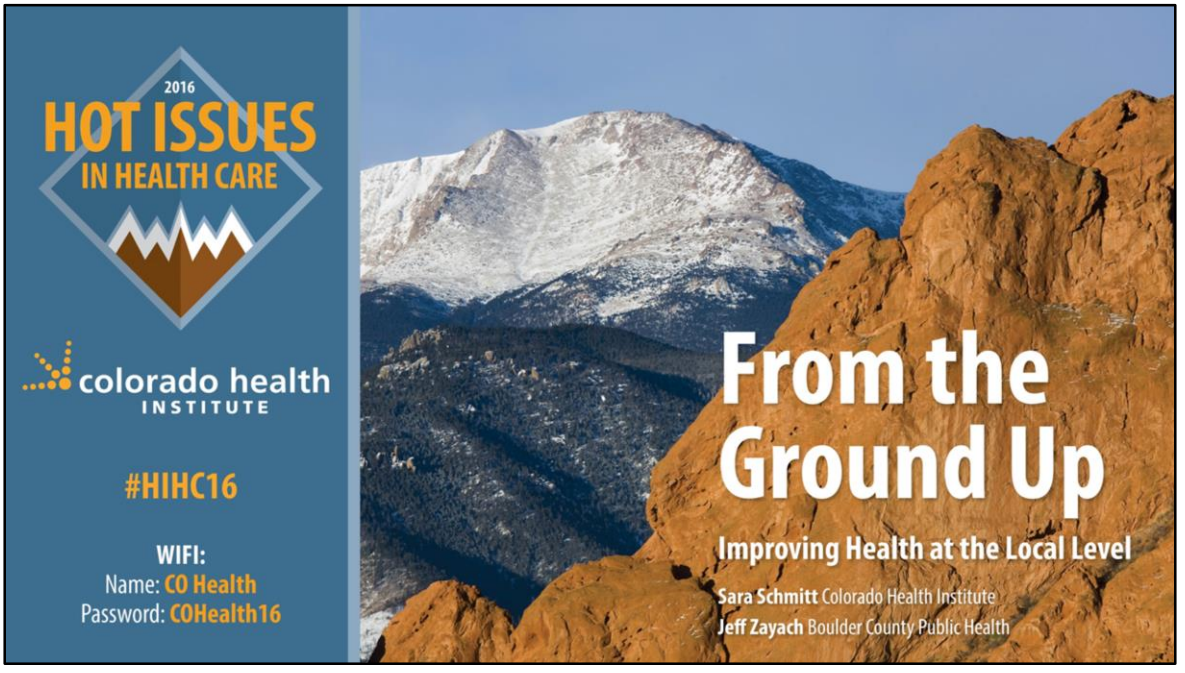


My name is Sara Schmitt and I am CHI's Director of Community Health Policy. Since 2012 when I joined CHI I have spent time researching how Colorado's communities are working together to improve health locally, especially by addressing issues outside of health care. I also work on two projects that we'll be discussing today.

I am joined today by Jeff Zayach, Executive Director of Boulder County Public Health.

Takeaway #1: Communities need to start with data – about a population within the community and at the individual level – in order to address health locally, but these data can be difficult to come by.

Takeaway #2: There are tools available to solve this problem of limited local-level data. We're going to highlight three of them and the impacts they have had.

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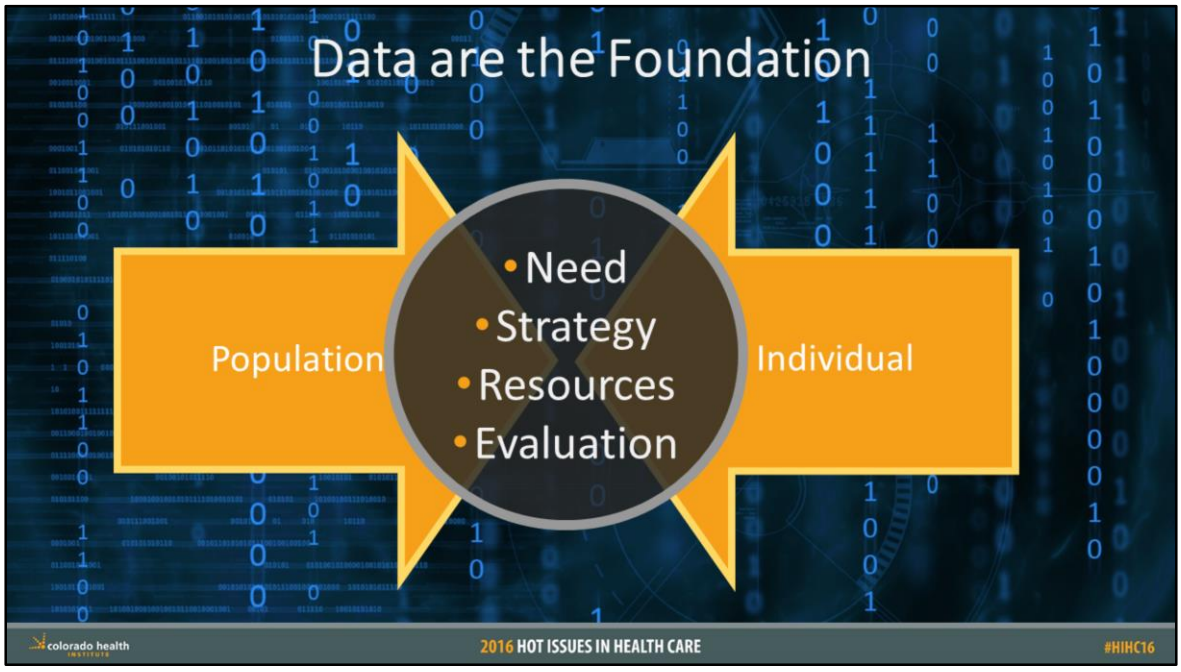
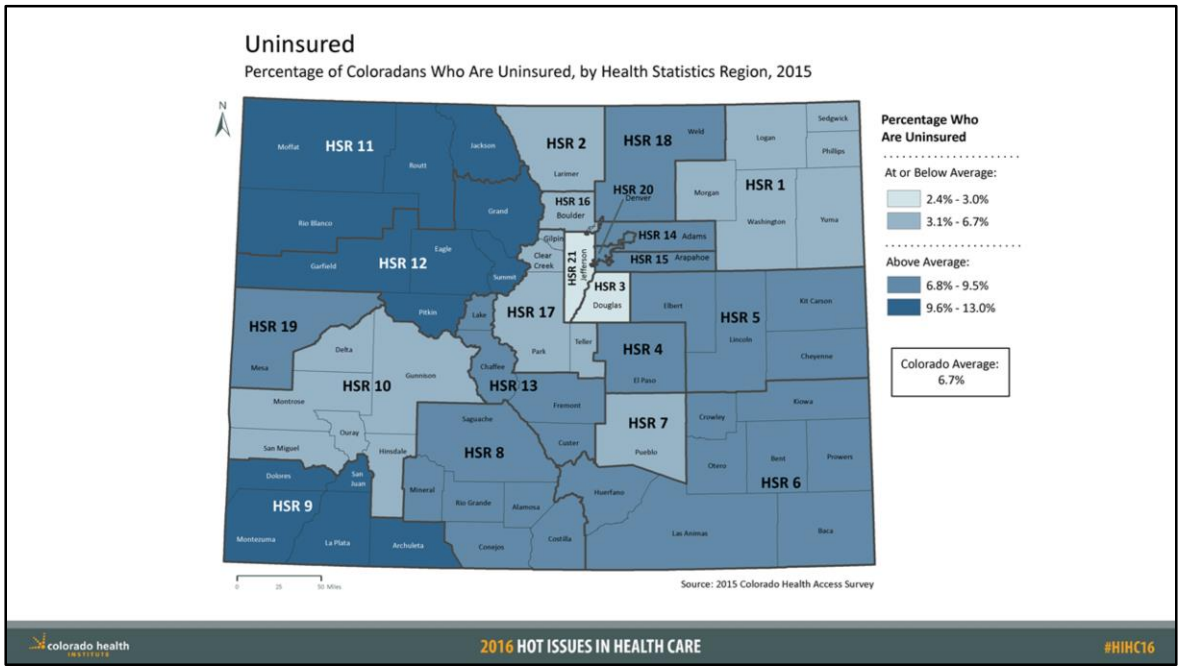



Data are a foundation upon which communities build programs and implement policies.

Communities use data for multiple decisions:

- Assessing need: How significant is the issue? Where is need greatest?
- Identifying strategies for achieving change.
- Allocating limited resources.
- Monitoring impact and evaluating efforts.



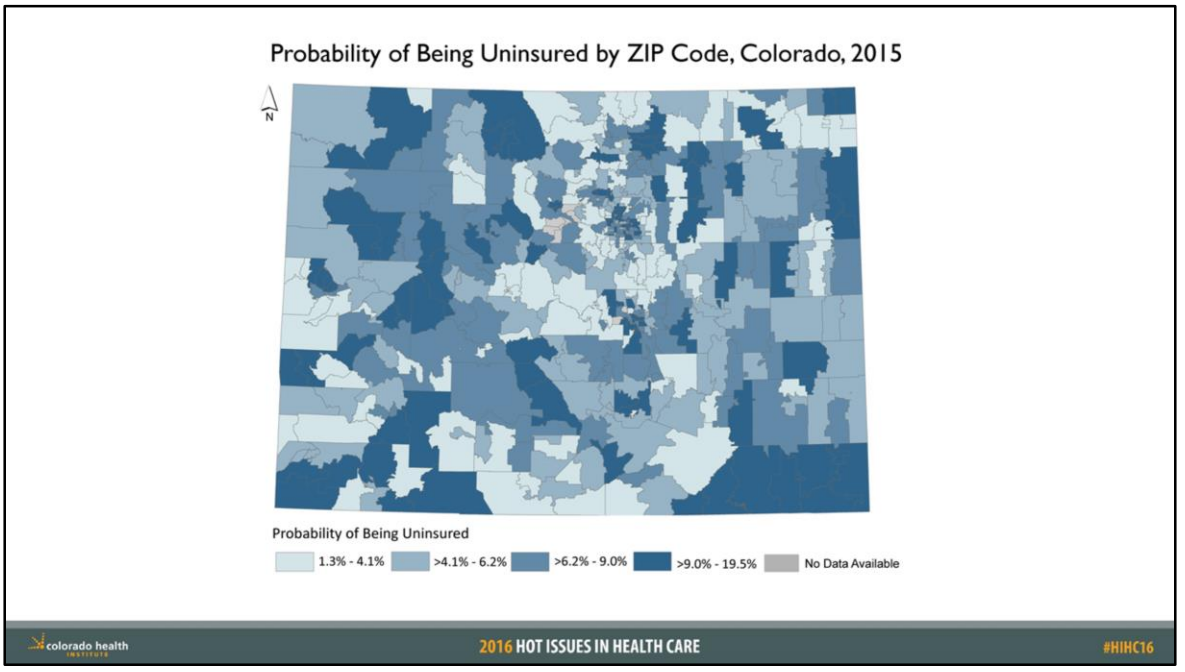

I'm going to start with population data. This is a map showing the percentage of uninsured Coloradans in 2015. These data are from the Colorado Health Access Survey – a phone survey of 10,000 Coloradans, making it one of the larger samples of these types of surveys. These population-based surveillance tools produce what I call "survey data".

How might a community use data in this map in the four questions for implementing policies and program?

- Need – The map shows that the highest rates of uninsurance are in northwest Colorado (HSR 11) at 13 percent and the lowest in Douglas County (2.4 percent). It's more difficult to narrow down within a four county health statistics region like in northwest Colorado or to know whether all communities in Douglas County have similarly low rates of uninsurance.
- Strategy – These data suggest where to start broadly – northwest Colorado, southwest Colorado – but not within those regions.
- Resources – Difficult to make resource allocation decisions with these data. Several regions from Weld County in the north down to southeast Colorado and the San Luis Valley all have similar rates of uninsurance. How decide where to target limited

resources?

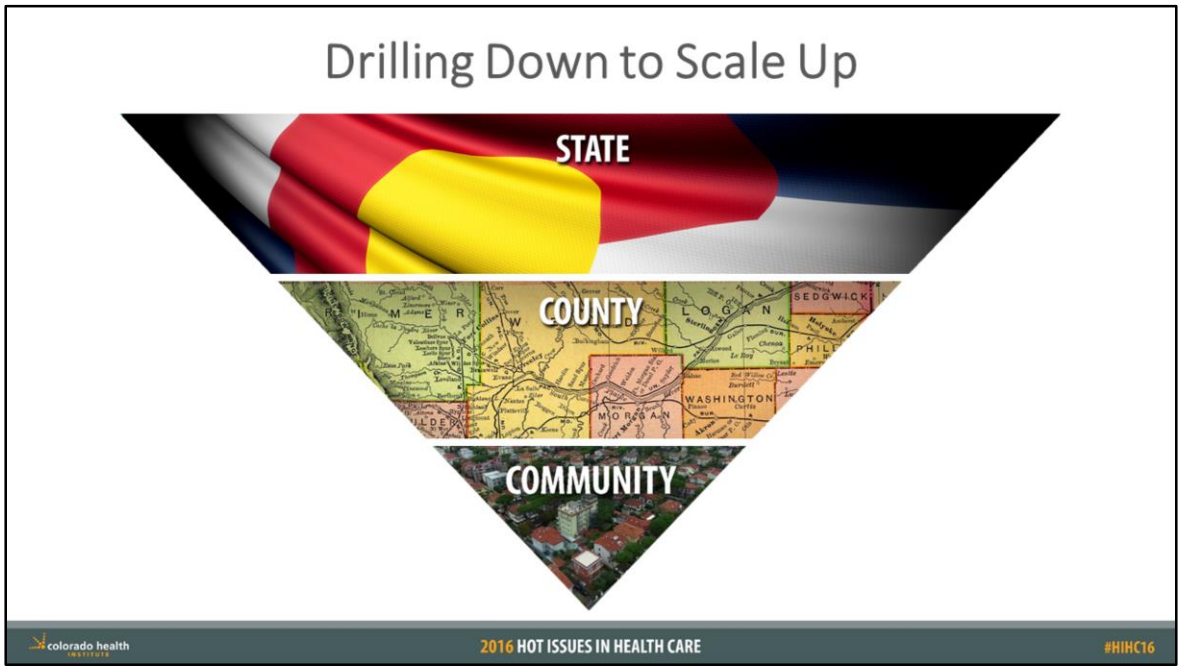
- Evaluation – CHAS survey data are available every two years. They are important markers, but not frequent enough to provide course-corrections.




This is a different example of population data. This map shows the probability of being uninsured by ZIP code in 2015. This map is also based on survey data.

How might a community use data in this map in the four questions for implementing policies and program?

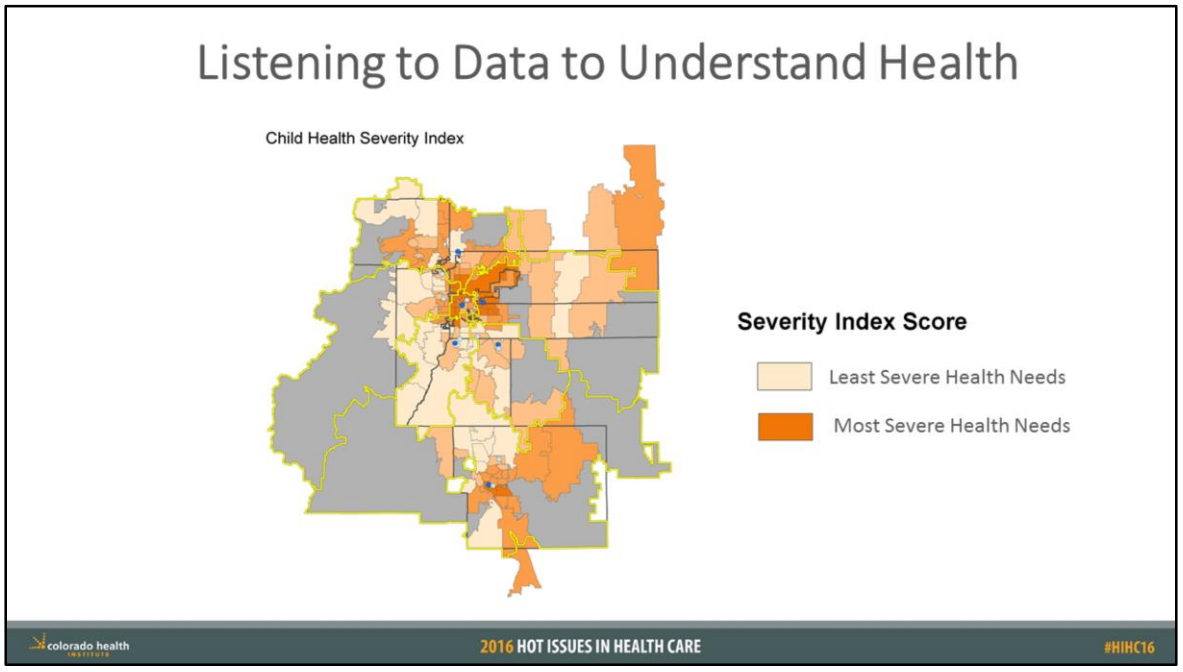
- Need – This map shows variation within regions. Northwest Colorado, which had the highest rate in the previous map, now looks much different. And ZIP code level analysis actually shows that the ZIP with the highest probability of being uninsured is in Limon at 19.5 percent. But remember in the previous map that region looked similar to many counties from Weld in the north to the Valley in the south.
- Strategy – Knowing where need is greatest at this level informs local strategies. Community leaders likely know other organizations in these ZIP codes who may be partners. Or in some of the more rural regions may know which ZIP codes are more densely populated.
- Resources – Targeted limited resources is easier to do when the need and strategies are more clearly defined.
- Evaluation – These type of data narrow the focus for measuring change.




Of the two maps we just reviewed, the local/community level ZIP code data improves knowledge, understanding and insight about an issue – increasing what can be done to address it successfully. However most of our data is still available at state and county levels – especially the population-level data. Primarily due to cost – it's expensive to get a large enough sample of people to respond to a phone survey to report at a local level.

However it is important to have data at both the aggregated population (census tract, zip code, county) as well as the disaggregated/individual level so you can target areas of focus and then implement strategies to coordination, specific care needs, and improve health.

We're going to discuss three tools being used or developed in Colorado that provide local data at the population and individual levels.




Predictive modeling identifies the likelihood of specific outcomes based on its association with other factors. Predictive modeling listens to how data are related. The ZIP code map we looked at is an example of predictive modeling and the outcome working toward was uninsured. CHI identified factors most closely associated with specific outcome and use these factors to predict the likelihood of being uninsured. Those factors included poverty, Spanish spoken at home, renting, unemployment.

Here's another example of predictive modeling that CHI prepared for Children's Hospital Colorado. Children's Hospital Colorado wanted more local-level data in the service area in order to identify communities experiencing greatest health needs so they could focus their strategies and partnerships and target community interventions. They were looking to address need, strategy and resource allocation.

Predictive modeling connects to the underlying forces that impact health – such as income, education. Using this model is one way to equitably target resources because also taking into consideration those factors.

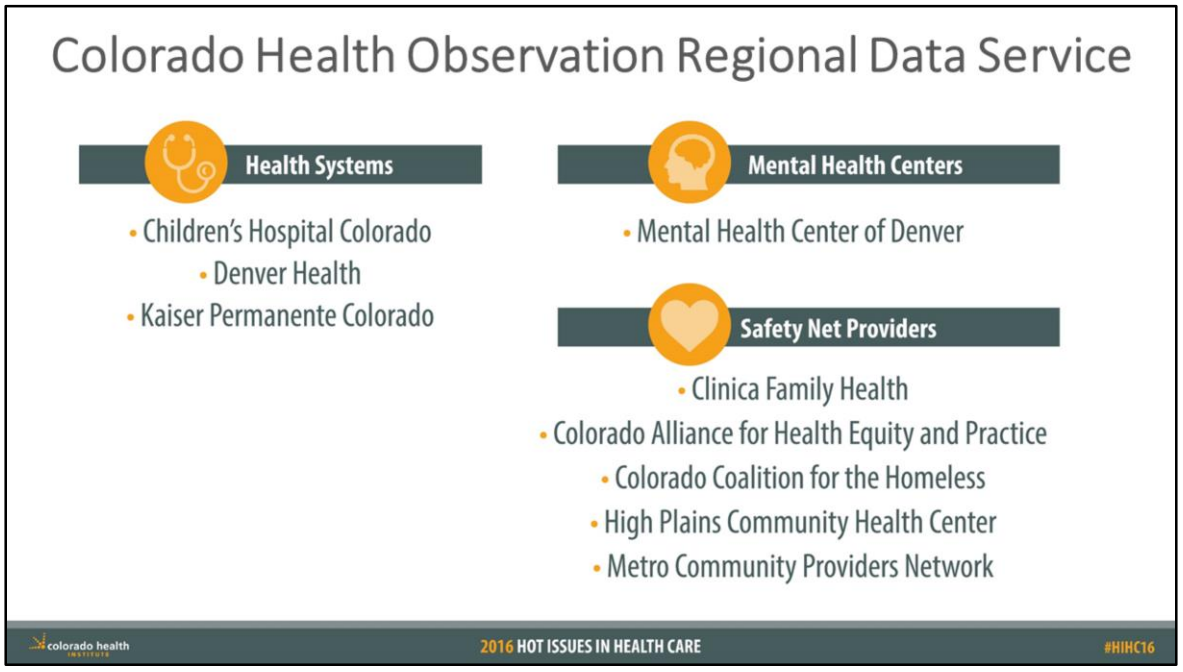
Predictive modeling can be limited in supporting evaluation since it is based on underlying factors that may not change quickly (educational attainment, poverty). And

modeling uses survey data that may only be collected annually or less frequently.

CHI is expanding its predictive modeling work. We're also seeing other organizations using predictive modeling or small area estimates, including the Colorado Department of Public Health and Environment and the Centers for Disease Control and Prevention. Jeff Zayach shares how Boulder County Public Health is using predictive modeling.

How else can we get to these local data?

Clinical data that is collected and stored in health providers' electronic health records can provide unique insights on health. More individuals are included in these data – for example just 10,000 Coloradans are surveyed in the CHAS but the same survey found that nearly 82 percent of all Coloradans visited a health care professional in the last twelve months. These data are also more accurate then what is collected in self-reported surveys.

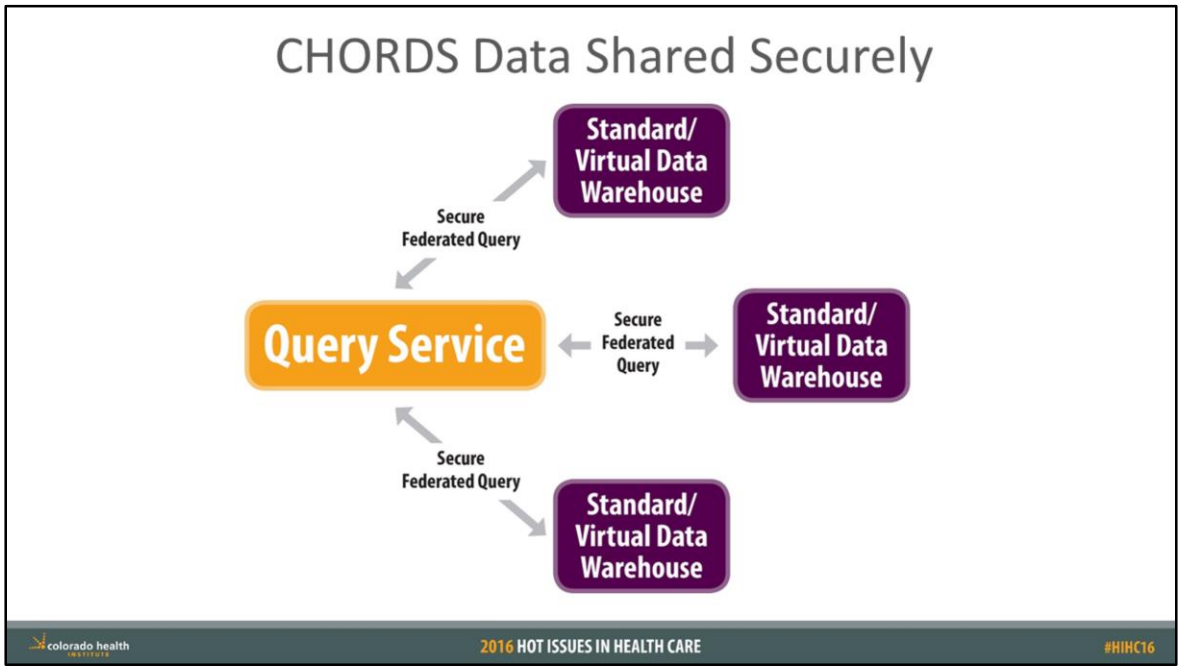



Colorado is developing a tool -- the Colorado Health Observation Regional Data Service, or CHORDS – to use clinical data to improve community health.

CHORDS is a unique system that is blends together clinical EHR data to support public health efforts in Colorado. CHORDS is focused on healthy weight, mental health, diabetes, cardiovascular disease.

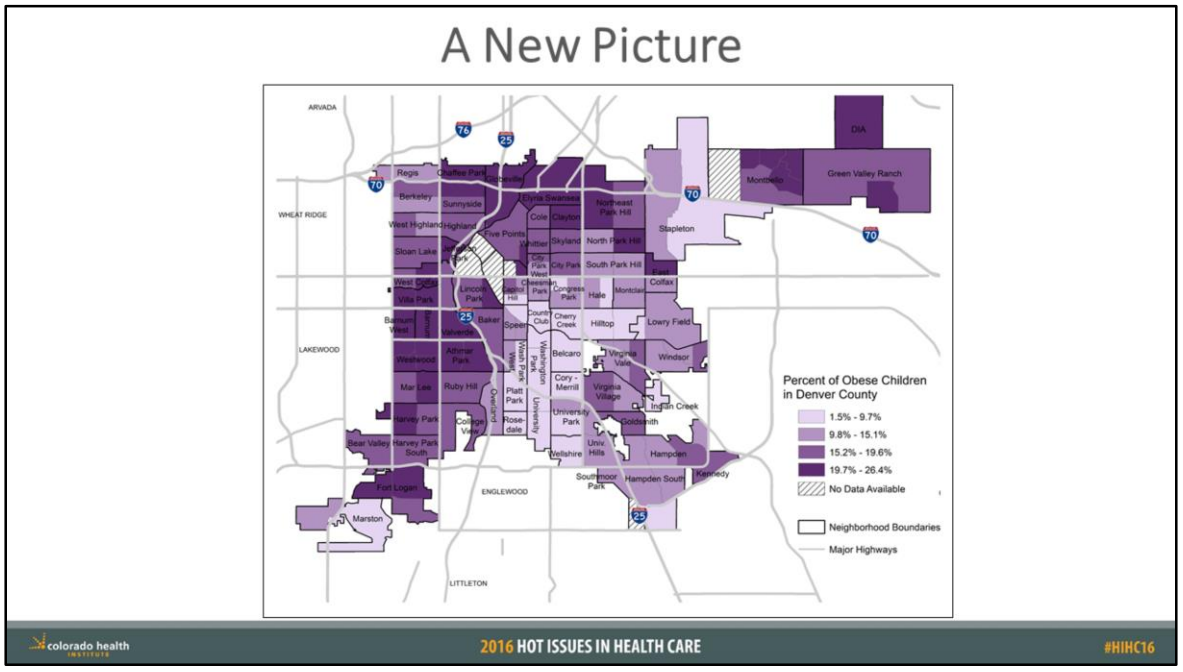
CHORDS is a tool or software but it is also a community. This is the list of the data partners who are participating, who recognize the importance of making these data accessible for health improvement.

Local public health agencies in the metro area (Boulder, Broomfield, Jefferson, Denver and Tri-County Public Health Agencies) and the state health department are the current CHORDS users although there is interest and plans to expand access to additional public health agencies and communities statewide. Through funding from the Colorado Health Foundation, the CHORDS community is also expanding data partners to include mental health centers and other health care providers.




CHORDS involves complex technology, but there are a few important points to remember.

1. Data are shared securely, through permission-based and password-protected portals.
2. The system is federated. Meaning that all clinical data live behind each data partners' firewalls, not in one central data repository. Data partners may approve or deny public health agency data requests and also sign off on releasing their data.
3. CHORDS aggregates data from multiple data partners so a data partner is never identified. Importantly, identifying information are removed and aggregated by characteristics – age range, ethnicity, gender or census tract. The System has safeguards in place so that individuals can never be identified.



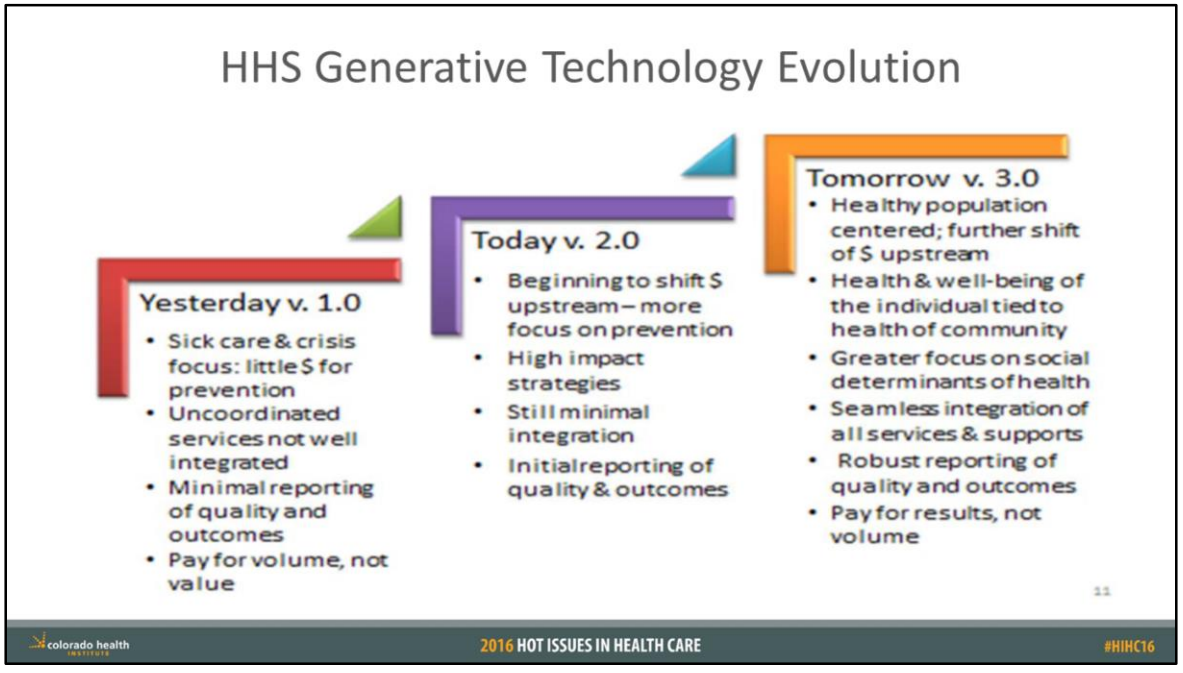

Here's an example of a map based on electronic health records data showing rate of child obesity at the census tract in Denver County from 2012-2014.

Jeff Zayach shares why his public health department is becoming a CHORDS partner.

EHR is not a complete picture – it only represents individuals who seek out care. But data are accurate and can be compared against population estimates. These data are also timely, updated more frequently. EHR data can spot areas of progress and need and where to scale and where to invest.

CHORDS will answer questions on weight, diabetes, mental health, and cardiovascular disease and will be expanded in the future to new questions and issues. Clinical data includes not just patient diagnoses but prescriptions, lab values and types of services delivered.

Take a minute to think about you as a policymaker, provider, community organization might use these data – what question would you want to answer?




Jeff Zayach presents.

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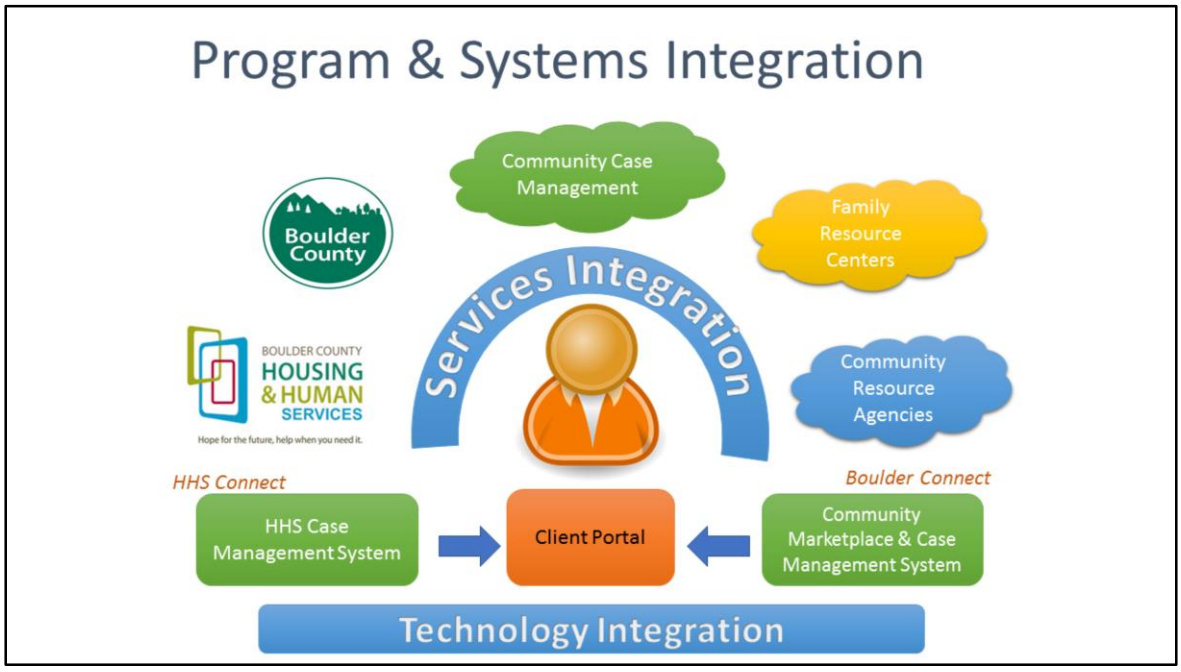


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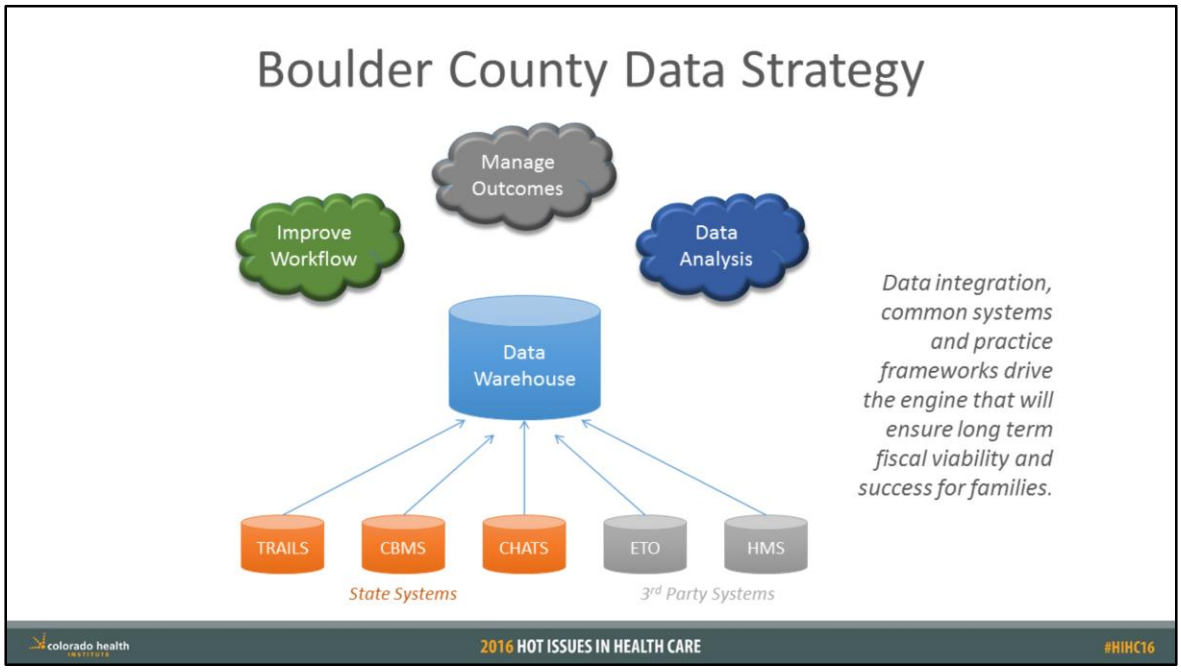


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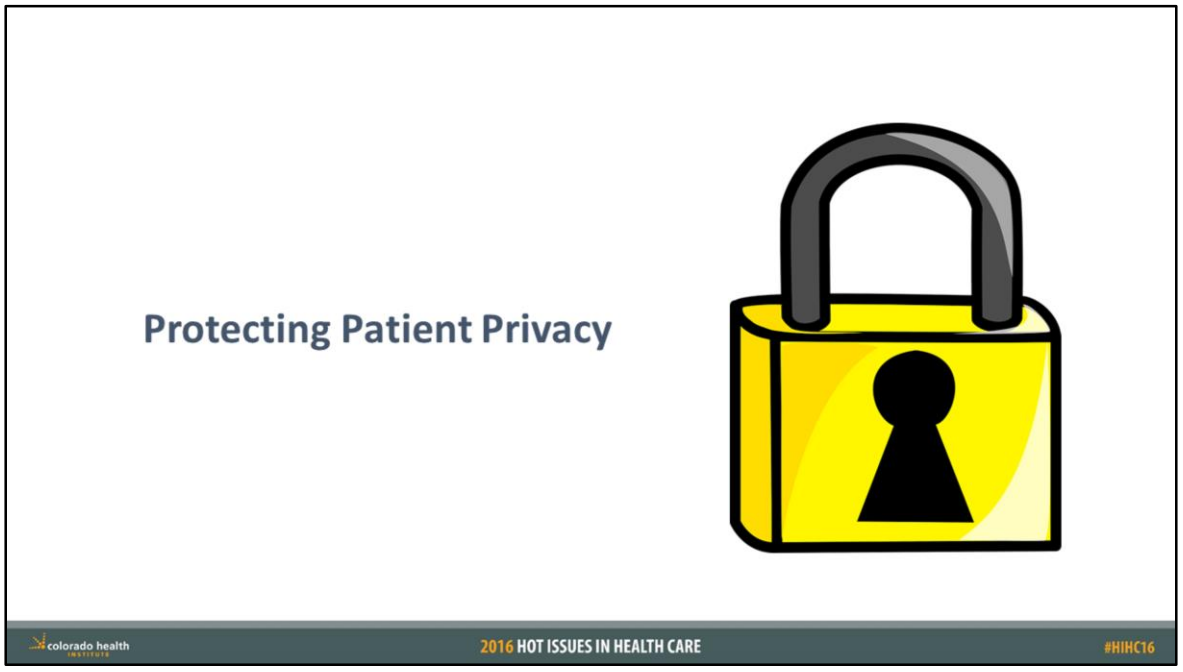


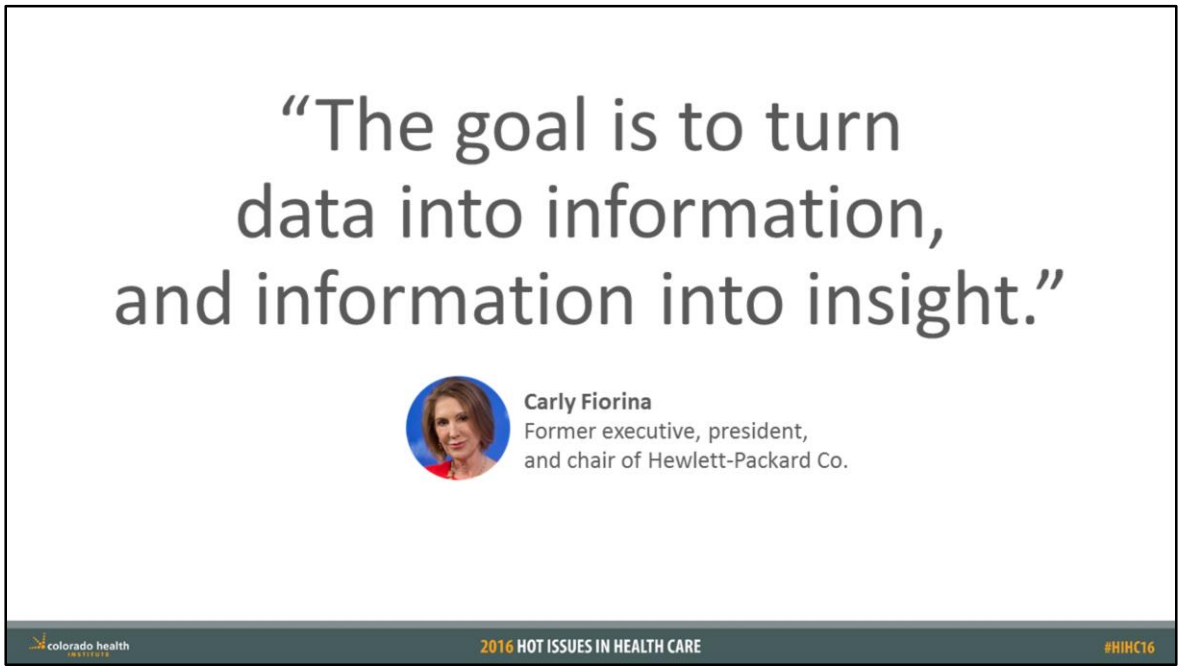

Before wrapping up this section, just a quick word about patient privacy. Two of the three tools we just discussed – predictive modeling and CHORDS – are not intended to measure health among individuals. Their power is in merging data together.

*For CHORDS:*

- Data use agreements are signed between data partners and data users.
- CHORDS provides aggregated data for use by public health agencies
- Information cannot be traced back to individual patients
- Each CHORDS data partner retains full control over its patients' data

Jeff Zayach shares how individual-level data sharing is governed.

Wrapping up with a discussion of how data being used locally.




Data used to inform action.

Communities across Colorado taking data one step further – creating tools like websites, performance management tools and shared dashboards to talk about what they're doing, add data they are collecting and keep track of progress. These tools are used by community members, including businesses, education, foundations.

Going to turn it over to Jeff to talk about what is happening in Boulder County.

BOULDER COUNTY
# HEALTH COMPASS
Measuring health, sharing solutions.

Healthy Eating Active Living

Mental Health

Reducing Substance Abuse

SPOTLIGHT ON

## Healthy Eating Active Living

With partners we collectively align existing and new interventions related to healthy eating, active living, and healthy weight to prevent obesity and improve the health of children 0-18

Farmers Market Density (Compared to U.S. Counties)

Food Environment Index (Compared to CO Counties)

Access to Exercise Opportunities (Compared to CO Counties)

Adults Engaging in Physical Activity (Compared to CO Counties)

Help

County: Boulder

# Over 150 Community Health Indicators

Food Insecurity Rate

13.3%
(2014)

CO Counties

U.S. Counties

CO Value
(12.9%)

US Value
(15.4%)

Prior Value
(13.9%)

Trend

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# CHI in 2017

## A Sneak Preview

- New logo
- Updated website
- Same commitment to a healthy Colorado

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