

# Using data to transform community and clinical practice: Better integrated mental and physical healthcare

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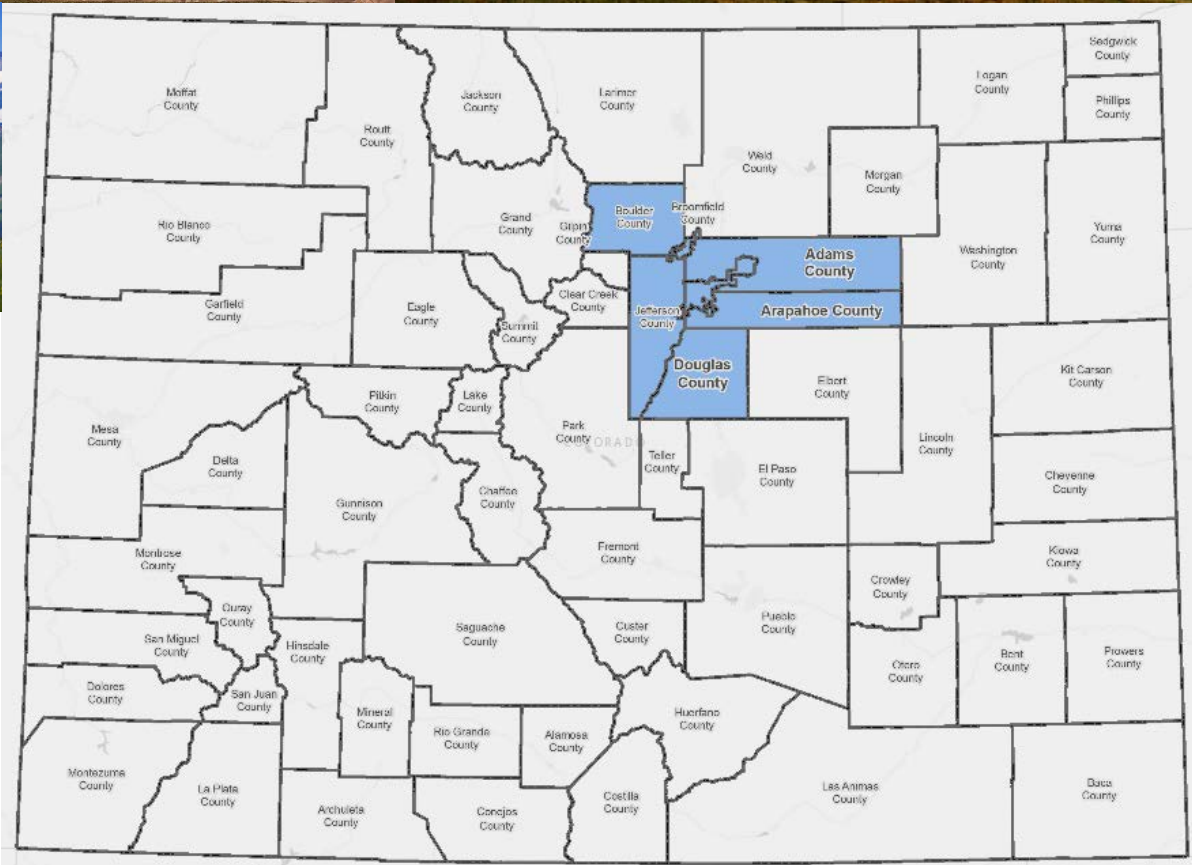
Alyson Shupe, PhD, MSW  
Informatics, Epidemiology, and Health Planning Manager  
Tri-County Health Department

“the tendency of unrelated animals and plants to evolve superficially similar characteristics under similar environmental conditions”



# CONVERGENCE

“the act of converging and especially moving toward union or uniformity”



**Metro Denver Region**  
 Is made up of 7 counties (Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson). The region is ~3,000,000 people consisting of urban, suburban, and rural environments.

**Metro Denver Partnership for Health**



# Prioritizing Mental/Behavioral Health

- Metro Denver Partnership for Health (MDPH)
  - Tri-County Health Department, Boulder County Public Health, Broomfield City/County Department of Health and Human Services, Denver Public Health, Jefferson County Public Health
  - Identified mental health as a priority
- Local Public Health: Public Health Improvement Plans
  - 3 of 5 LHDs in Partnership prioritized mental/behavioral health
- Community Benefit (tax-exempt hospitals): Community Health Needs Assessment
  - Nearly all prioritized mental/behavioral health (25 hospitals)
- State Innovation Model Grant

# SIM: State Innovation Model

- SIM is an initiative of the Center for Medicare & Medicaid Innovation
- Colorado was awarded a \$65 million implementation grant to strengthen Colorado's Triple AIM strategy

Vision: To create a coordinated, accountable system of care that will provide Coloradans access to **integrated primary care and behavioral health** in the setting of the patient's medical home.

# Local SIM Grant

## MDPH Public Health Behavioral Collaboration Goals:

- Reduce stigma of behavioral health issues and increase openness to behavioral health care help-seeking attitudes and behaviors in low-income populations
- Increase access to screening and treatment for behavioral health issues for low-income populations through coordination of systems that improve integration of behavioral health services and primary care

# MDPH Infrastructure Work Group

## **Compiled mental health indicators from:**

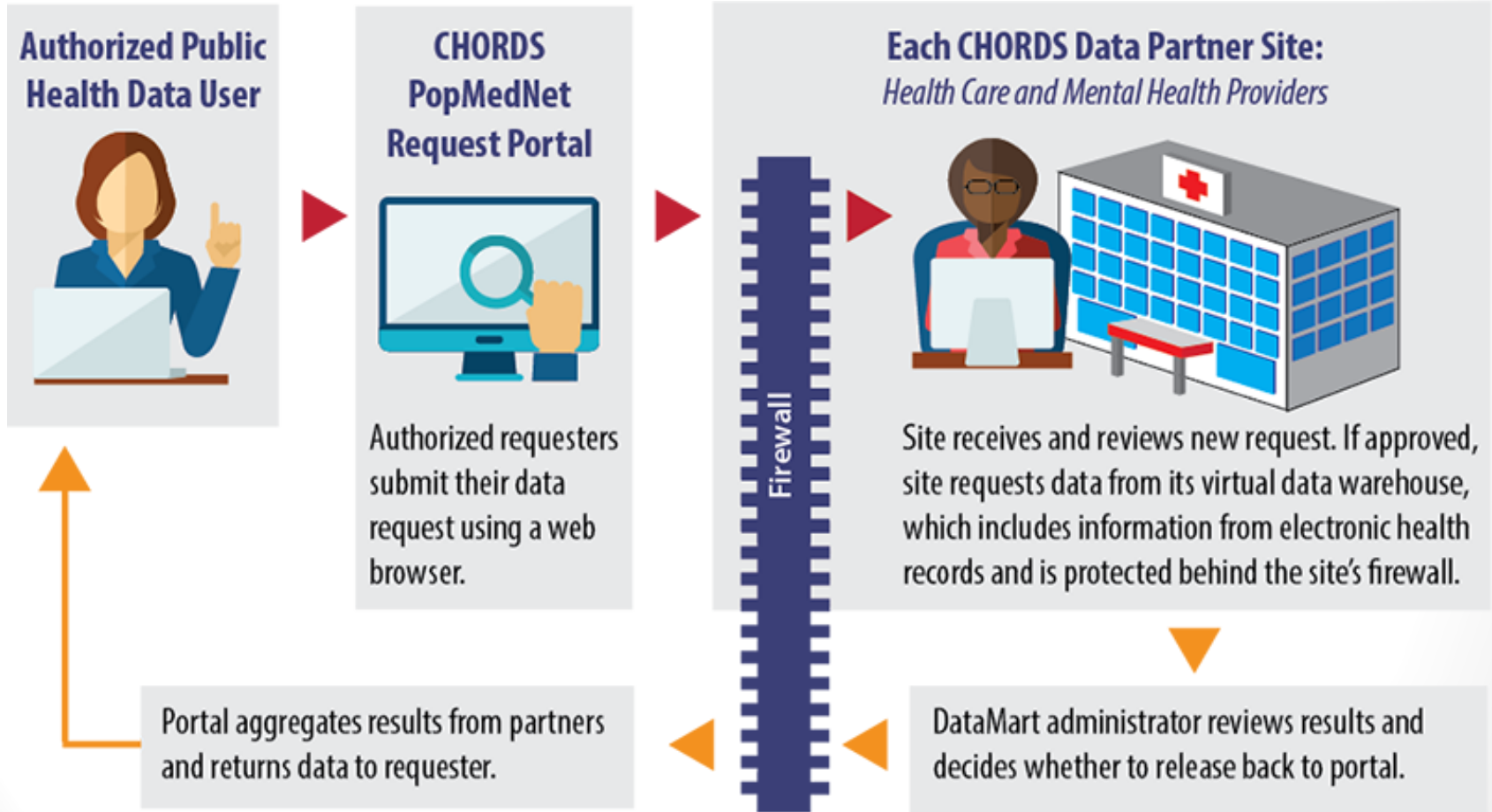
- Behavioral Risk Factor Surveillance System
- Pregnancy Risk Assessment Monitoring System
- Healthy Kids Colorado Survey (YRBS)
- Colorado Child Health Survey
- Colorado Healthcare Access Survey
- Colorado Hospital Discharge Data
- Vital Statistics
- American Community Survey

# Colorado Health Observation Regional Data Service (CHORDS)

- Distributed data network
- Retrieves data from each participating healthcare system's EHR
- Allows questions to be asked
- Permits population-based monitoring and evaluation
- Measures change in priority health outcomes
- Integrates clinical, demographic, and/or place-based data



# CHORDS—Federated Query Model



# CHORDS (Current) Data Contributors



## Health Systems

- Children's Hospital Colorado
  - Denver Health
- Kaiser Permanente Colorado



## Mental Health Centers

- Mental Health Center of Denver
- Jefferson Center for Mental Health



## Safety Net Providers

- Clinica Family Health
- Colorado Alliance for Health Equity and Practice
  - Colorado Coalition for the Homeless
  - High Plains Community Health Center
  - Metro Community Providers Network
    - Salud Family Health Centers
    - Clinica Tepeyac

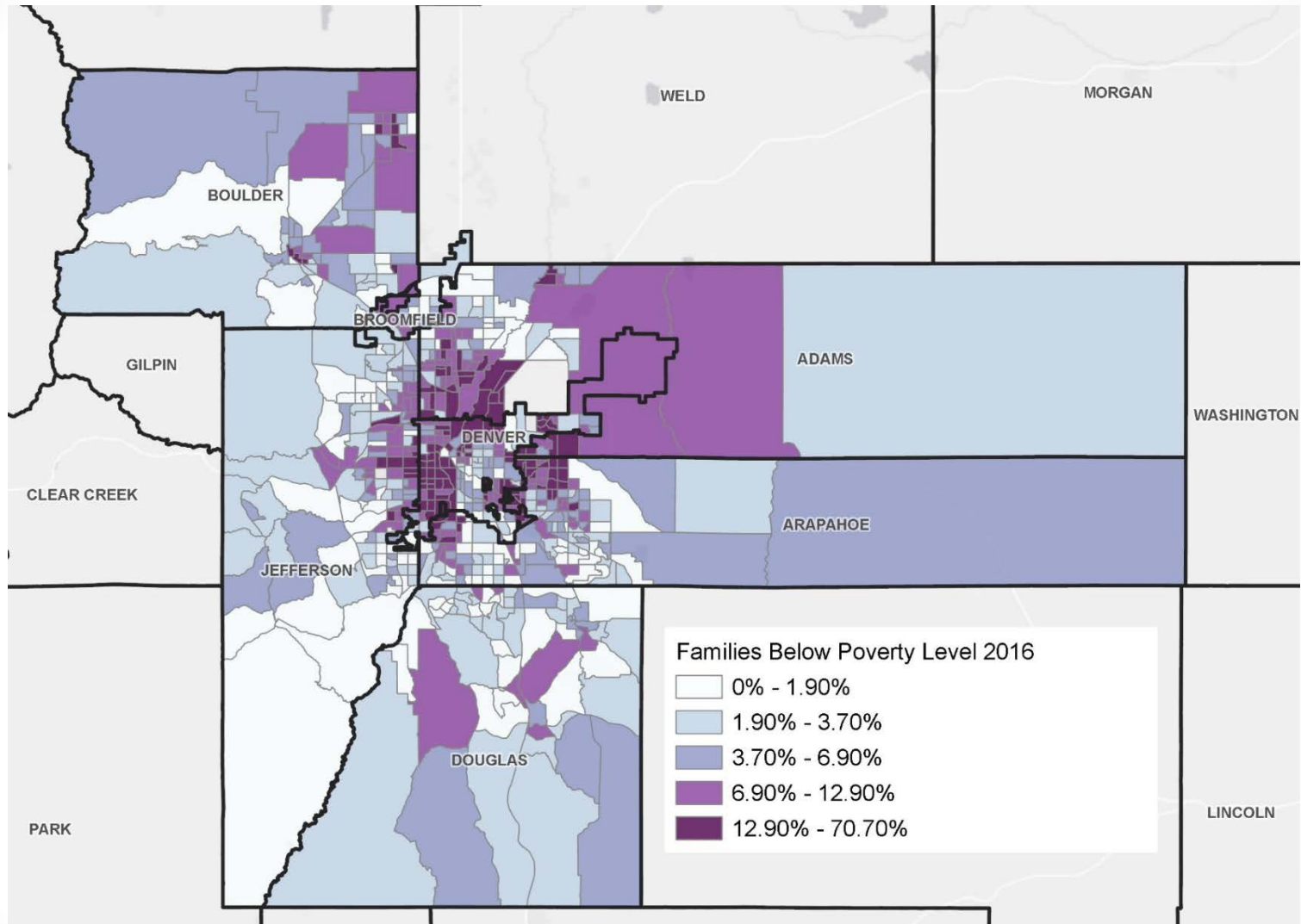
# The CHORDS Data Model

- **Diagnoses** (ICD-9 and 10 codes)
- **Encounters**
- **Health Behaviors** (e.g., tobacco, alcohol, and/or drug use)
- **Laboratory Results** (e.g., test type, date of test and result)
- **Patient Demographics** (e.g., age, gender, race)
- **Patient Residence and Community Factors** (e.g., census tract of residence, American Community Survey measured level of poverty and education)
- **Pharmacy** (e.g., outpatient pharmacy medication dispenses)
- **Prescribing** (e.g. written prescriptions; rxnorm; prescribing md, quantity, refills)
- **Procedures**
- **Vital Signs**

# Health Topics from CHORDS

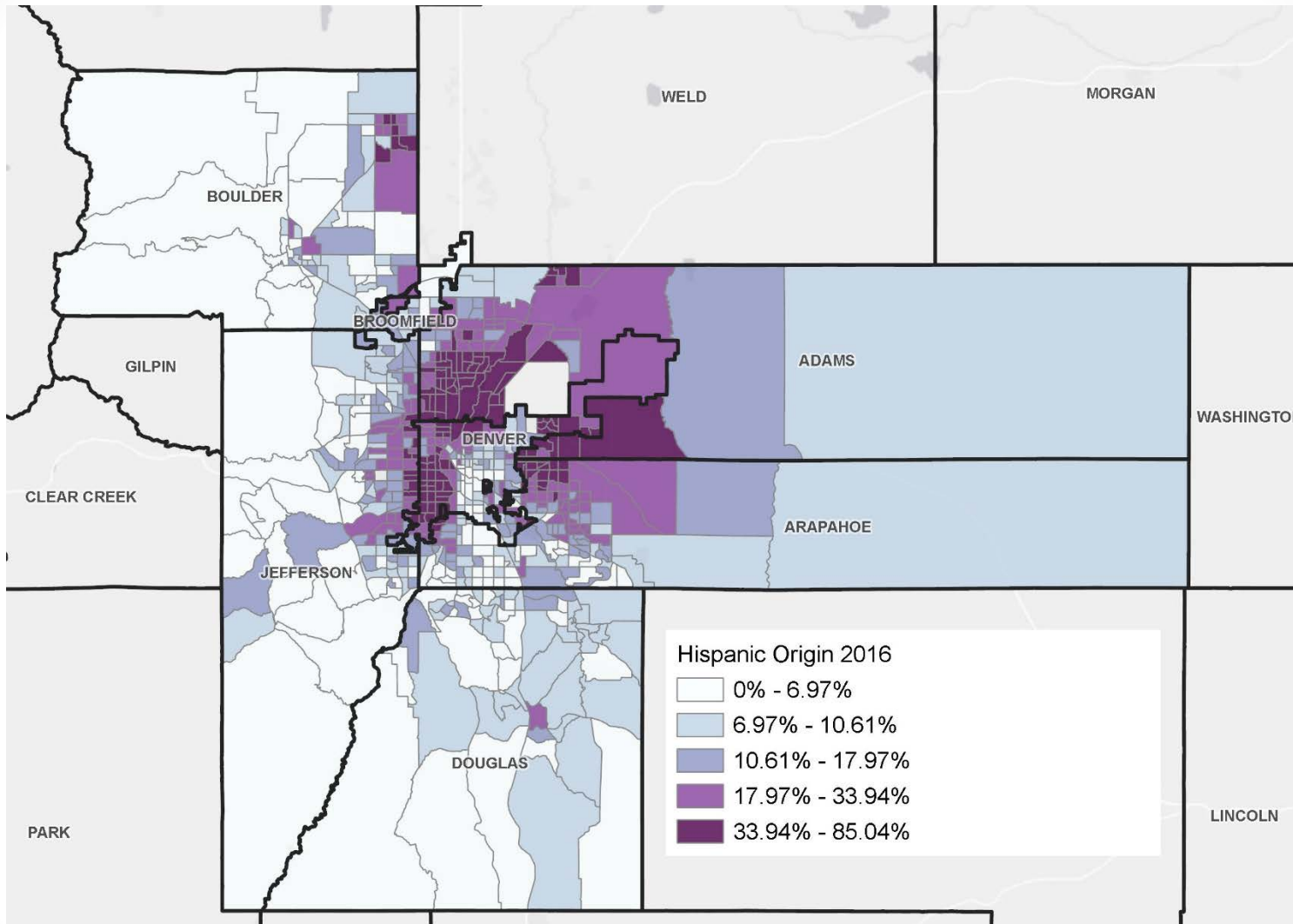
Health Topic	Example Indicators
Healthy Weight	% of children and adults obese
Tobacco Use and Exposure	% of adults using tobacco % of children exposed to second hand smoke
Cardiovascular Disease Risk	% of adults with hypertension % controlled % on lipid Rx
Mental Health	% of adults with diagnosed depression
Substance Use	% of adults with opioid use disorder % of adults who use Cannabis

# Percent Families Below Poverty, 2016



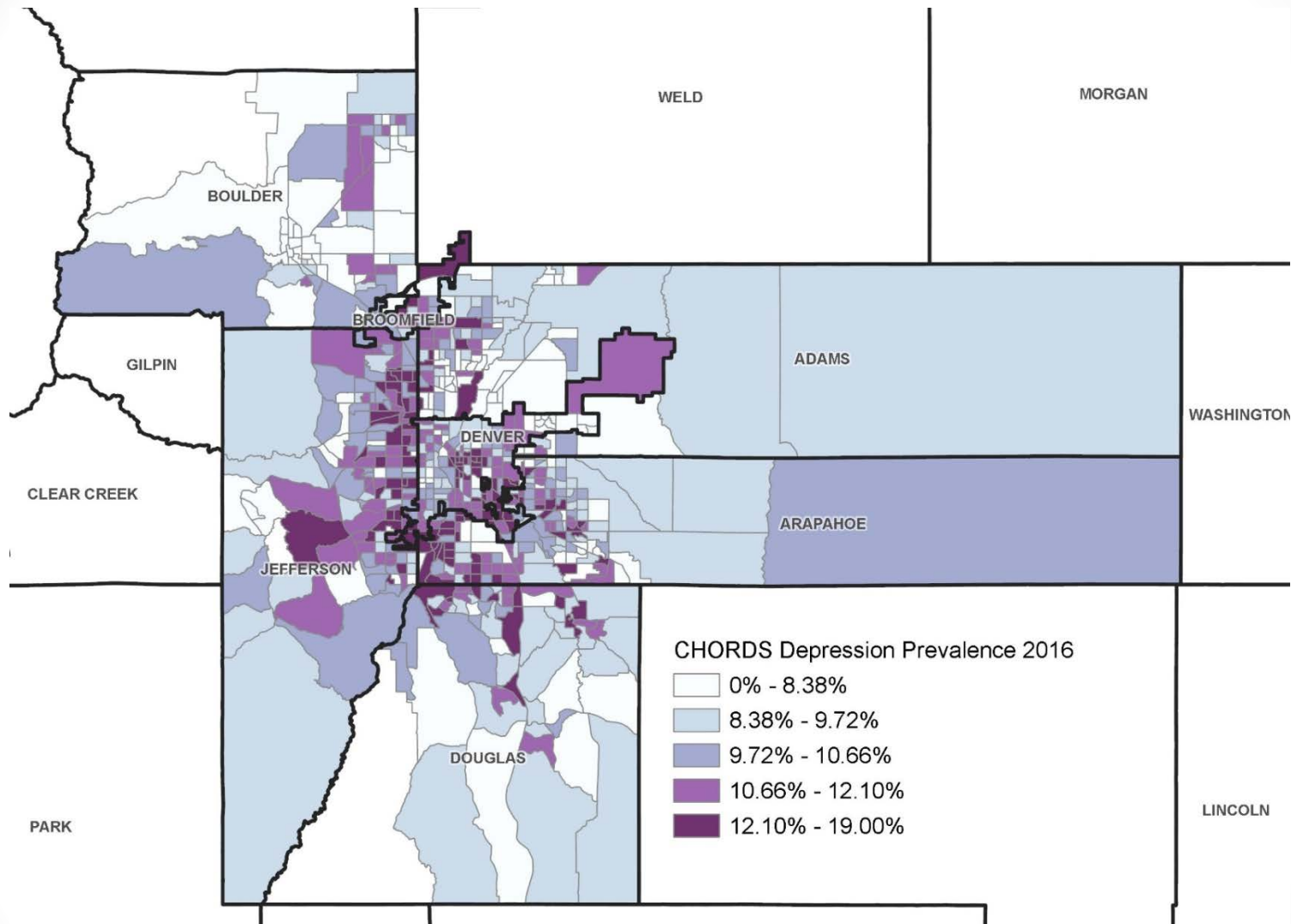
U.S. Census American Community Survey 5-Year Estimates, 2016

# Percent of Population Hispanic, 2016



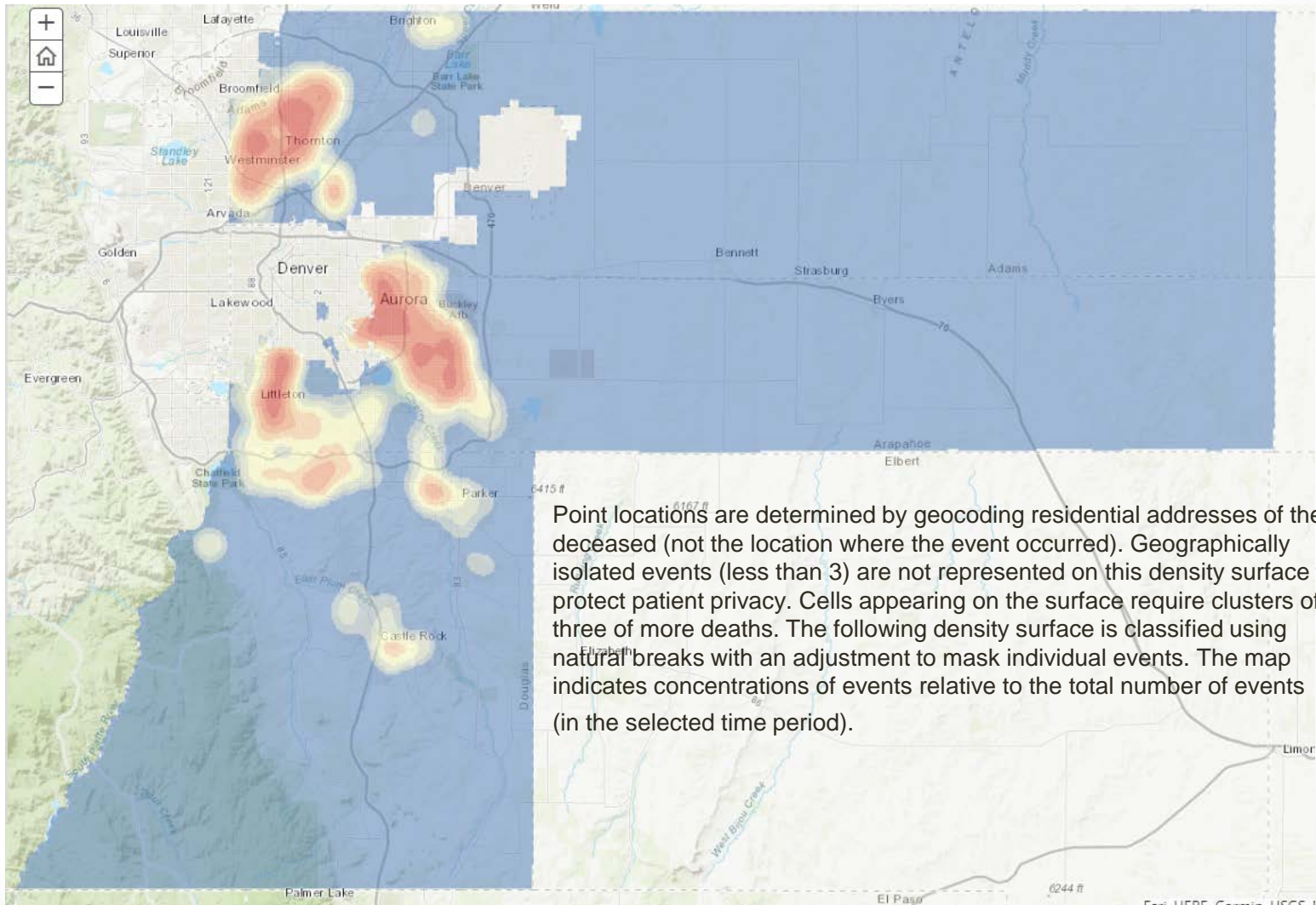
U.S. Census American Community Survey 5-Year Estimates, 2016

# Depression Prevalence, 2016



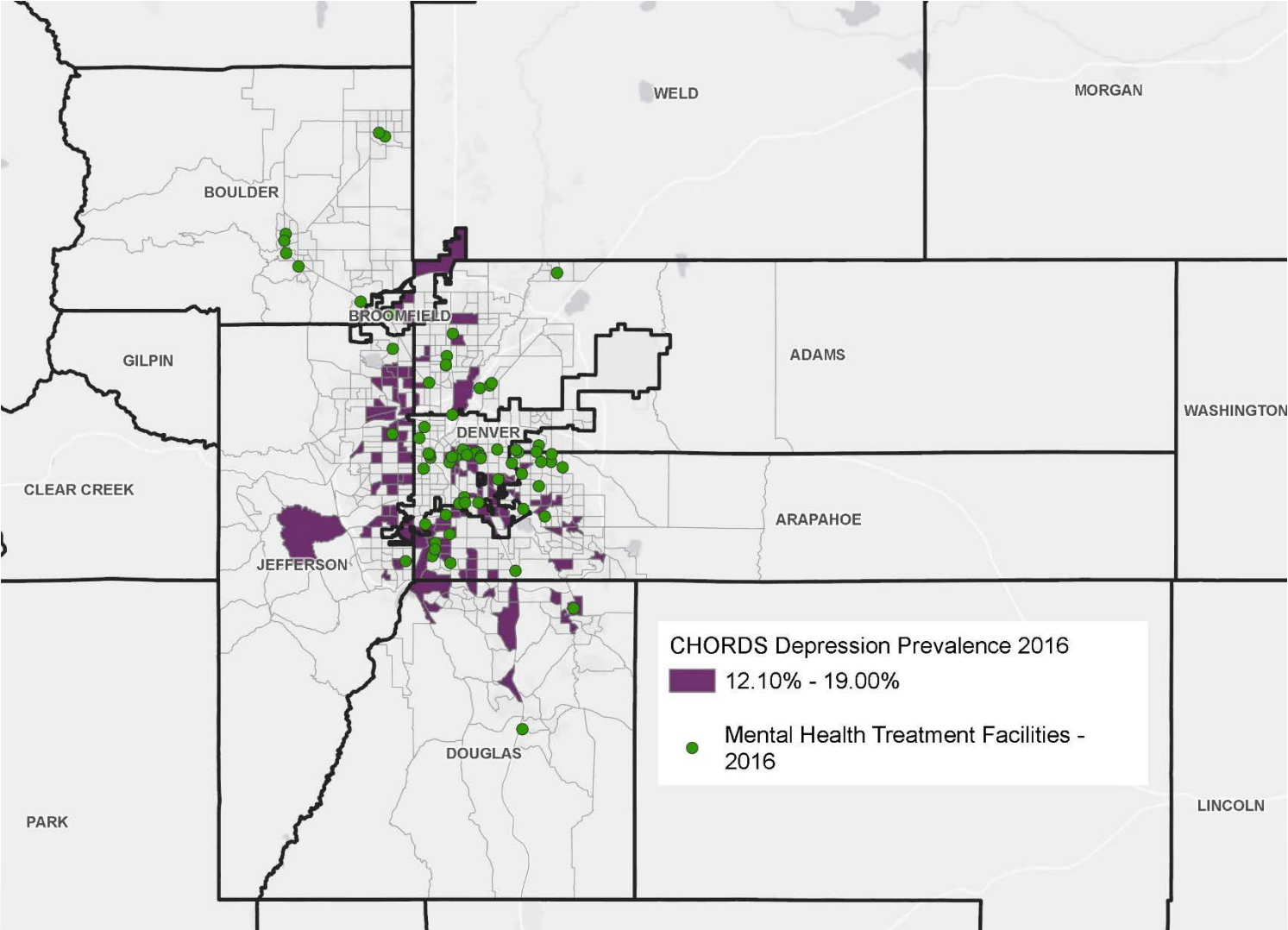
Colorado Health Observation Regional Data Service 2016

# Suicide Mortality, 2010-2015, Adams, Arapahoe, Douglas Counties, Colorado

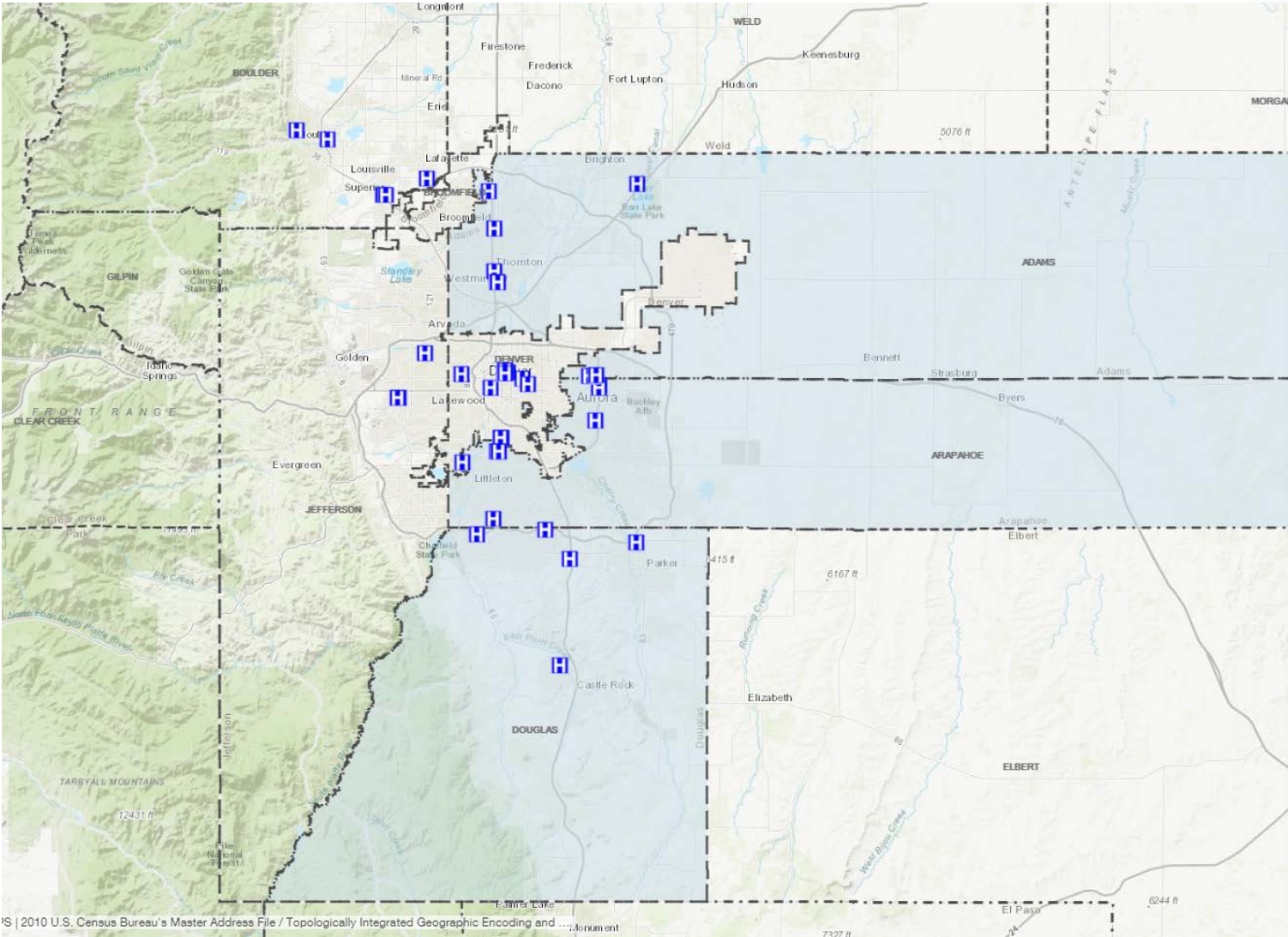




# Top Quintile Depression Prevalence and Mental Health Treatment Facilities, 2016



# Denver Metro Area Hospitals, 2016

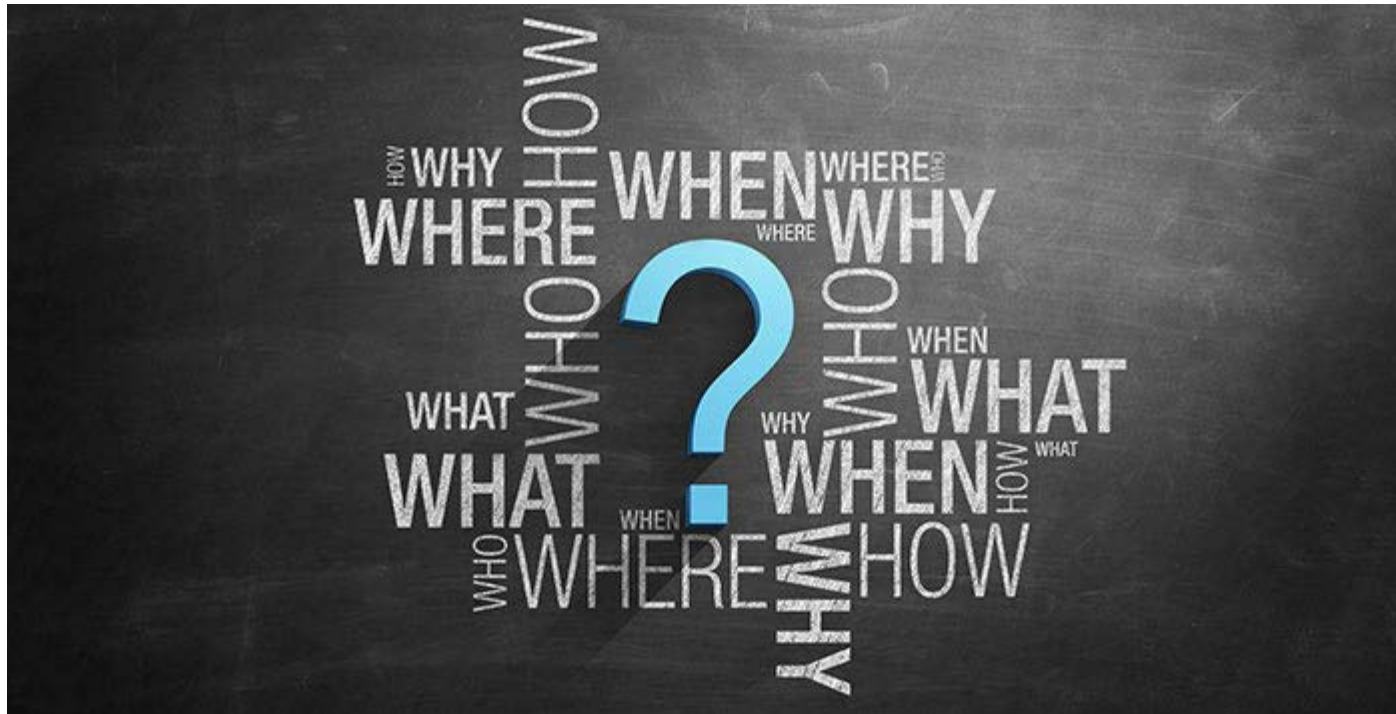


© 2010 U.S. Census Bureau's Master Address File / Topologically Integrated Geographic Encoding and ...

# Uses

- Share with community providers, health systems and hospitals to demonstrate mental health needs using data from health care providers
- Introduce community context (social determinants of health) into the conversation
- Show potential for using data to outreach to clients most at risk

# Questions?



*data.tchd.org*

Alyson Shupe | [ashupe@tchd.org](mailto:ashupe@tchd.org)

# Acknowledgements

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- Co-Authors:
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## Colorado Health Observation Regional Data Service

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*The Colorado Health Observation Regional Data Service (CHORDS) is a seven-county regional network in the Denver metro area that uses electronic health record data to support public health evaluation and monitoring efforts.*