical Strategy

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  ⟷ **Event study design with individual and time FEs** (Callaway and Sant'Anna 2021)

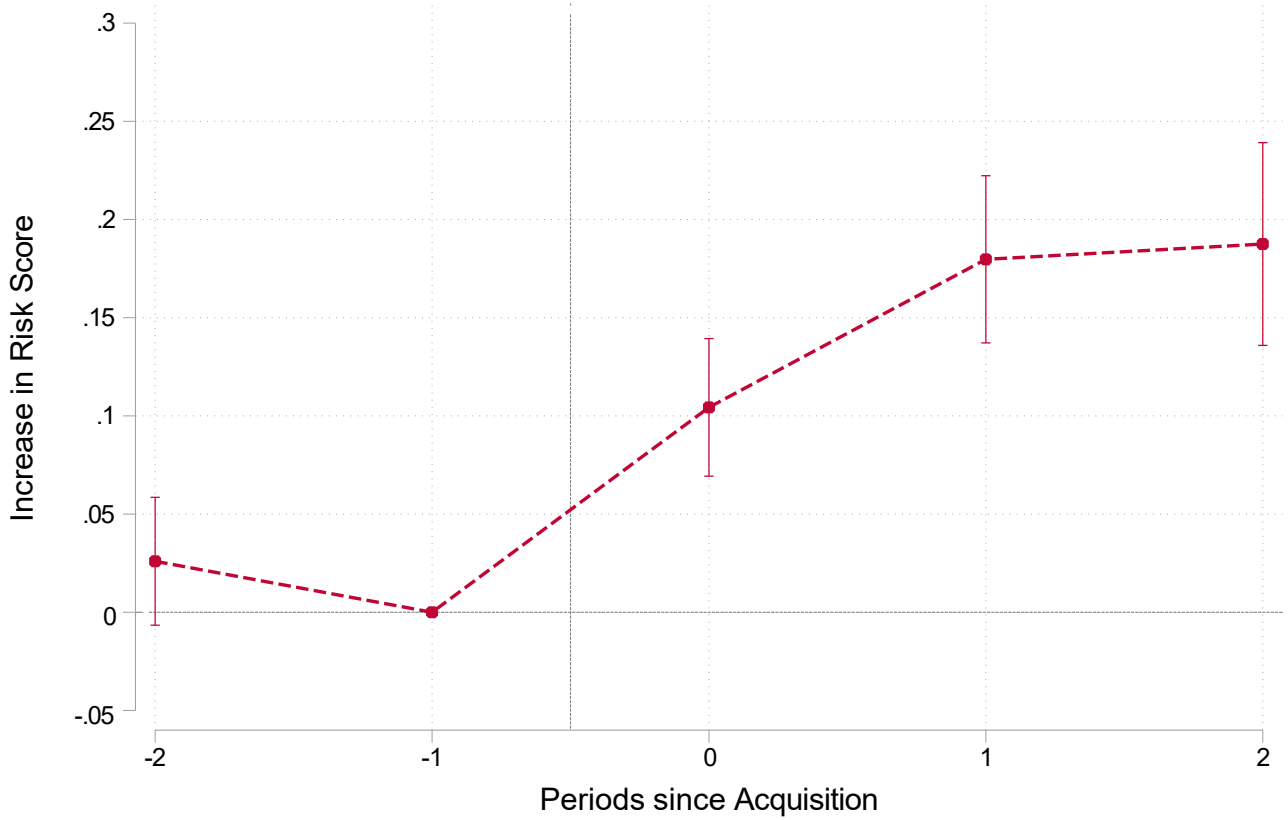
  Details

- Restrict to risk resulting only from Acquired Practice's diagnostic behavior

Acquisition Increases Risk Adjustment Payments

Sample Descriptives Robustness

- Acquisition leads to a 20-37% increase in risk score in Medicare Advantage



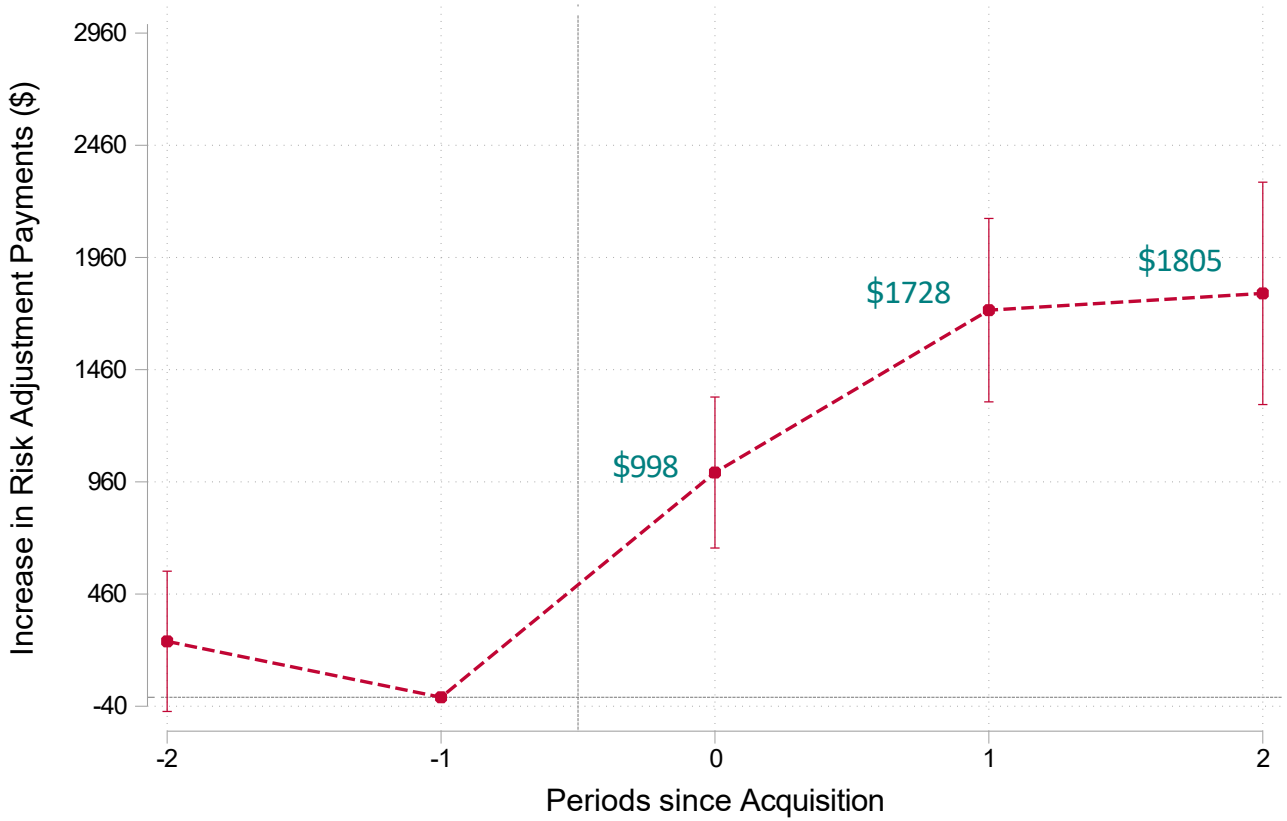
An observation is a patient-year
Treated = Acq Ins - Acq PCP
Control = Other Ins - Acq. PCP
Baseline mean = 0.514

Acquisition Increases Risk Adjustment Payments

Sample Descriptives | Robustness

- Acquisition leads to a 20-37% increase in risk score
- Risk Adjustment Payments = 800 ↗*RS* per patient per month

↔ Increase in payments of $998-$1805 per patient per year



An observation is a patient-year
Treated = Acq Ins - Acq PCP
Control = Other Ins - Acq. PCP
Baseline mean = $4,934

Interpreting Differential Coding

Finding: Acquisition increases diagnostic provision

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Interpreting Differential Coding

Finding: Acquisition increases diagnostic provision

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- Health benefits from increased diagnoses?
  - Evaluate empirical evidence of treatment decisions:
    - Measure number of diagnoses and procedures provided per patient-year
    - Classify procedures: diagnostic (e.g., blood test) vs. therapeutic (e.g., dialysis)
    - Evaluate impact on provision at Acquired Practice: patients of Acq. Ins. vs Other Ins.

Interpreting Differential Coding

Finding: Acquisition increases diagnostic provision

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        - Classify procedures: diagnostic (e.g., blood test) vs. therapeutic (e.g., dialysis)
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    → Diagnoses and diagnostic procedures increase 5↑ as much as therapeutic procedures

Evidence

Roadmap

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2. The Acquisition and Doctor Diagnostic Behavior
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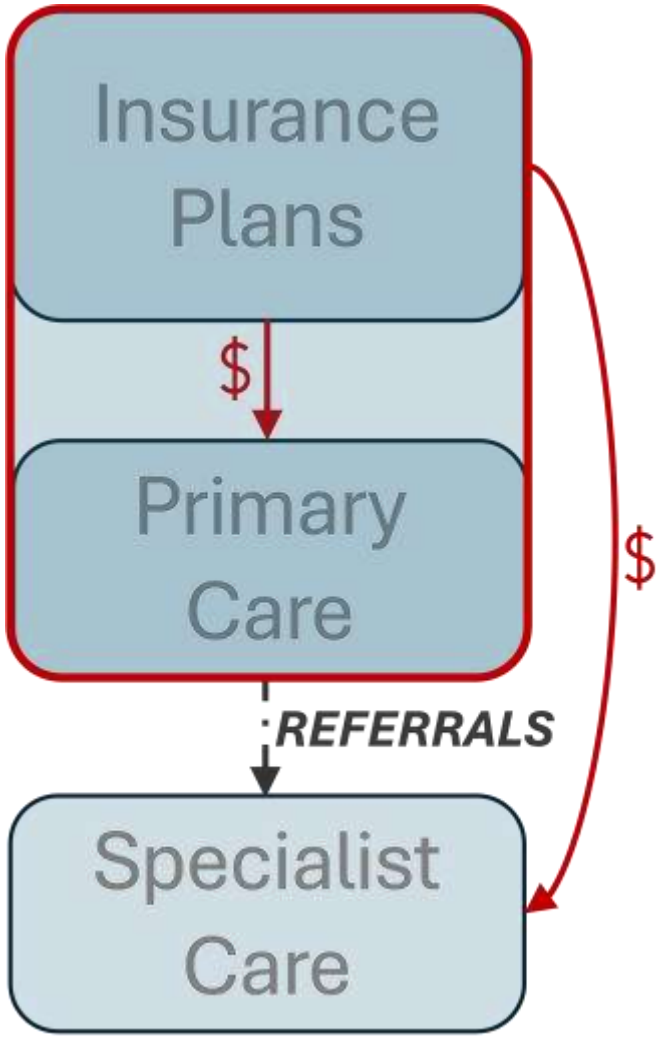
Acquisition leads to Referral Steering

- Patients enroll in insurance plans:
  - Commercial plans (e.g., Employer Sponsored Health Insurance)
  - Medicare Advantage plans
- Doctor controls referrals to specialists:



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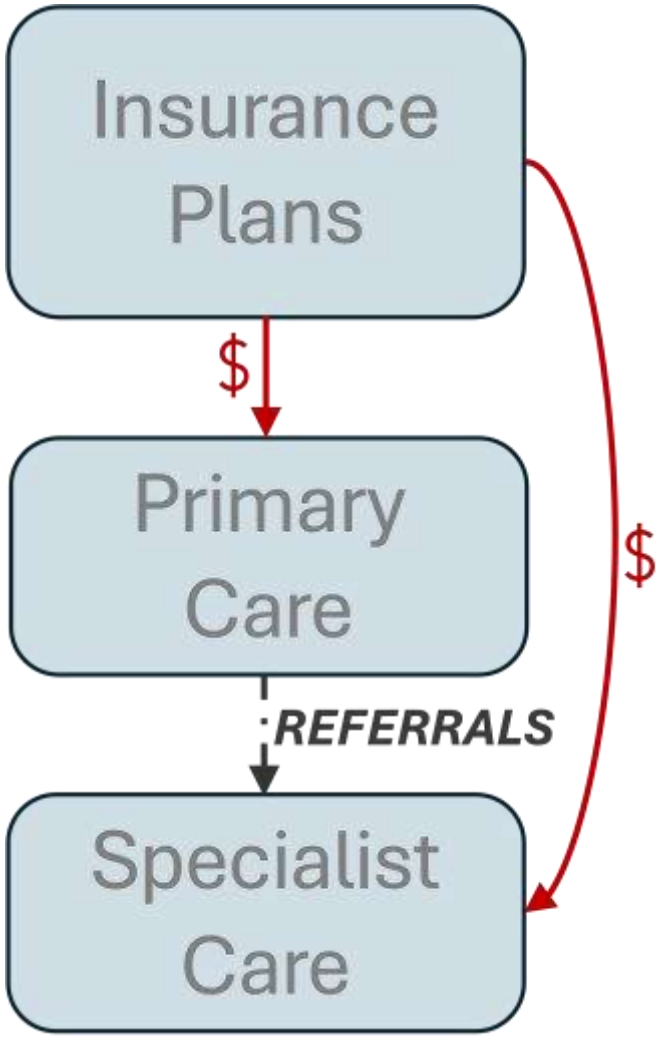
  - Integrated doctor internalizes referral cost → referral steering



Measuring Referral Steering

Question: Are doctors more cost sensitive in their referrals after acquisition?

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Strategy: Model doctors' referral decisions as a function of specialists' expected cost

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Question: Are doctors more cost sensitive in their referrals after acquisition?

Strategy: Model doctors' referral decisions as a function of specialists' expected cost

- Doctor trades off expected cost, distance, and quality when choosing specialist
- Modeled as mixed logit with group-varying cost coefficient
- Identifying assumption: Parallel trends in cost coefficient across groups over time
- No outside option: condition on patients with a specialist visit (Ho and Pakes 2014)

Empirical Strategy

Construct Specialist Cost Index

- Leverage claim-level price information: observation = claim
- Quantity of interest: Spe FE, varies at spe service (s) - Period (t) - Insurer $g(i)$
- Control for time, gender, contract, MA, and *baseline* risk
- Closed form Leave-One-Out correction (Miller 1974)
- Hierarchical empirical Bayes shrinkage: across spe. within insurer and across insurer within spe.

Empirical Strategy

Estimation

- Restrict to patients referred by the Acquired Practice
- Compare patients of the Acquiring Insurer to those of Other Insurers:
  - Treated group: Beneficiaries of the Acquiring Insurer at the Acquired Practice
  - Control group: Beneficiaries of the Other Insurers at the Acquired Practice
- Leverage estimates to compute spending w/ and w/o acquisition → savings

Integration a!ects referral steering differently across segments

Details

In Commercial, acquisition reduces the cost of specialist care

- Doctor steers referrals towards more cost-effective care
  - In-Patient savings of $300 per referral
  - Out-Patient savings of $26 per referral

Integration affects referral steering differently across segments

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- Concern: Sample size limitation for in-patient care
- Rationale: lower cost variation reduces scope for savings

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Pay-per-patient contracts associated with increase in costs

Details

- Adoption is exclusive to Medicare Advantage
- Selection into contracts

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Discussion

How does insurer acquisition impact primary care doctor's behavior?

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How does insurer acquisition impact primary care doctor's behavior?

- Do primary care doctors change **diagnostic behavior** to deliver higher payments?
  → Average increase in payments of $1508 per patient per year in Medicare Advantage

- Do primary care doctors change **referral behavior** to deliver cost savings?
  → Average savings of $300 per in-patient and of $26 per out-patient referral in Commercial

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- However, impacts on patient health can be important for welfare considerations (e.g. ER use)

Discussion

We find broad contract adoption in Medicare Advantage

- Contracting delivers the same risk-adjustment revenue
- Contracting does not deliver referral savings

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Why acquire if you can contract?

- Pay-per-patient contracts are costly to implement (Damberg et al. 2014; S. O'Malley et al. 2024)
- Doctors cite ease of adoption as key reason for acquisition (Kane 2025)

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Future work: endogenize acquisition and contract adoption and evaluate their interaction

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Thank you!

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Welcome

Rhonda West, MS

CIVHC
CENTER FOR IMPROVING
VALUE IN HEALTH CARE

Colorado Sickle Cell Disease Surveillance

2020 POPULATION AND UTILIZATION INSIGHTS

Rhonda West, MS

The Colorado Sickle Cell Data Collection program is supported by a cooperative agreement from the Centers for Disease Control and Prevention Sickle Cell Data Collection Program (CDC-RFA-DD-23-0002).

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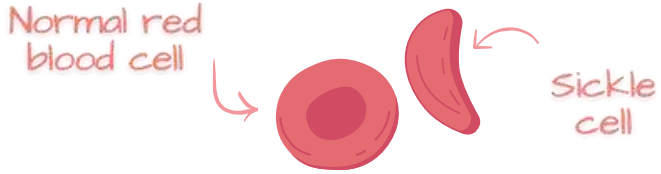
Sickle Cell Disease (SCD)

- A genetic condition that causes red blood cells to become misshapen.



- These cells can clog blood vessels, leading to health complications that can be severe and drive emergency and inpatient care.
- The Colorado Sickle Cell Data Collection (SCDC) Program uses data to track trends in diagnosis, treatment, and healthcare access to improve the lives of people with sickle cell disease.

Goals of Surveillance

Characterize the Population	Identify how many people have SCD and where they live.
Track Trends	Monitor outcomes and healthcare use over time.
Inform Action	Provide data to guide policy, funding, and improvements in care.

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Context for This Analysis

- Data sources include CO APCD, Newborn Screening (NBS), and Vital Records

- CDC surveillance reporting uses a 5-year lookback to allow complete case ascertainment and stable estimates

- Healthcare utilization in 2020 was atypical due to COVID-19 pandemic
  - Reduced care-seeking during this time may impact observed utilization counts

High-Level Analysis Plan

Apply Case Definition

Who has sickle cell disease?

Data: CO APCD claims, NBS data

Apply Residency Criteria

Did they live in CO in 20XX?

Data: CO APCD geocoding

Validate Findings

Are our methods accurately identifying cases?

Data: Clinical review

Characterize the Population

What is the epidemiology of SCD in Colorado?

Data: CO APCD claims, Vital Records

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Number of people identified with SCD living in Colorado in 2020

364

Births

2020 births

15

babies born with SCD in CO

5-year total (2016-2020)

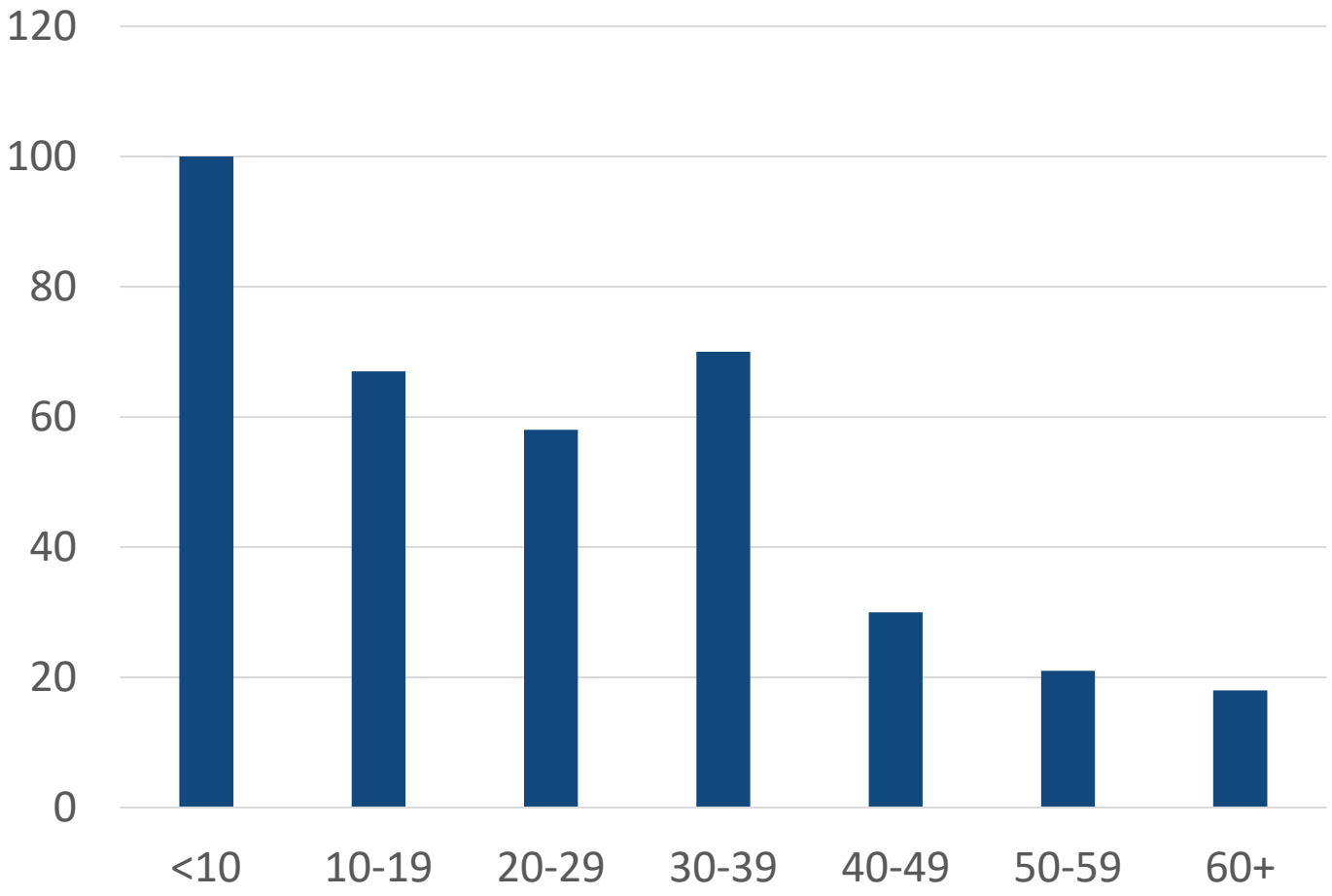
68

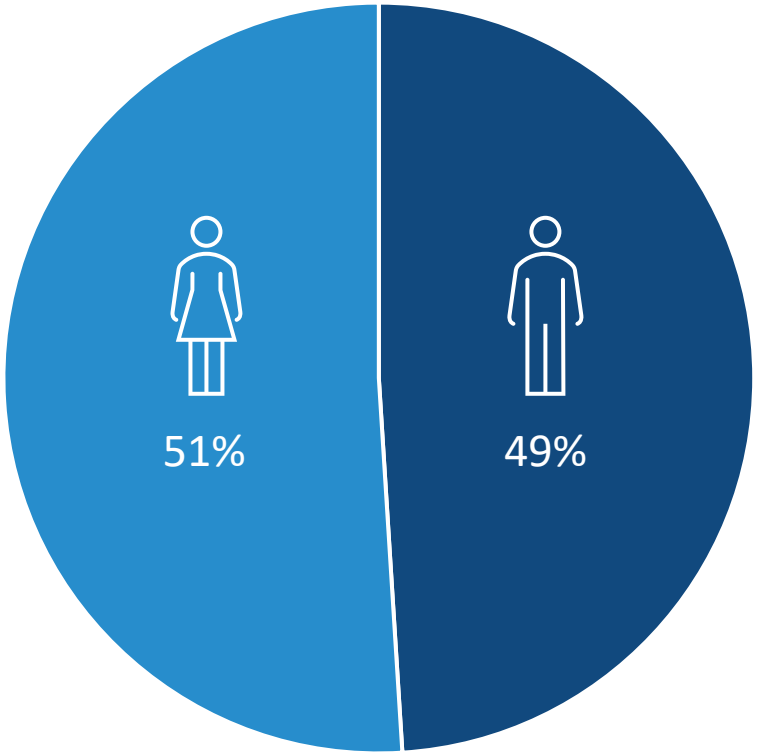
babies born with SCD in CO

Who is living with SCD in Colorado?

Key stats
62% under age 30
81% under age 40
51% women

People with SCD by age group and sex (n=364)





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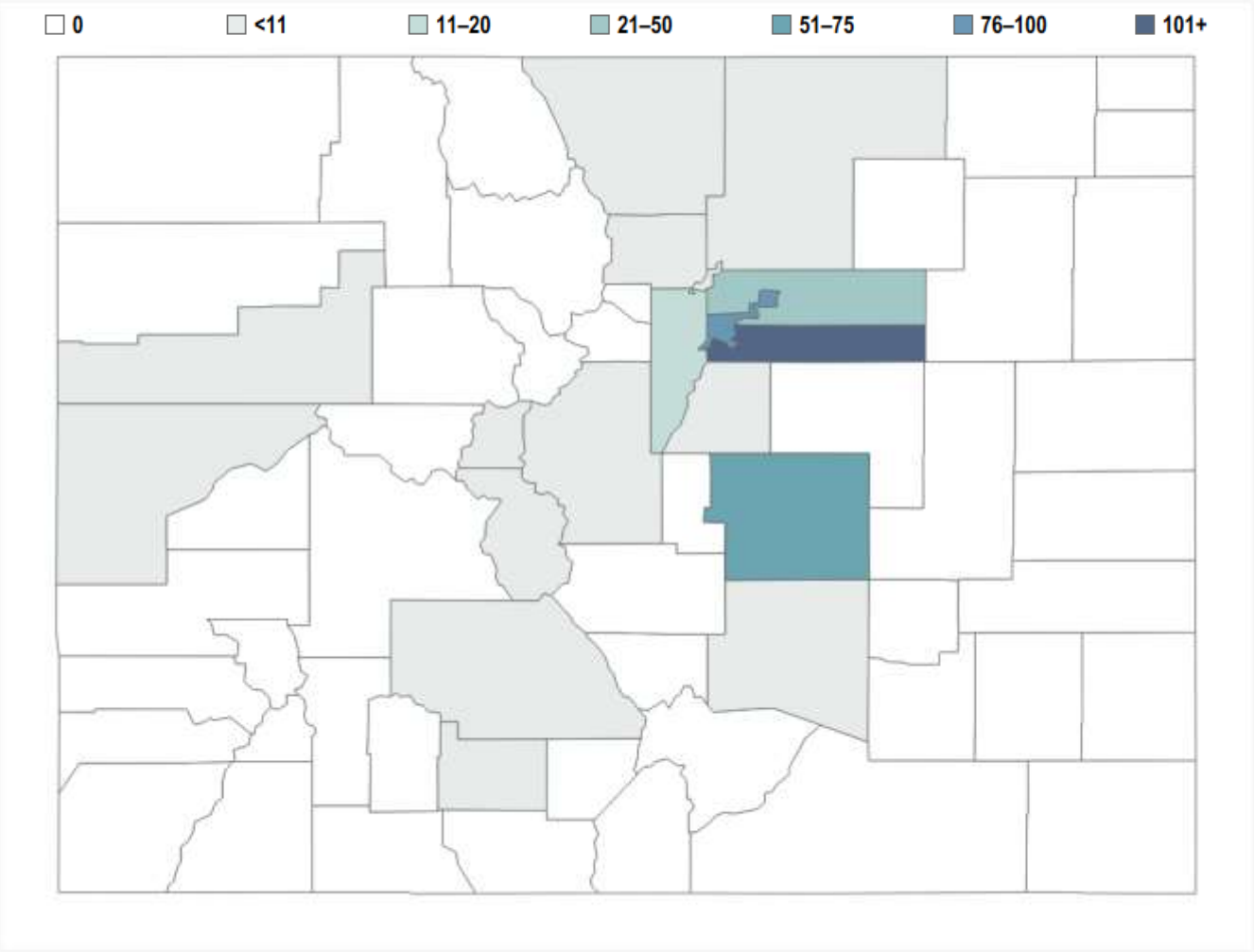
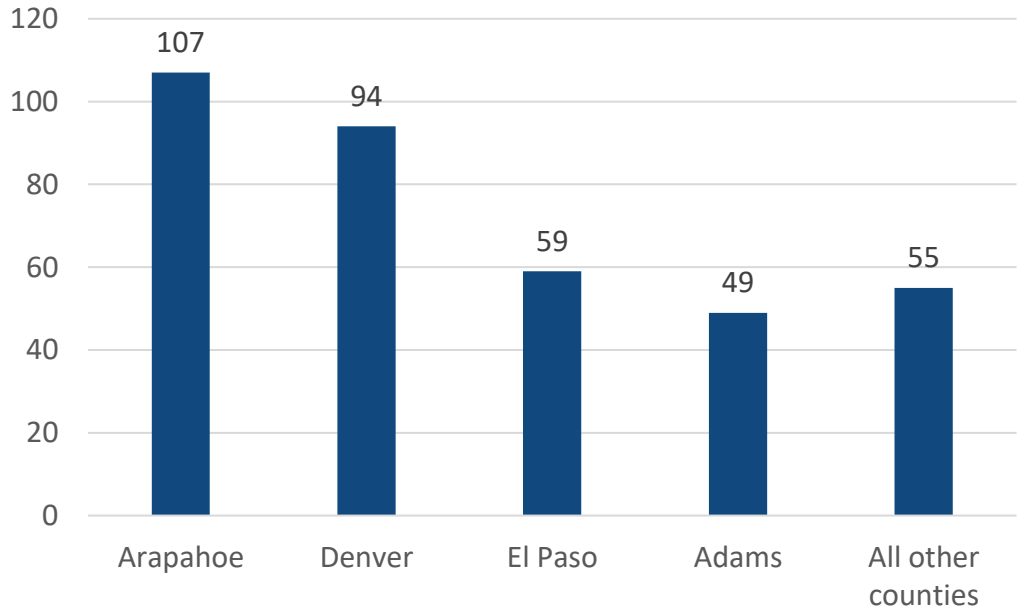
Geography

Count of individuals with SCD, by county



Concentration

85% of people with SCD live in 4 counties: Arapahoe, Denver, El Paso, Adams



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Acute care utilization in 2020

ED treat/release visits

423

1.16 per person

Hospital admissions

217

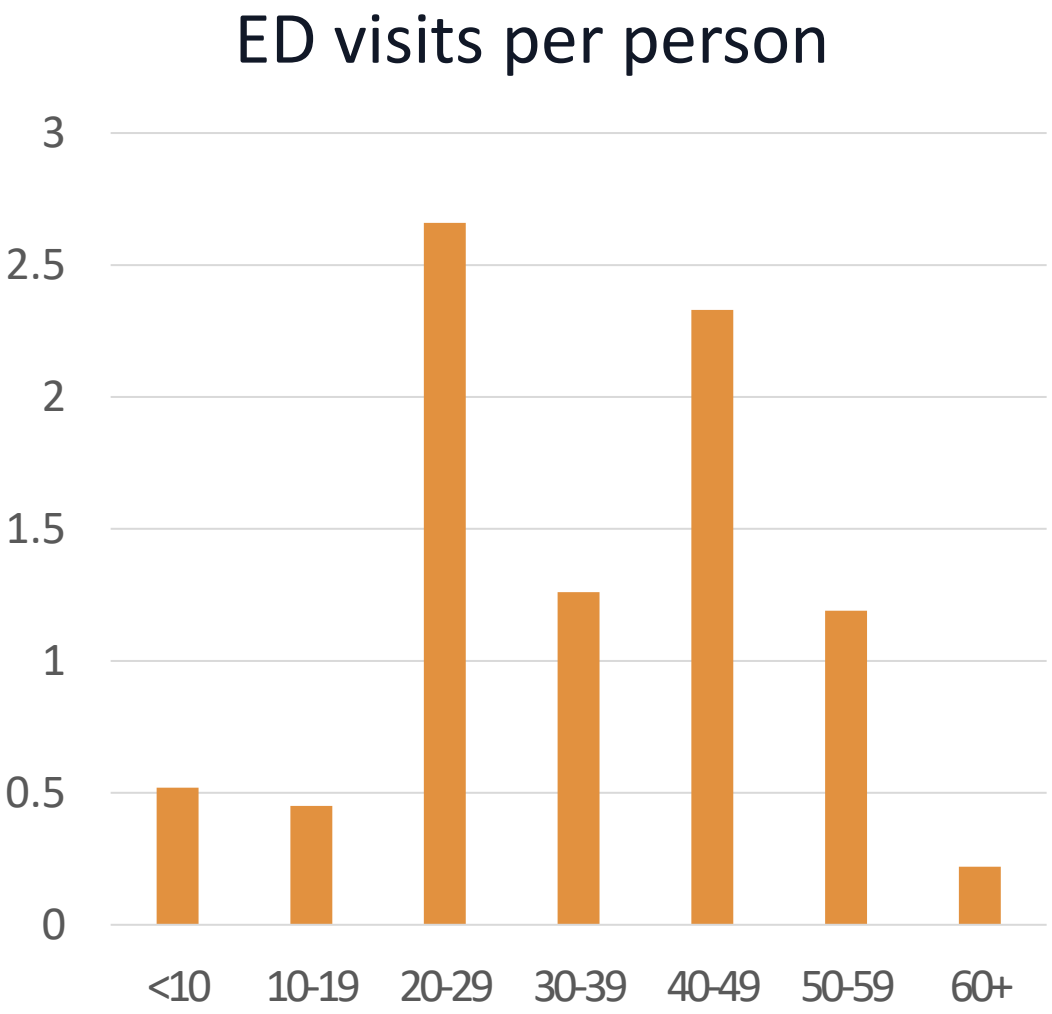
0.60 per person

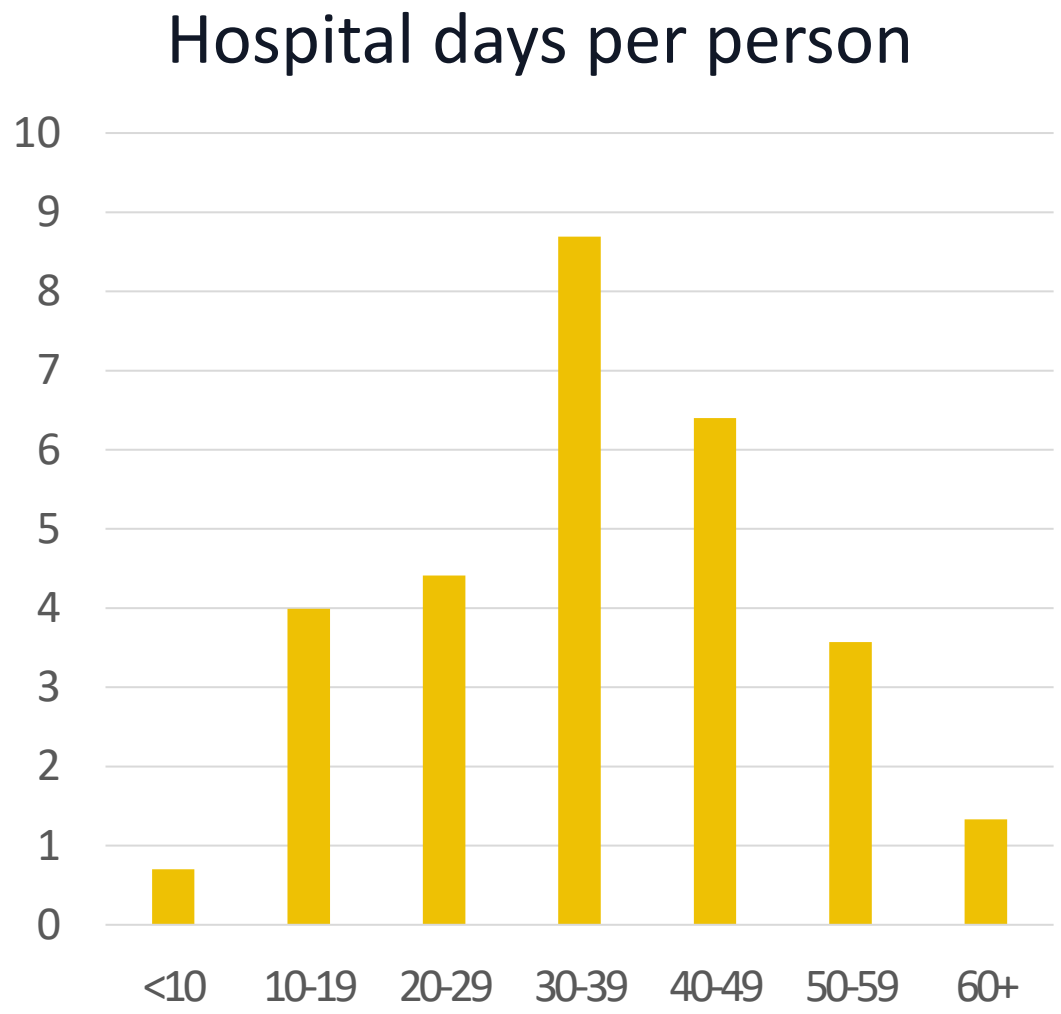
Hospital days

1,492

4.10 per person

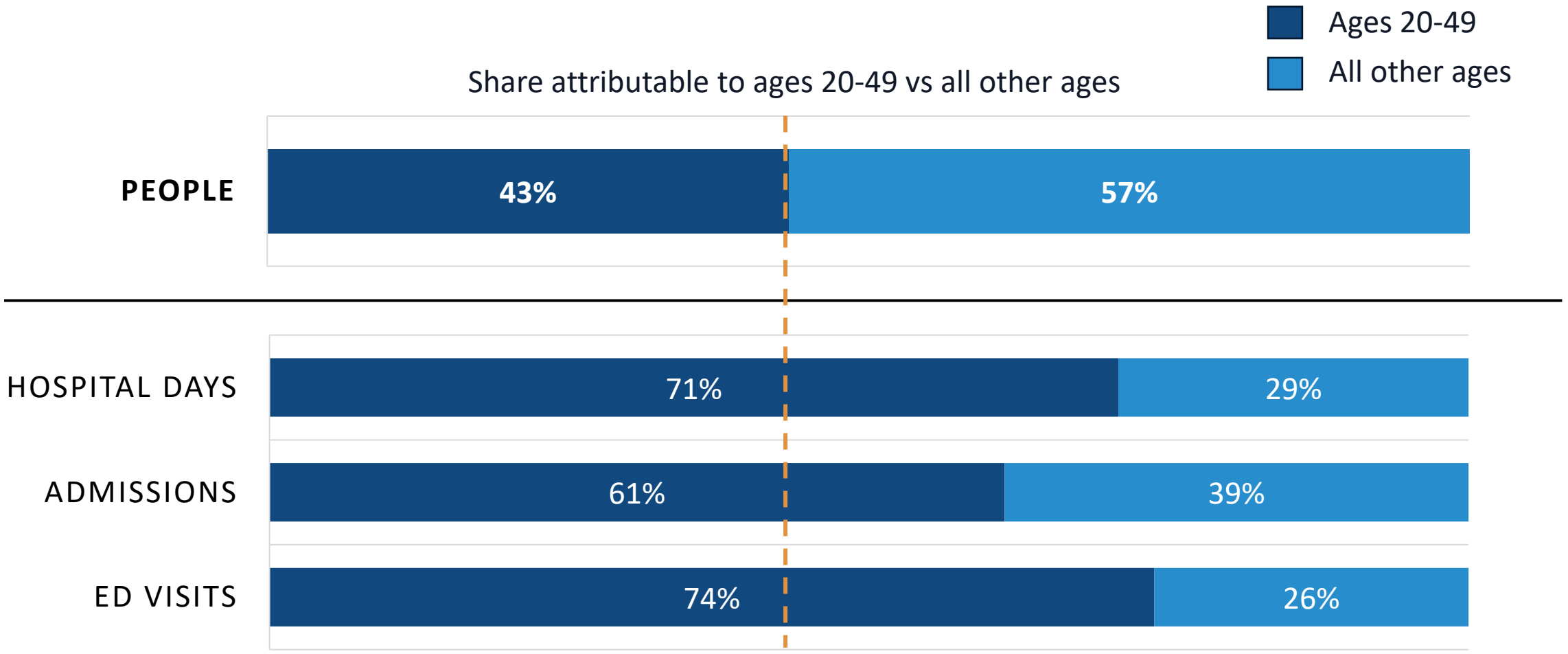
Utilization by age





Adults 20-49 show the highest ED intensity and hospital-day burden in 2020.

Ages 20-49 drive a disproportionate share of acute care



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What this means for Colorado

Capacity and care coordination should align with where people live

Expand to areas that are hard to reach

Adult-focused strategies matter

Ages 20-49 carry the highest ED intensity and hospital-day burden.

Interpret year-to-year trends cautiously

Annual counts are small, so multi-year views are often more stable.

Limitations

- CO APCD is not inclusive of all CO residents; some individuals with SCD may be missed
- Individuals with infrequent utilization may be under-represented
- Pandemic-era utilization patterns may not reflect typical care-seeking behavior

Next Steps

Use CO APCD to complement surveillance with:

- Cost of care
- Longitudinal patterns of care
- Mental health services utilization

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Thank You

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www.CPHInnovation.org
www.COSCDC.org

Center for Public Health Innovation

Welcome

Dagmar Velez, MS | Erin Best, MS

CIVHC
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Mapping Hospice Care Access in Colorado:
A County-Level Analysis Using Sociodemographic Indicators and Alzheimer's Prevalence

•••

Erin Best, MS and Dagmar Velez, MS

Project Statement

Research Questions:

- How do community characteristics, as captured by the American Community Survey (ACS) data, correlate with the presence and density of hospice providers across the state of Colorado?
- Can we identify gaps in hospice care access across Colorado by analyzing Alzheimer's disease prevalence and county-level demographic indicators?

Background - Hospice Care

Medicare Hospice Care Eligibility Requirements:

- A physician must certify that patient has a terminal illness with a life expectancy of <= 6 months

Relevant National Patterns (CDC, 2020)

- 96% of hospice patients are age 65+
- In the Western U.S., hospice represents 36.1% of post-acute and long-term care providers (among the highest nationally)
- 45.2% of hospice patients have Alzheimer's or other dementia-related conditions

Our Study

- In addition to hospice provider count, our data includes key sociodemographic indicators and medical conditions like:
  - Age, education, income, poverty, marital status, and household composition
  - Alzheimer's and Dementia prevalence

Datasets

American Community Survey (ACS)

- On-going survey from United States Census Bureau
- Collects data on the social, economic, housing, and demographic characteristics of the U.S. population
- Our focus includes household income, educational attainment, householder/marital/civilian status, poverty level, and age

National Provider Identifier (NPI) Registry

- Free, public directory
- Contains active provider information based on the 10-digit unique NPI
- We pulled information for active hospice organizations based in CO

Other datasets include:
Alzheimer's rates (2020), Colorado County Boundaries, Medicare Eligible Pop. By County (2024)

Data Manipulation - ACS Demographics and Medicare Eligible Datasets

ACS Dataset

- **Cleaning**
  - Remove unwanted spaces and characters (e.g., “+”)
  - Census Tract ID to County ID (e.g., 08031004101)
- **Feature Engineering**
  - Categorize Attributes into Quantile Bins
    - Sum (or average depending on the attribute) by row per County ID
    - Find the percentage of occurrence for that attribute
    - Categorize frequency per attribute across the state for that county
  - Merge all ACS Subtables in one condensed ACS table

Medicare Eligible Dataset

- **Merging**
  - Merge to ACS Dataset by County Name
- **Feature Engineering**

Rate of Hospice Providers to Medicare Eligible Population (by County) $= \dfrac{\text{Count of Hospice Providers}}{\text{Count of Medicare Eligible}} \times 10{,}000$

Data Cleaning - NPI Registry Dataset

Data Collection

- Scraped hospice facility data from NPI Registry using the following filters:
  - NPI Type: Organization
  - Taxonomy Description: “Hospice”
  - State: Colorado

Address Processing

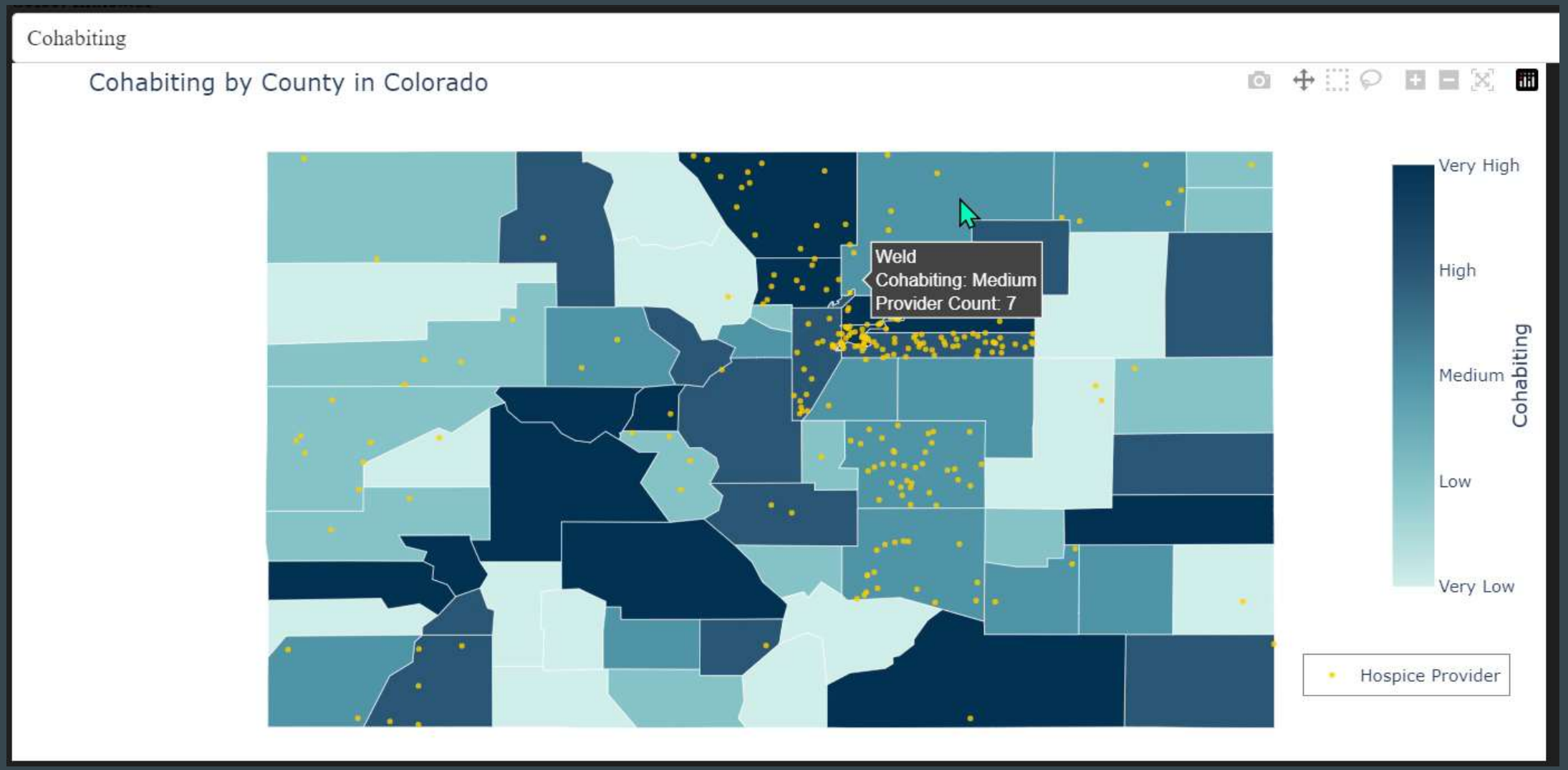
- Extracted 5-digit ZIP codes from facility addresses
- Removed duplicate facilities with the same name and address (to eliminate repeat listings with different NPIs)

Facility Matching to CMS Dataset

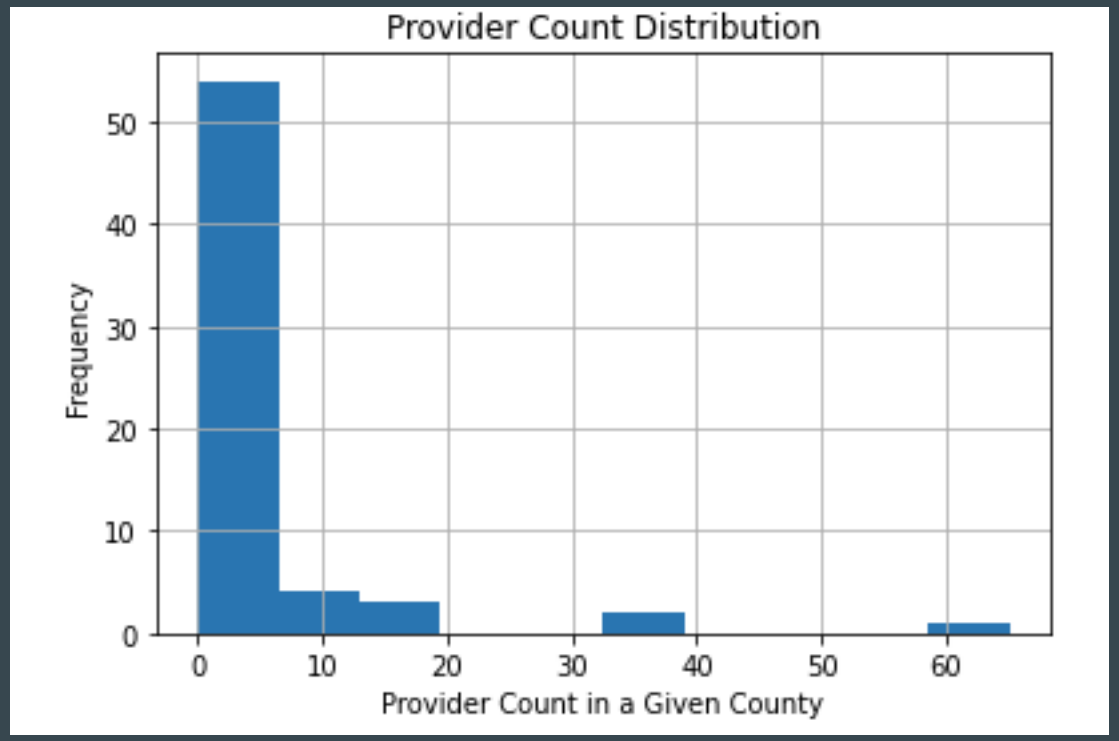
- Using “fuzzy matching”, matched NPI Registry facilities to CMS Hospice Facility data (84 total CMS facilities)
  Matching criteria:
  - Name similarity ≥ 90% (fuzzy match)
  - ZIP code match = 100%

Final matched facilities: 34 out of 270

Data Visualization - Hospice Facility Dashboard



Model Building



Because the distribution of providers is heavily skewed right, we decided to evaluate which attributes led to presence of or lack of hospice providers in a given county

Model Building - Best Model vs Dummy Model

Classification Accuracy: 0.7692307692307693

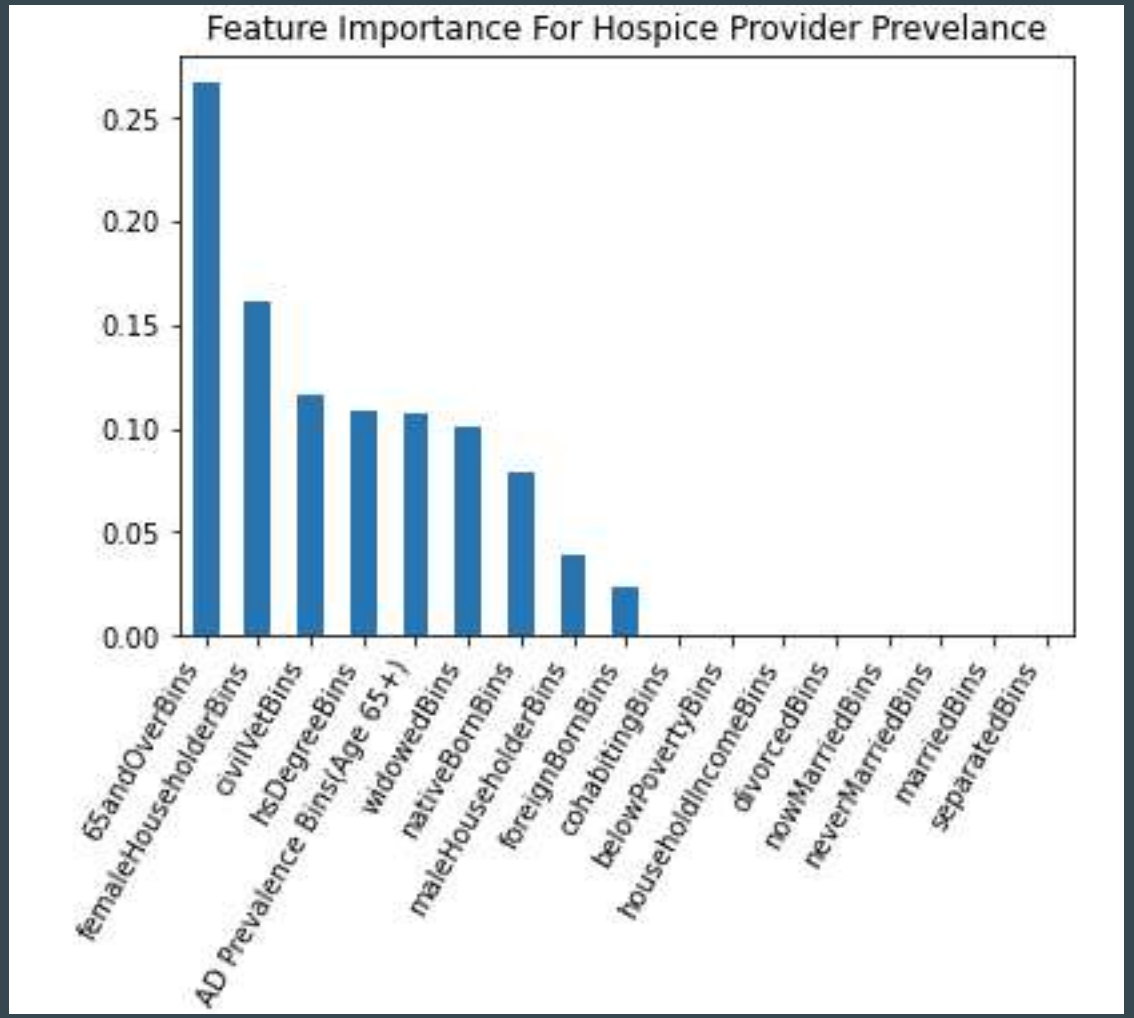
Classification Report:

	precision	recall	f1-score	support
0	0.80	0.67	0.73	6
1	0.75	0.86	0.80	7
accuracy			0.77	13
macro avg	0.78	0.76	0.76	13
weighted avg	0.77	0.77	0.77	13

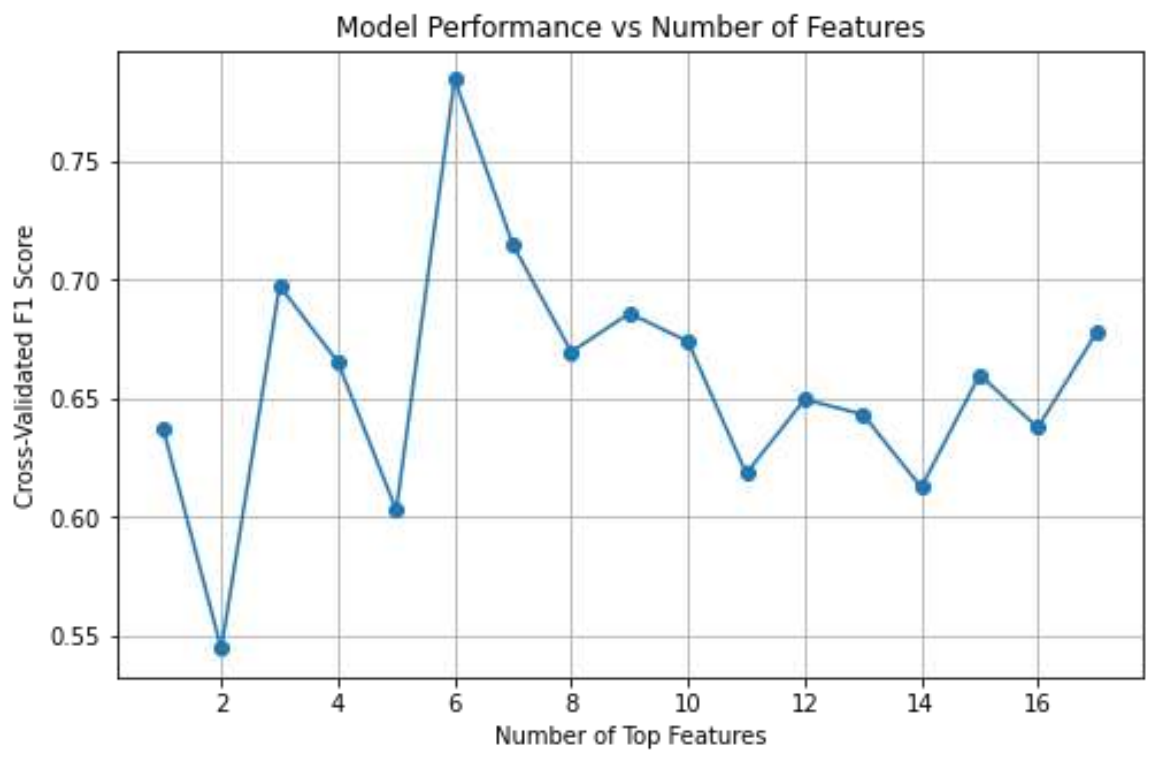
Dummy Accuracy: 0.5385

Dummy Classification Report:

	precision	recall	f1-score	support
0	0.00	0.00	0.00	6
1	0.54	1.00	0.70	7
accuracy			0.54	13
macro avg	0.27	0.50	0.35	13
weighted avg	0.29	0.54	0.38	13



Scoring to Find Gaps in Hospice Providers - Attributes



- Focused on top 6 feature attributes
- Slight decrease in performance, but simpler model

	precision	recall	f1-score	support
0	0.75	0.50	0.60	6
1	0.67	0.86	0.75	7
accuracy			0.69	13
macro avg	0.71	0.68	0.68	13
weighted avg	0.71	0.69	0.68	13

Scoring to Find Gaps in Hospice Providers - Results

County Name	Provider Count	65andOver Sum	65andOver Bins	femaleHouseholder Bins	civilVet Bins	hsDegree Bins	AD Prevalence Bins (Age 65+)	widowed Bins	Score
Delta County	1	8701	5	5	5	3	3	5	26
Huerfano County	0	2360	5	5	4	2	4	5	25
Hinsdale County	0	323	5	4	4	5	2	5	25
Las Animas County	1	3683	5	4	4	2	5	4	24
Sedgwick County	1	574	4	5	4	2	5	4	24
Costilla County	0	981	5	3	5	2	5	3	23
Kiowa County	0	294	4	5	1	3	5	5	23
Mineral County	0	237	5	1	5	5	2	5	23
Montrose County	2	10968	4	4	4	3	4	4	23
Otero County	3	3876	4	4	4	1	5	5	23

- Summed feature attributes
- Identified counties that were scored highly but didn't have any providers
- High score + low provider counties = potential gaps

Results

Delta County

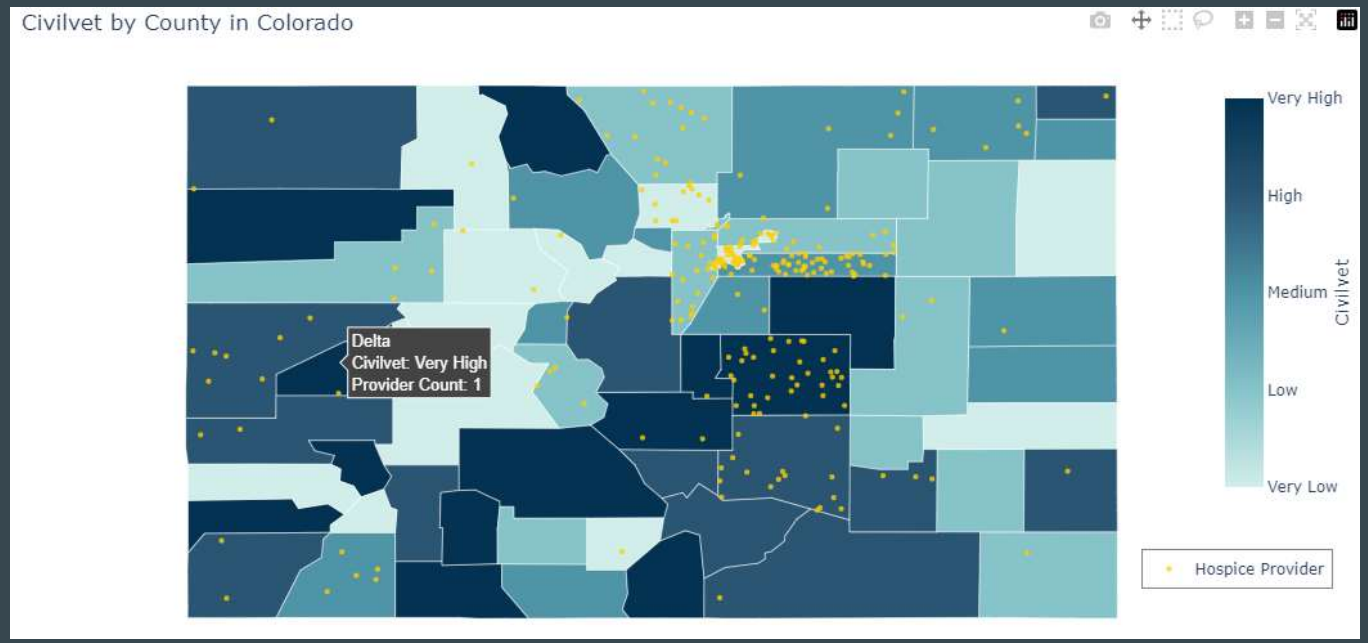
Total pop.: 54,381

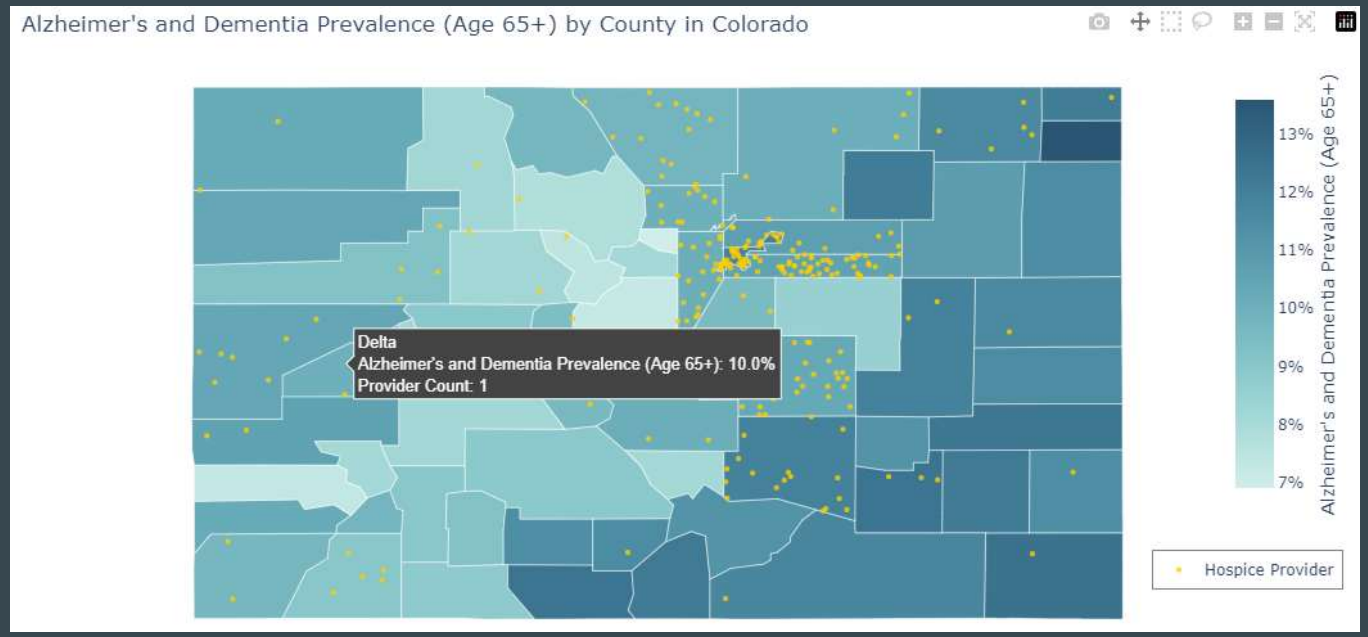
65+ pop: 8,701

Model Score: 26

Rate of Hospice Provider to Medicare Eligible pop: 1.05

- ❑ Hospice Provider Count: 1
- ❑ Pop. 65+: Very High
- ❑ Pop. Female Householders: Very High
- ❑ Pop. Civil Veterans: Very High
- ❑ Pop. with High School Degree: Medium
- ❑ Alzheimer's and Dementia Prevalence (Age 65+): 10% (Medium)
- ❑ Pop. of Widows: Very High





Results

Huerfano County

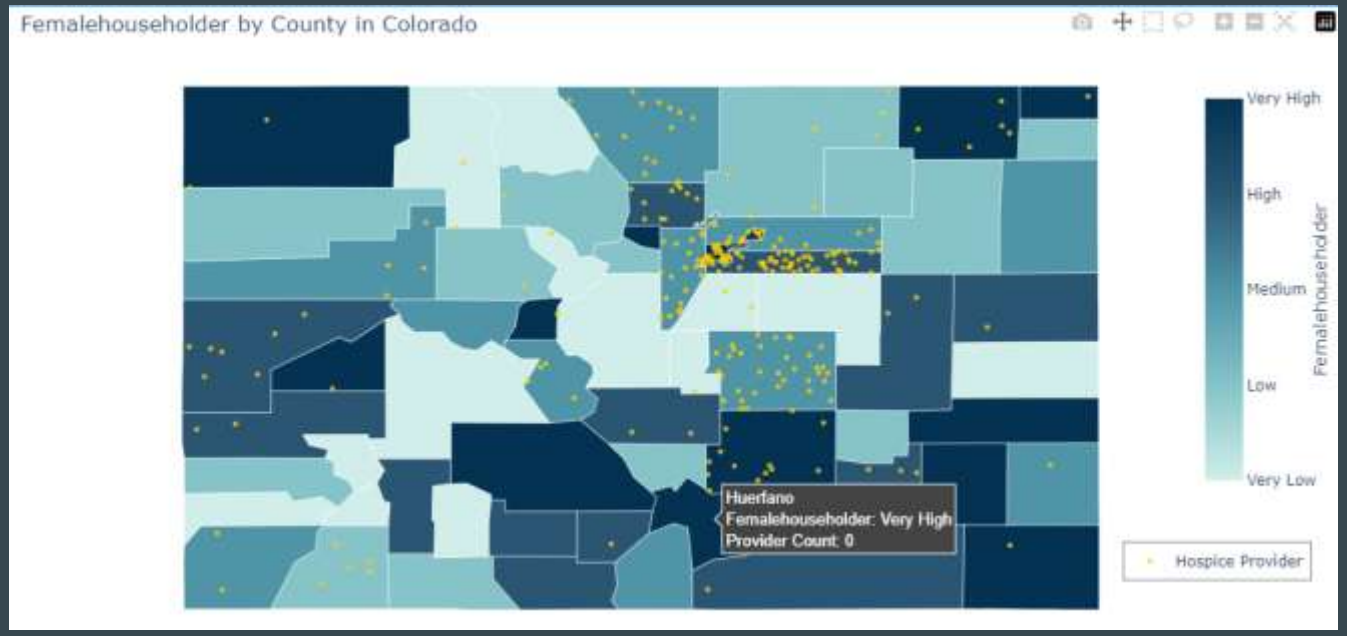
Total pop.: 7,055

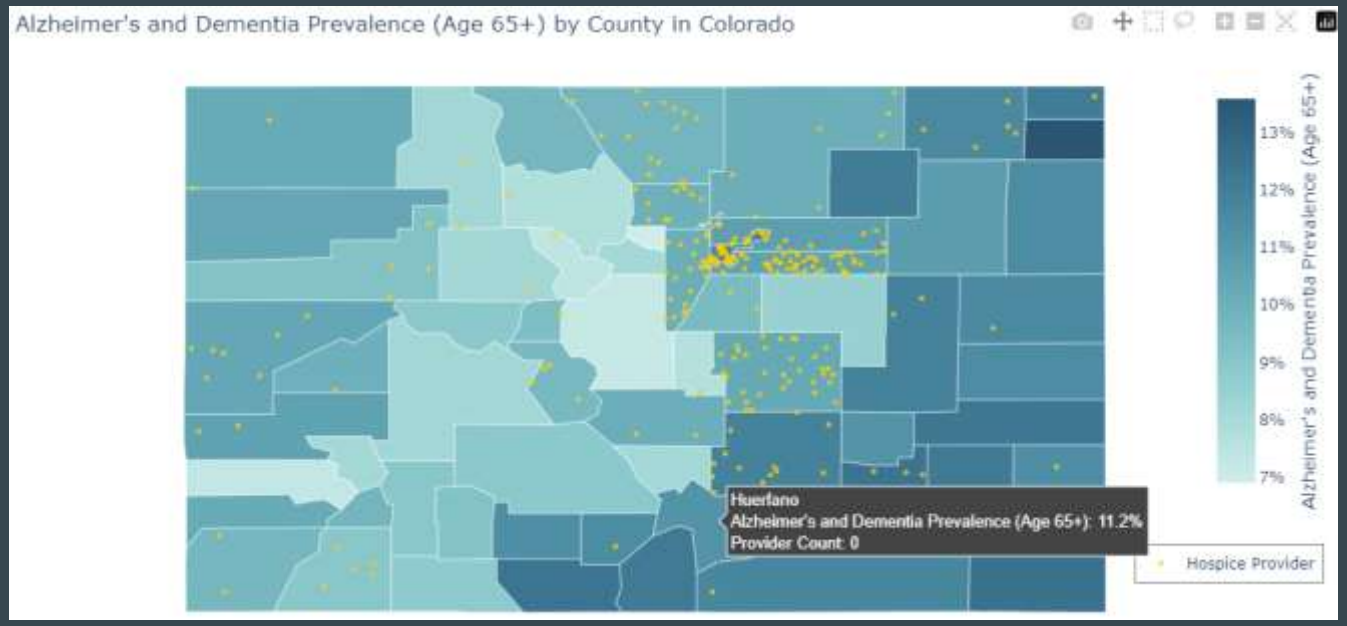
65+ pop: 2,360

Model Score: 25

Rate of Hospice Provider to Medicare Eligible pop: 0

- ❏ Hospice Provider Count: 0
- ❏ Pop. 65+: Very High
- ❏ Pop. Female Householders: Very High
- ❏ Pop. Civil Veterans: High
- ❏ Pop. with High School Degree: Low
- ❏ Alzheimer's and Dementia Prevalence (Age 65+): 11.2% (High)
- ❏ Pop. of Widows: Very High





Results

El Paso County

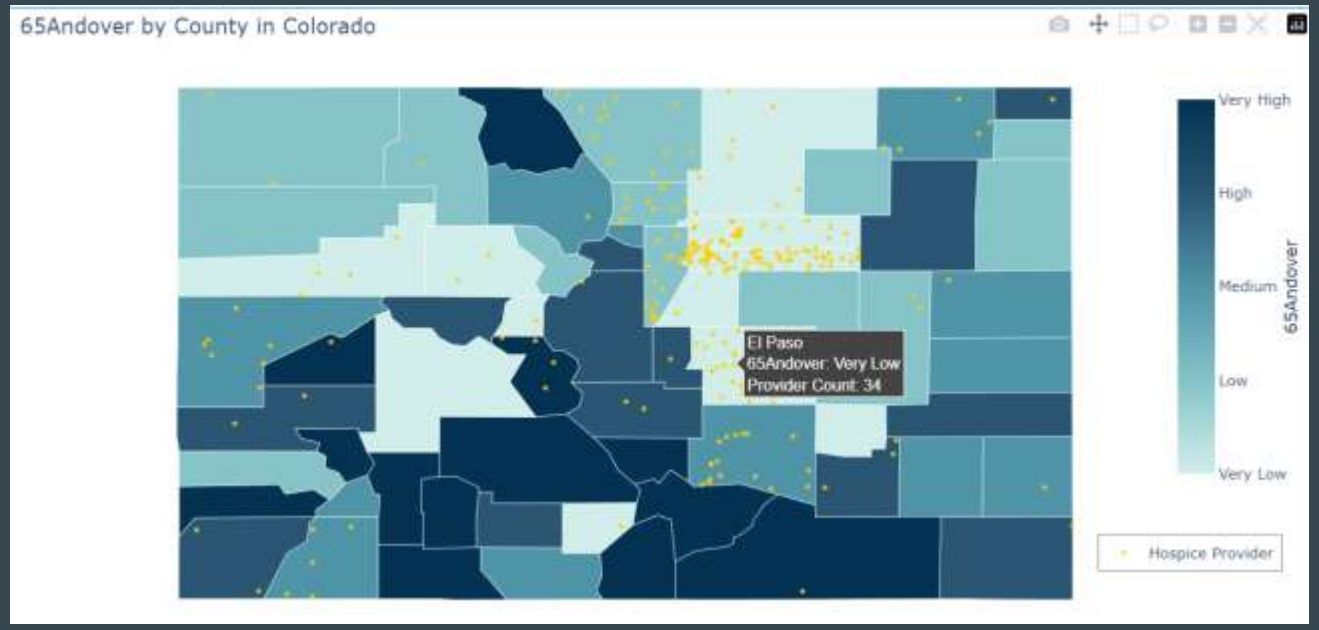
Total pop. 730,000+

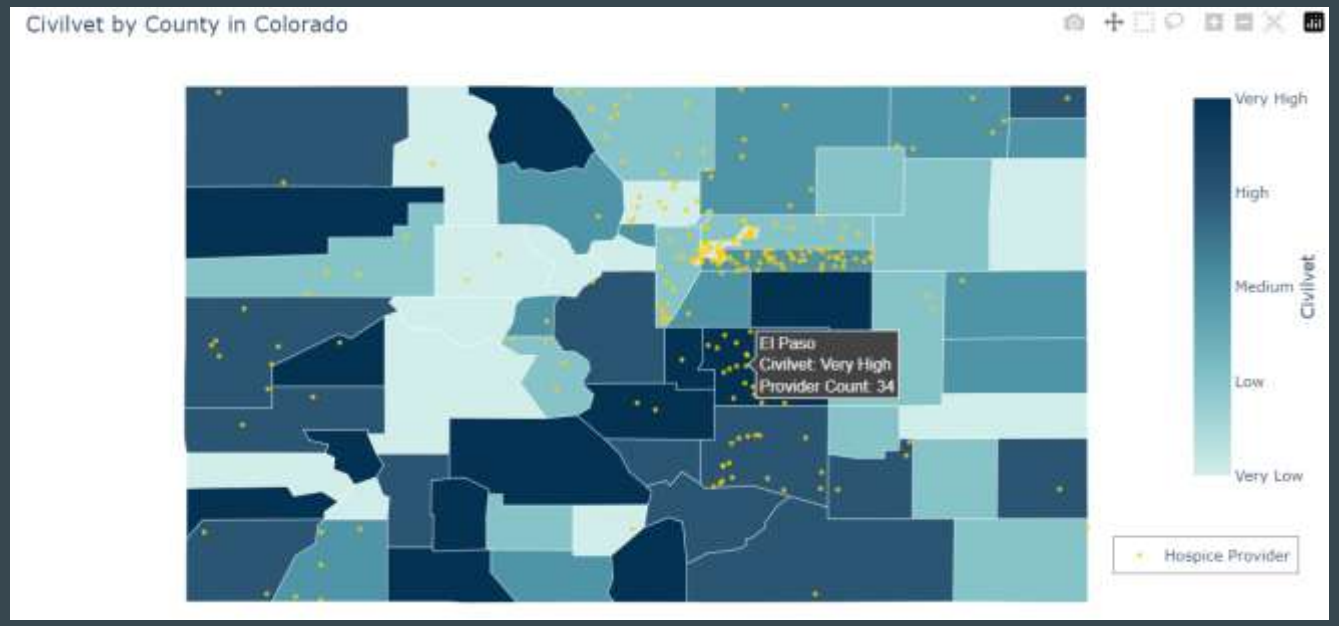
65+ pop: 100,642

Model Score: 18

Rate of Hospice Provider to Medicare Eligible pop: 3.29

- ❑ Hospice Provider Count: 34
- ❑ Pop. 65+: Very Low
- ❑ Pop. Female Householders: Medium
- ❑ Pop. Civil Veterans: Very High
- ❑ Pop. with High School Degree: High
- ❑ Alzheimer's and Dementia Prevalence (Age 65+): 10.3%
- ❑ Pop. of Widows: Low





Future Work

- **Integrate additional datasets:**
  - Race and ethnicity
  - Include other Medical Conditions:
    - Cancer
    - Stroke
    - Heart disease
    - Respiratory disease
  - Additional hospice facility datasets
  - Additional states
  - Palliative Care
  - Facility-level patient census data
  - At home hospice care
- **Develop a weighted hospice facility score based on the most important features**
- **Improve hospice facility matching rate**

Questions and Feeback

Reach out to our presenters:

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