

Health Equity Analysis

April 20, 2023





CENTER FOR IMPROVING



Housekeeping

- All lines are muted
- Please ask questions in the Chat box
- Webinar is being recorded
- Slides and a link to the recording will be posted on the Event Resources page on <u>civhc.org</u>



Presenters



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Agenda – Health Equity in Colorado

- Background
- Learn how to use the Health Equity Analysis tool
- Early insights from findings
 - Statewide, Denver County, Urban vs. Rural
- Questions?



Our Mission

We strive to empower individuals, communities, and organizations through collaborative support services and health care information to advance the Triple Aim: Better Health, Better Care, Lower Cost

We are:

- Non-profit
- Independent
- Objective



Who We Serve

Change Agents

Individuals, communities, or organizations working to lower costs, improve care, and make Colorado healthier.



What's IN the CO APCD?



870+ Million Claims (2013-2021)



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



Nearly 70% of Covered Lives (medical only)*



Trend information 2013-Present

*Reflects 2021 calendar year only

What's NOT In the CO APCD



Federal Programs – VA, Tricare, Indian Health Services

Majority of ERISA-based self-insured employers



Uninsured and self-pay claims

Supplemental Info (incomplete)

How we inform



Public CO APCD Data

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



Non-Public CO APCD Data

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

What are Social Determinants of Health & Why are they Important?

"Nonmedical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies, racism, climate change, and political systems".

- <u>Centers for Disease Control and Prevention</u>

Up to 80% of a person's health is related to social factors out of their control.

(https://pubmed.ncbi.nlm.nih.gov/26526164/)

Background – Health Equity Analysis

- Question: How are social factors related to health care use?
- Created to show the relationships between key social factors and the access, use, and quality of health care services in Colorado communities.
- Supports policymakers, public health professionals, communities and other decision-makers can identify opportunities to address health inequities.



HEALTH EQUITY ANALYSIS: available at civhc.org Impact of Social Determinants on Health Care



Health Care Measures & Social Determinants of Health (SDoH)



For the selected SDoH and Health Care Measures, lower values are better





What's Included? Social Factors

*Measures are sourced from the American Community Survey and the CDC Social Vulnerability Index



Income: % Below Poverty Line



• Education: % Without High School Diploma



• Employment: Percent Unemployed



• Housing/Transportation: Crowded Housing and/or With No Vehicle (percentile ranking)



What's Included? Health Care Measures

- Lack of Access to Care: Children and Adolescents
- Lack of Access to Care: Adults



• Quality: No Follow-up after ED Visit for Mental Health (within 30 days)



- Cost: Cost of Care (Per Person Per Year)
- Utilization: All ED Visits
- Utilization: Potentially Preventable ED Visits

*Measures generated by CIVHC from the CO All Payer Claims Database

Health Equity Analysis Demo

civhc.org > Get Data> Public Data> Focus Areas >Health Equity Analysis



Statewide Insights

and Findings

Were strongly related to higher potentially preventable Emergency Department visits.

Social factors in this analysis:



Were strongly related to adults not receiving preventive health care.



Did not impact children and adolescents receiving preventive health care.



Did not impact total cost of health care services.



Were moderately to weakly related to follow-up care after visiting the ED for a mental health need.



Statewide Findings and Insights





RURAL vs. URBAN Insights and Findings

In Urban neighborhoods, all social factors in this analysis were strongly related to higher potentially preventable Emergency Department visits. However, in Rural neighborhoods only income and education were strongly correlated to higher potentially

preventable Emergency Department visits.

In Rural neighborhoods, only income was strongly related to adults not receiving preventive health care as opposed to Urban neighborhoods where all social factors except employment were strongly related.

Denver County Insights and Findings

In neighborhoods with **lower incomes**, more people use the ED for potentially preventable needs.





Denver County Insights and Findings

In neighborhoods with **more diverse populations**, fewer adults access preventive care.



GLO	BEVILLE NEIGHBORHOOD		
ពុំពុំព័	15,349 (population 2022)		
00	Most Diverse		~
(<u>t</u>)	57% of adults did not receive preventive care		NEARE
SLC	AN'S LAKE NEIGHBORHOOD		
ពុំពុំព	8,211 (population 2022)		
88	Least Diverse	ERINO	
(<u>t</u>)	27% of adults did not receive preventive care	BORDI	
WE	ST COLFAX NEIGHBORHOOD		
ពុំក្តុំកំ	33,853 (population 2022)		
00	Most Diverse		
\$!	47% of adults did not receive preventive care		
CEN	TRAL PARK NEIGHBORHOOD		
ດໍດີດິ	30,000 (population 2022)		
00 Ø0	Less Diverse		
(±2)	23% of adults did not receive preventive care		

About Human Service Research Institute (HSRI)

- HSRI is a mission-driven, non-profit organization.
- For over 45 years, HSRI has partnered with government leaders, payers, providers, data organizations, and people who use health and human services to improve those services and systems.
- HSRI's Population Health Team builds data systems to collect, analyze, and report health care data to improve the quality of health information available for research, policy, and practice.
- We have partnered with CIVHC for the past seven years, transforming the Colorado APCD into a high-quality data source.



Rural vs Urban Insights and Findings



 Denotes strong or moderate negative correlations.

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Urban

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Health Care Measures	Income	Education	Employment	Housing/ Transportation	Race/Ethnicity/ Language
Access to Care: Children & Adolescents	•	•	٠	•	•
Access to Care: Adults	•	•	•	•	•
Follow-Up After ED Visit for Mental Health	•	•	٠	•	•
Cost of Care per Person per Year	•	•-	•	•	•
Potentially Preventable ED Visits	•	•	•	•	•

Rural



Rural vs Urban Insights and Findings Access to Care in Children and Adolescents

...



 Denotes strong or moderate negative correlations.

Urban

Health Care Measures	Income	Education	Employment	Housing/ Transportation	Race/Ethnicity/ Language	
Access to Care: Children & Adolescents	•	•	۲			
Access to Care: Adults				•	•	
Follow-Up After ED Visit for Mental Health	•	•	•	•		
Cost of Care per Person per Year		•-		•	•-	
Potentially Preventable ED Visits	•		•			

Rural

Health Care Measures	Income	Education	Employment	Housing/ Transportation	Race/Ethnicity/ Language	
Access to Care: Children & Adolescents	•	٠	•		•-	
Access to Care: Adults	•		•	•	•	
Follow-Up After ED Visit for Mental Health	•		•	•		
Cost of Care per Person per Year	•-	•	•			
Potentially Preventable ED Visits	•	•		•	•	



Rural vs Urban Insights and Findings Follow-Up after ED visit for Mental Health



 Denotes strong or moderate negative correlations.

Health Care Measures	Income	Education	Employment	Housing/ Transportation	Race/Ethnicity/ Language	Health Care Measures	Income	Education	Employment	Housing/ Transportation	Race/Ethnicit Language
Access to Care: Children & Adolescents		•	•	•	•	Access to Care: Children & Adolescents	•		•	•	•
Access to Care: Adults		•	•	•	•	Access to Care: Adults	•	•	٠	•	•
Follow-Up After ED Visit for Mental Health	•	•		•		Follow-Up After ED Visit for Mental Health	•	•			
Cost of Care per Person per Year	•	•-	•	•	•-	Cost of Care per Person per Year	•-	•	•		
Potentially Preventable ED Visits	•	•		•		Potentially Preventable ED Visits	•	•	•	•	•

Rural

Urban

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Rural vs Urban Insights and Findings Income and Cost of Care



 Denotes strong or moderate negative correlations.

Health Care Measures	Income	Education	Employment	Housing/ Transportation	Race/Ethnicity/ Language	Health Care Measures	Income	Education	Employment	Housing/ Transportation	Race/Ethnicity/ Language
Access to Care: Children & Adolescents	•	•	•	•	•	Access to Care: Children & Adolescents	•				•-
Access to Care: Adults		•	•	•	•	Access to Care: Adults	•	•	•	•	•
Follow-Up After ED Visit for Mental Health	•	•	•	•	•	Follow-Up After ED Visit for Mental Health		•	٠	•	•
Cost of Care per Person per Year		•-	•	٠	•-	Cost of Care per Person per Year	0-			•	
Potentially Preventable ED Visits	•		•			Potentially Preventable ED Visits	•		•		•

Rural

Urban

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Statistics Break: Notes on Pearson Correlation

Correlation ≠ Causation

- Though two things are strongly related, they may not have a causeand-effect relationship.
- For example,* ice cream shop sales by month are very strongly correlated with shark attacks by month (r=0.96).
- This does not mean that ice cream shop sales cause shark attacks, or that shark attacks cause ice cream shop sales.



Statistics Break: Notes on Pearson Correlation Coefficients

Correlation *≠* **Causation**

- If the relationship is not cause-and-effect, what is a possible explanation?
- The more likely explanation is that temperature affects ice cream sales and shark attacks in the same way.
 - Temperature is a **confounder**.
- Correlation **can** indicate causation, but you should not assume this.
 - Consider the **context** of your results.



Using Correlation Coefficients

It is important to consider the **context** of your data when interpreting any statistics, but especially correlation coefficients.

If we cannot assume that correlation is equal to causation, how could we use correlation coefficients?

Correlation coefficients are useful hypothesis generators.

Once a likely hypothesis is generated for a relationship of interest, we can:

Develop experiments.

Develop further statistical models to explore the relationship. Develop public health or policy interventions that could address the root cause of a problem.

Using Correlation Coefficients: Example

- Let's say you are a public health worker in a rural county. You are interested in access to care for children.
- In urban census tracts, higher Race/Ethnicity/Language (REL) diversity* is weakly related to lower access to care in children and adolescents, but in rural census tracts, higher REL diversity* is moderately related to higher access to care in children and adolescents.
- You hypothesize that poverty** is related to this difference.
 - Could rural census tracts that are diverse have less poverty, but urban census tracts that are diverse have more poverty?
 - Which somehow modifies the relationship between diversity and access to care in children?



* Defined as higher percentile ranking of the Race/Ethnicity/Language measure in the Social Vulnerability Index
** Defined as percent of the population below the poverty line.

Using Correlation Coefficients: Example Use Case

- You hypothesize that poverty is related to this finding.
- After further investigation, the hypothesis is not likely.
 - Poverty is not related or only weakly related to access to care in children and adolescents in urban and rural census tracts (r=0.18; r=-0.04 respectively).
 - After looking at the income/poverty of highly diverse counties in urban census tracts and rural census tracts, you find that income/poverty does not differ between the two.









Questions and Feedback



Reach out to info@civhc.org

Connect with CIVHC on Facebook, LinkedIN, and Twitter



Recording will be posted here: <u>www.civhc.org/about-civhc/news-and-events/event-resources/</u>