

METHODOLOGY

Identifying Opportunities for School-Based Health Care in Colorado

January 2021

This document describes the methods and terminology used in the school-based health center (SBHC) needs assessment conducted by the Colorado Health Institute (CHI) in January 2021.

It accompanies the online resource “Identifying Opportunities for School-Based Health Care in Colorado” and associated data set. All materials are available on CHI’s website at <http://www.coloradohealthinstitute.org/research/school-based-health-care-opportunities>.

Overview

To assess which Colorado public schools would most benefit from the establishment of a SBHC, CHI created a needs assessment index. The index calculates schools’ relative need for improved access to health services based on 14 indicators, described in further detail below.

Inclusion and Exclusion Criteria

All Colorado public schools operating during the 2019-2020 school year were included in the index, including charter schools and public schools that offer pre-kindergarten programs.

Online schools were excluded from the index.

Schools with existing SBHCs were included in the index. These schools can be filtered out of the online resource and associated data set according to data users’ interests and needs.

The complete data set associated with this analysis, including a list of schools included in the index, is available for download on CHI’s website.

Calculating Relative Need

The index draws on 14 indicators (or “measures”) related to health outcomes and risk factors, health insurance coverage, access to and utilization of care, student need, and the economic impact of COVID-19.

Table 1 details all indicators used in the analysis.

For each indicator, schools were assigned a score based on quartile, with schools in the highest-need quartile assigned a 4 and schools in the lowest-need quartile assigned a 1. A composite score was then calculated for each school based on the weighted average of quartile scores across all indicators.

Data available at the school and county level were weighted more heavily than data available at the Health Statistics Region (HSR) level because more geographically granular data allow for more nuanced distinctions between schools within a given region. (See *Definitions* and Map 1 for more information on HSRs.)

Finally, natural breaks were used to sort schools into one of five classifications of need: Highest Need, Higher Need, Average Need, Lower Need, and Lowest Need.

Identifying Indicators

CHI used five principles to guide the selection of indicators for the needs assessment index:

- *Salience.* Only indicators that suggest high need for health services among children were considered. Adults were not included in this analysis.
- *Nonduplicative.* In cases where more than one indicator addresses the same issue — for example, usual source of care and medical home — CHI used what it considered the strongest option.
- *Geographic Granularity.* CHI sought indicators that were available at the school or county levels. CHI aimed to minimize indicators available at the HSR level because the data are less precise.
- *Timeliness.* Indicators that reflect the most current data available were chosen.
- *Trusted Data Sources.* Data from trusted and publicly available sources were selected.

Indicators related to health outcomes and risk factors were prioritized based on the services and education that SBHCs offer, including care for patients with asthma, weight gain and obesity management, mental health assessment and treatment, tobacco use cessation and prevention, and reproductive health services.

Indicators related to health insurance coverage, access to and utilization of care, and student need were selected based on a review of potential measures that capture need, as defined by the literature and the mission of SBHCs. Free and reduced-price lunch eligibility and percent English learners were included because students from lower-income households and students whose families speak languages other than English face unique barriers to accessing to health care, not because these characteristics are indicative of need or deficit in and of themselves.

The unemployment rate indicator was added to capture the disparate health and economic impacts that COVID-19 has had on Colorado communities. CHI used percentage point change in unemployment rate, rather than percent change, to avoid understating the degree of unemployment in counties that had high rates of unemployment prior to COVID-19 and to avoid overstating the degree of unemployment in counties that had low rates of unemployment prior to COVID-19. CHI used data from June 2020 to capture unemployment rates after COVID-19 because that was the most recent data available at the time of the analysis. CHI used unemployment data from June 2019 as a comparison

point, rather than data from just prior to the onset of the pandemic, because unemployment rates vary seasonally.

Table 1. 2021 School-Based Health Center Needs Assessment Indicators.

Category	Indicator	Geography Available
Health Outcomes and Risk Factors	Percentage of High School Students Who Have Asthma ¹	HSR
	Percentage of High School Students Who Have Obesity ²	HSR
	Percentage of High School Students Reporting Symptoms of Depression in the Past 12 Months ³	HSR
	Percentage of High School Students Who Used an Electronic Vapor Product in the Past 30 Days ⁴	HSR
	Teen Birth Rate per 1,000 Females Ages 15-19 ⁵	County
Health Insurance Coverage	Percentage of Children Ages 0-18 Who Are Uninsured ⁶	County
	Percentage of Children Ages 0-20 Who Are Insured by Medicaid ⁷	County
Access and Utilization of Care	Percentage of Children Ages 1-14 Without a Medical Home ⁸	HSR
	Physician-to-Child (Ages 0-18) Ratio by County ⁹	County
	Percentage of Children Ages 0-18 Who Did Not Have a Dental Visit in the Past Year ¹⁰	HSR
Student Need	Percentage of Students Who Are Eligible for Free and Reduced-Price Lunch ¹¹	School
	Percentage of Students Who Are English Learners ¹²	School
	Truancy Rate ¹³	School
Economic Impact of COVID-19	Percentage Point Change in Unemployment Rate by County, June 2019 to June 2020 ¹⁴	County

Data Geography

Some indicators were available at the school level, including data on free and reduced-price lunch eligibility, English language learners, and truancy rates.

Other indicators were available only at the county level, including teen birth rates, uninsured rates, Medicaid enrollment rates, physician data, and unemployment rate data.

Other indicators were available only at the HSR level, including data on asthma, obesity, depression, vaping, medical homes, and dental visits.

Data available at the county and HSR level were cross-walked to the school level using a district-to-county crosswalk from the Colorado Department of Education.

Some Colorado school districts span multiple counties. For the purposes of this analysis, CHI deferred to the county designation provided by the Colorado Department of Education.

Comparability Across Assessments

Several SBHC needs assessments have been conducted in Colorado in recent years, including an analysis by CHI in 2015. The methodology used in CHI's 2021 analysis deviates from the methodology used in previous needs assessments, and so this analysis should not be compared with earlier findings to identify trends in the SBHC landscape or changes in the relative need of individual schools over time.

Definitions

Asthma. The Healthy Kids Colorado Survey classifies a student as having asthma if they report they have ever been told by a doctor or nurse that they had asthma.

Depression. The Healthy Kids Colorado Survey classifies a student as having depression if they reported feeling sad or hopeless and stopped doing usual activities almost every day for 2+ consecutive weeks during the past 12 months.

Health Statistics Region (HSR). The Healthy Kids Colorado Survey, Colorado Child Health Survey, and Colorado Health Access Survey report regional data by 21 regions developed by the Colorado Department of Public Health and Environment (CDPHE), known as Health Statistics Regions. In more populous areas of the state, HSRs consist of a single county. In less populous areas, HSRs span multiple counties. HSR boundaries are shown on Map 1.

Medical home. The Colorado Child Health Survey classifies a child as having a medical home if their health care meets criteria for all five components of a medical home: personal doctor or nurse, family-centered care, getting needed referrals, usual source of care, and effective care coordination. If one or more criteria are not met, the child is considered to not have a medical home.

Obesity. The Healthy Kids Colorado Survey classifies a student as having obesity if the student is at or above the 95th percentile for body mass index (BMI) for their age and sex.

Rural and urban. This analysis designated a county as urban or rural using definitions provided by the Office of Management and Budget (OMB) and used by the Colorado Rural Health Center. If a county is located in a metropolitan area or contains a municipality with 50,000 or more residents, it was considered urban. All other counties were considered rural. CHI did not differentiate between rural and frontier counties for the purposes of this analysis.

Students of color. Students were considered students of color if they were identified by the Colorado Department of Education as American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or other Pacific Islander, or two or more races.

Truancy rate. The Colorado Department of Education defines a school's truancy rate as "the percent of days possible to attend that students were absent without an excuse." It is calculated by dividing the total days of unexcused absences in the school year by the number of total possible attendance days. Total possible attendance days are calculated by the number of school days multiplied by the number of students. More information on truancy is available on the website of the Colorado Department of Education, www.cde.state.co.us/cdereval/truancystatistics.

Limitations

The limited availability of health-related data at the school level limits the precision of the index. In particular, the inclusion of county- and HSR-level data in the index makes it more difficult to differentiate among schools in the same region and, in some cases, distorts the relative need of individual schools.

Schools with high needs that are located in regions with relatively low needs show only moderate need under this analysis. For instance, Jefferson Junior/Senior High School in Jefferson County has a high free and reduced-price lunch eligibility rate (89.6%), high proportion of English learners (32.0%), and high truancy rate (7.5%) but is classified as "Average Need" by this index.

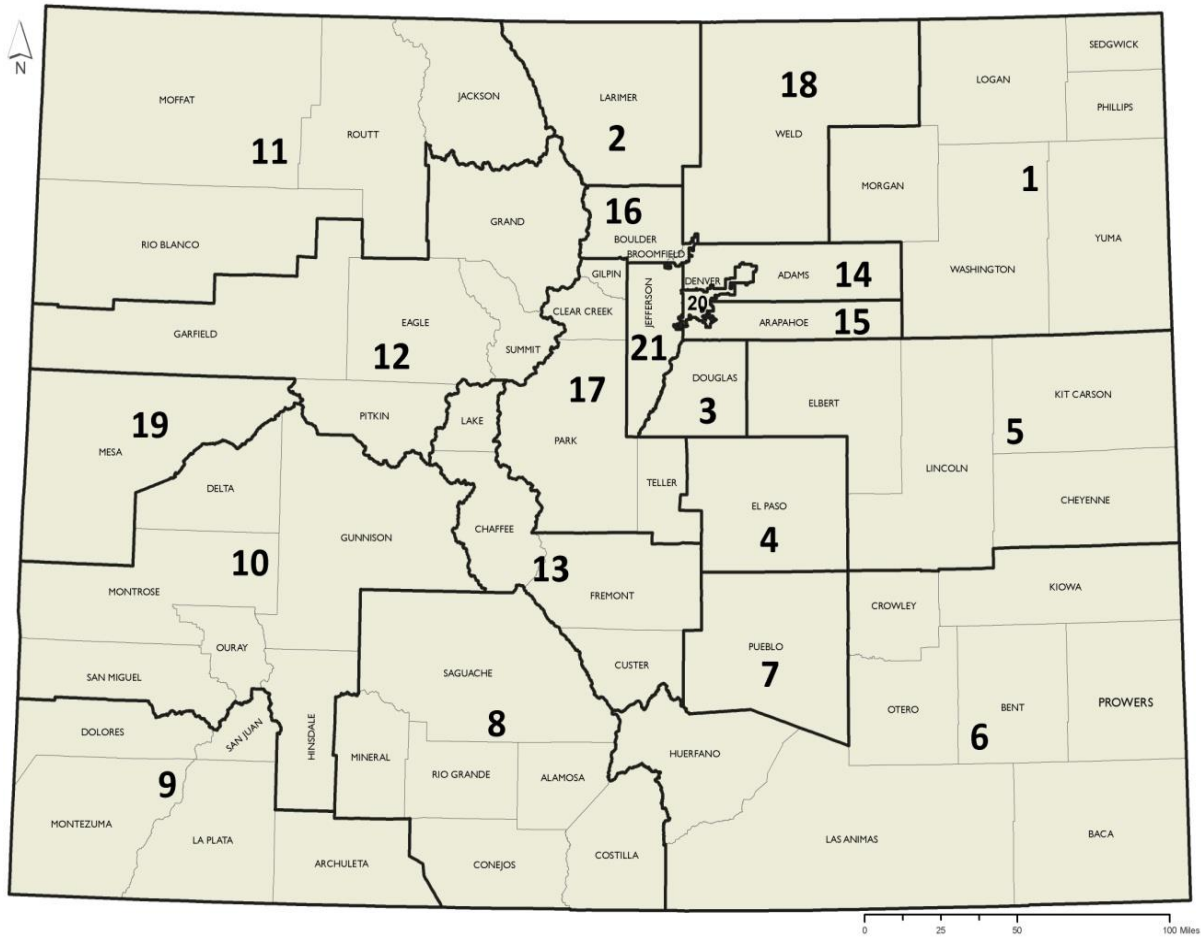
Similarly, schools with relatively low needs that are located in higher-need regions appear to have more pressing needs. For example, Prospect Ridge Academy in Adams County has a very low free and reduced-price lunch eligibility rate (2.0%), low proportion of English learners (4.2%), and low truancy rate (0.2%) but is classified as "Average Need" by this index — the same classification as Jefferson Junior/Senior High School.

Weighting school- and county-level data more heavily than HSR-level data helps account for this but does not completely resolve these limitations.

With this in mind, data users should understand the analysis's classifications of relative need as a place from which to dig deeper into the individual characteristics, needs, and assets of schools, and not as a comprehensive assessment.

Data users interested in the individual indicators used in the analysis are encouraged to download the full data set from the Colorado Health Institute's website, <http://www.coloradohealthinstitute.org/research/school-based-health-care-opportunities>.

Map 1. Colorado’s 21 Health Statistics Regions.



¹ Healthy Kids Colorado Survey. (2019). Colorado Department of Public Health & Environment. <https://cdphe.colorado.gov/healthy-kids-colorado-survey-data-tables-and-reports>

² Healthy Kids Colorado Survey. (2019). Colorado Department of Public Health & Environment. <https://cdphe.colorado.gov/healthy-kids-colorado-survey-data-tables-and-reports>

³ Healthy Kids Colorado Survey. (2019). Colorado Department of Public Health & Environment. <https://cdphe.colorado.gov/healthy-kids-colorado-survey-data-tables-and-reports>

⁴ Healthy Kids Colorado Survey. (2019). Colorado Department of Public Health & Environment. <https://cdphe.colorado.gov/healthy-kids-colorado-survey-data-tables-and-reports>

⁵ Colorado Health Information Dataset: Live Birth Statistics. (2015-2019). Colorado Department of Public Health & Environment. Special Data Request. Received July 29, 2020.

⁶ U.S. Census Bureau. (2018). 2014-2018 American Community Survey 5-year estimates. Retrieved September 28, 2020.

- ⁷ Colorado Health Institute estimate using data from Colorado Department of Health Care Policy and Financing. (2020). *Health First Colorado Member Caseload by County Report, July 2020*. <https://www.colorado.gov/pacific/hcpf/premiums-expenditures-and-caseload-reports>; State Demography Office. (2020). *Population by Single Year of Age – County*. Colorado Department of Local Affairs. <https://demography.dola.colorado.gov/population/data/sya-county/#county-population-by-single-year-of-age>
- ⁸ Colorado Child Health Survey. (2017). Colorado Department of Public Health & Environment. Special Data Request. Received July 31, 2020.
- ⁹ Colorado Health Institute estimate using data from Colorado Department of Regulatory Agencies, Division of Professions and Occupations. (2019). *Medical Licensee – Physician*. Retrieved February 2020; State Demography Office. (2019). *Population by Single Year of Age – County*. Colorado Department of Local Affairs. <https://demography.dola.colorado.gov/population/data/sya-county/#county-population-by-single-year-of-age>
- ¹⁰ Colorado Health Institute. (2019). *Colorado Health Access Survey, 2017-2019*. <https://www.coloradohealthinstitute.org/research/colorado-health-access-survey>
- ¹¹ Colorado Department of Education. (2019). *2019-2020 Pupil Membership: 2019-20 K-12 Free and Reduced Price Lunch Eligibility by School*. <https://www.cde.state.co.us/cdereval/pupilcurrent>
- ¹² Colorado Department of Education. (2019). *2019-2020 Pupil Membership: 2019-20 PK-12 Instructional Program by School*. <https://www.cde.state.co.us/cdereval/pupilcurrent>
- ¹³ Colorado Department of Education. (2019). *Colorado School-by-School Truancy Rates, 2018-2019 School Year*. <http://www.cde.state.co.us/cdereval/truancystatistics>
- ¹⁴ U.S. Bureau of Labor Statistics. (2020). *Labor force data by county, not seasonally adjusted, latest 14 months – June 2019, June 2020*. Retrieved September 8, 2020. <https://www.bls.gov/lau/>