

**Match-to-Standard Comparison of Cochise County Community Health Assessments**

Cochise County Health & Social Services

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**Cochise County**  
Health and Social Services

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### Executive Summary

This meta-analysis seeks to determine the duplication of efforts by Cochise County Health & Social Services (CCHSS) and local hospital systems.

Cochise County, Arizona, is a rural county located in southeastern Arizona. It is home to one local health department, CCHSS, and six distinct hospital/healthcare systems:

- Benson Community Hospital (CAH – not for profit)
- Copper Queen Community Hospital (CAH – not for profit)
- Northern Cochise Community Hospital (CAH – not for profit)
- Chiricahua Community Health Centers (FQHC)
- Canyon Vista Medical Center (for-profit)
- Raymond W. Bliss Army Health Center (Army Health Center)

The Patient Protection and Affordable Care Act requires not-for-profit hospitals to conduct a Community Health Needs Assessment (CHNA) every three years. The assessment and its accompanying implementation plan are submitted to the Internal Revenue Service (IRS) to maintain nonprofit status and must be posted publicly. Federally Qualified Health Centers (FQHCs) must also submit a CHA every three years per the Health Resources & Services Administration (HRSA) guidelines, but this is not tied to their nonprofit status.

The IRS guidelines permit hospital facilities to collaborate with other organizations to meet this requirement if all data can be attributed to each jurisdiction.

The Public Health Accreditation Board (PHAB) requires local health departments (LHDs) to conduct a jurisdiction-wide CHA every five years for both initial accreditation and reaccreditation.

Since requirements for a hospital's tax-exempt designation, FQHC compliance, and PHAB are similar regarding what type of information should be gathered during a CHA, it would be in the best interests of all parties to pool resources and conduct one countywide CHA every three years.

## Introduction

Funding for public services is a source of contention in the current political climate, whether it be the postal service (Shepardson, 2022), education (Jordan, 2022), or any of the other myriad services local, state, and federal governments provide their citizens. Though the US spent \$3.6 trillion in 2018 (Hartman et al., 2020), the total healthcare expenditures have increased significantly since then due to the COVID-19 pandemic (CMS, 2022). However, just because funding is labeled as “healthcare spending” does not mean it will be spent on public health or preventative efforts. In 2014, public health spending only accounted for 2.65% of the total healthcare funding in the United States, and at the time, it was projected to fall to 2.40% in 2023 (Himmelstein & Woolhandler, 2016). While these figures do not account for the disruptions COVID left in its wake, reports indicate that pre-pandemic healthcare spending levels are forecasted for 2024, according to the National Health Expenditures report, with further forecasted decreases in spending moving forward to the next decade (Miller et al., 2022). Because these funding levels are decreasing, it is prudent to identify how these funds can be spent most cost-effectively.

In 2010, Congress passed the Patient Protection and Affordable Care Act. It was updated in 2013 with further guidance that significantly restructured healthcare access in the United States. It was accompanied by reporting requirements for healthcare providers and employers (IRS, 2022a). One of these requirements is for hospitals to conduct and submit a Community Health Needs Assessment (CHNA) each year to maintain tax-exempt status (IRS, 2022b). The Health Resources and Services Administration (HRSA) requires that Federally-Qualified Health Centers (FQHCs), which receive additional types of funding due to their primary care efforts for underserved populations, should submit a Community Health Assessment (CHA) every three

years (HRSA, 2018). HRSA's requirement is independent of the IRS's. The Public Health Accreditation Board (PHAB) requires that both accredited and accreditation-track local health districts conduct and submit a CHA every five years (PHAB, 2022). All three categories of healthcare organizations are required to submit a report regularly, yet most of these organizations choose to fund and create their own reports privately. No documentation could be found which stated that CHA or CHNAs should be created independently of other organizations. In fact, the IRS documentation explicitly states that it is permitted (IRS, 2022b).

### **Statement of the Problem**

Cochise County, Arizona, covers 6,210 square miles but has a population of 126,050 (United States Census Bureau, n.d.-a). This leads to a significantly low population density, which means individual healthcare costs are higher. However, per capita, healthcare spending in Arizona is very low compared to other states. In 2020, healthcare spending only amounted to \$8,756 per person (KFF, 2022), and only a fraction of that spending was allocated to public health assessment and policy. When multiple organizations are required to conduct similar assessments on a recurring basis, it would be prudent to ensure any duplications of effort are identified and remedied so every stakeholder in the community gets the most efficient use of health dollars. However, no assessment of such a problem has ever been conducted in Cochise County.

### **Purpose**

This analysis seeks to identify the comprehensiveness and efficiency of locally available health reports to identify redundancies in healthcare spending. Using an established qualitative methodology by Hines et al., the reports of Cochise County can be assessed for any duplication of efforts and overlaps in data collection among available community health assessments.

## Setting and Community Partners

### Setting

Cochise County, Arizona, is in the southeast corner of the state, bordered to the east by New Mexico and by the state of Sonora, Mexico to the south. Figure 1 (right) shows a map of the county. 125,447 residents were counted in the 2020 census, and the population estimate on July 1, 2021, was 126,050 (United States Census Bureau, n.d.-a). There are five major economic centers located within the

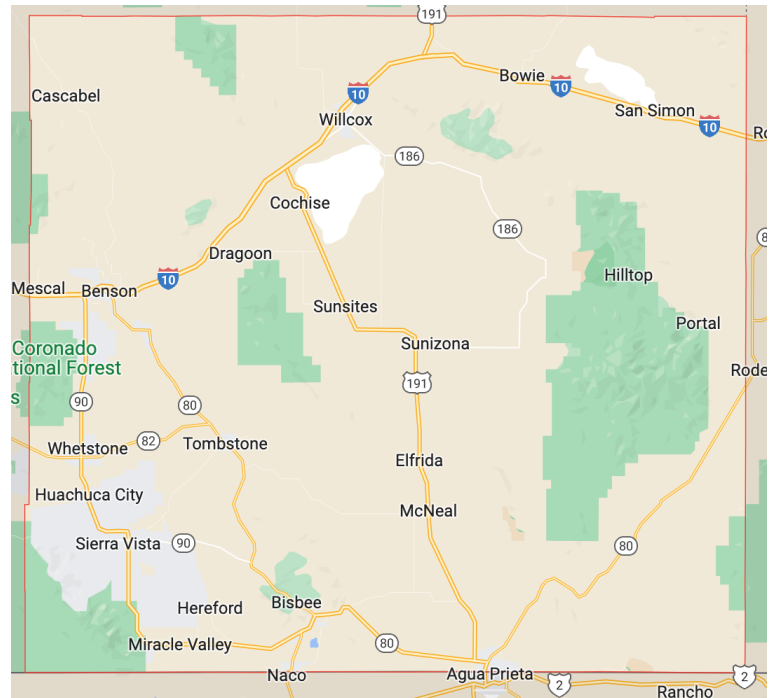


Figure 1 Cochise County, Arizona, Image cropped from Google Maps (Google, n.d.)

county: Benson, Bisbee, Douglas, Sierra Vista, and Willcox. The largest of these centers is Sierra Vista, with an estimated population of 45,479 on July 1, 2021 (United States Census Bureau, n.d.-c).

The county is 48.8% female, 54.4% white alone (not Hispanic or Latino), and 35.9% Hispanic or Latino, the largest minority population. Over one-fifth of residents are 65 years or older. Another one-fifth of residents are under 18 years of age. 27.6% of residents speak a language other than English at home. Over one-quarter of residents aged 25 and over have a bachelor's degree or higher, while over 88% are at least a high school graduate (United States Census Bureau, n.d.-a).

There are contrasting pockets of affluence and poverty within the county. 14.6% of residents live in poverty county-wide, while only 12.3% of residents in Sierra Vista do (United States Census Bureau, n.d.-c). In contrast, of the 16,513 Douglas residents, approximately 28.2% live in poverty (United States Census Bureau, n.d.-b) 46.5% of residents are in the civilian labor force (United States Census Bureau, n.d.-a).

Cochise County encompasses 28 ZIP Codes (see Table 1), though ZIP codes 85643, 85602, and 85611 extend beyond the county's boundaries. 85636, 85655, 85670, and 85671 are P.O. Box-exclusive ZIP codes.

*Table 1 shows all ZIP codes included within the boundary of Cochise County, AZ. One asterisk (\*) indicates the ZIP code extends beyond the county's boundary. Two asterisks (\*\*) indicates the ZIP code is a P.O. Box-exclusive code. 85611 is not served by any facility in the County because of its geographic separation by the Huachuca Mountains.*

| <b>Table 1. Cochise County, AZ ZIP Codes</b>  |  |
|---|--|
| (85602*) Benson, Cascabel, J Six & Mescal<br>(85630) St. David<br>(85627) Pomerene<br>(85603) Bisbee<br>(85620) Naco<br>(85615) Hereford/Palominas<br>(85607, 85608, 85655**) Douglas<br>(85626) Pirtleville<br>(85610) Elfrida<br>(85617) McNeal, Double Adobe | (85635, 85650, 85636 & 85671**) Sierra Vista<br>(85613, 85670**) Ft. Huachuca<br>(85611*) Elgin, Canelo<br>(85616) Huachuca City & Whetstone<br>(85638) Tombstone<br>(85625) Sunizona, Sunsites, Pearce<br>(85609) Dragoon<br>(85643*, 85644) Willcox<br>(85605) Bowie<br>(85606) Cochise<br>(85632) Portal, San Simon |

## Community Partners

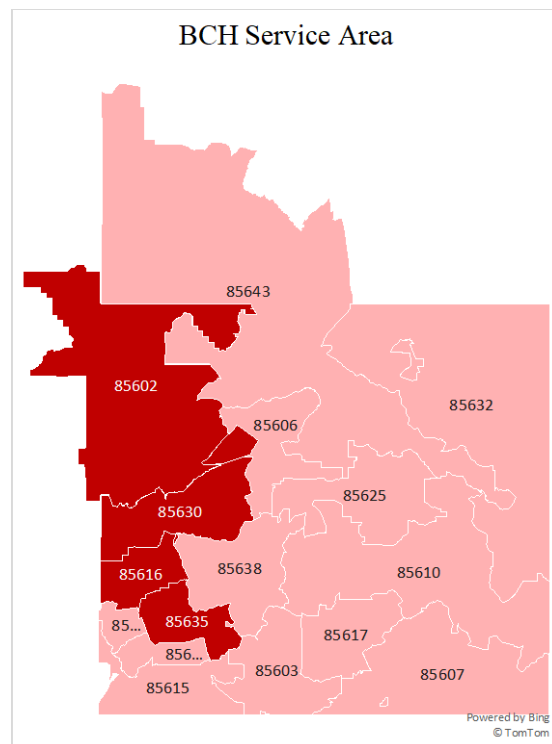
### *Cochise County Health & Social Services*

Cochise County Health & Social Services (CCHSS) is the only local health department in Cochise County, Arizona. It serves all of the county's 28 ZIP codes, providing prevention and clinical services as well as monitoring environmental health and establishing emergency preparedness strategies for the county's residents (CCHSS, n.d.). CCHSS is one of two providers of sliding-scale preventative treatments in the county and often provides free-at-point-of-use vaccinations and screenings for residents.

### *Benson Community Hospital*

Benson Community Hospital (BCH) is operated by Tucson Medical Center (TMC). It is located near the I-10 thoroughfare and serves as one of Cochise County's three Critical Access Hospitals (CAHs). Its service area is the northwestern portion of the county, comprising Benson, St. David, Pomerene, Whetstone, Huachuca City, and Sierra Vista (Benson Community Hospital & Northern Cochise Community Hospital, 2020).

Figure 2 shows all the ZIP codes included within the Benson Community Hospital Service Area



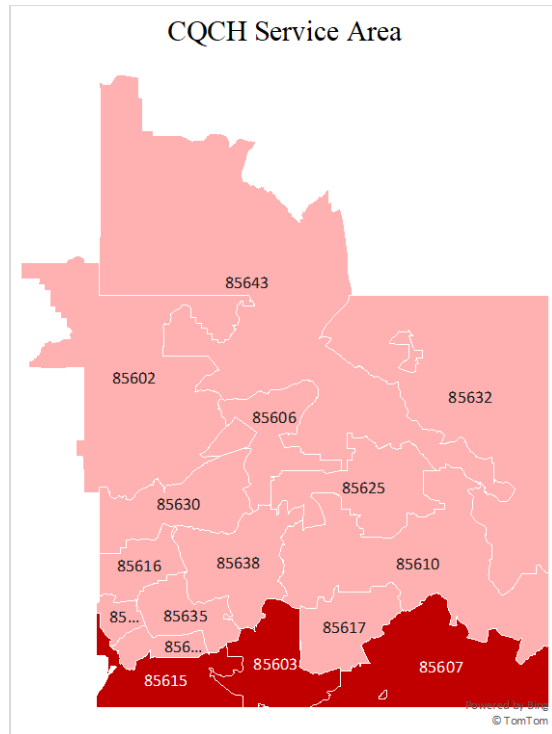


***Copper Queen Community Hospital***

Copper Queen Community Hospital (CQCH) serves the southern portion of Cochise County, including the communities of Bisbee, Naco, Douglas, Hereford, and Palominas. It serves as one of Cochise County’s three CAHs.

CQCH’s website indicates additional services in 85617 and 85610, but this was not reflected in their CHA.

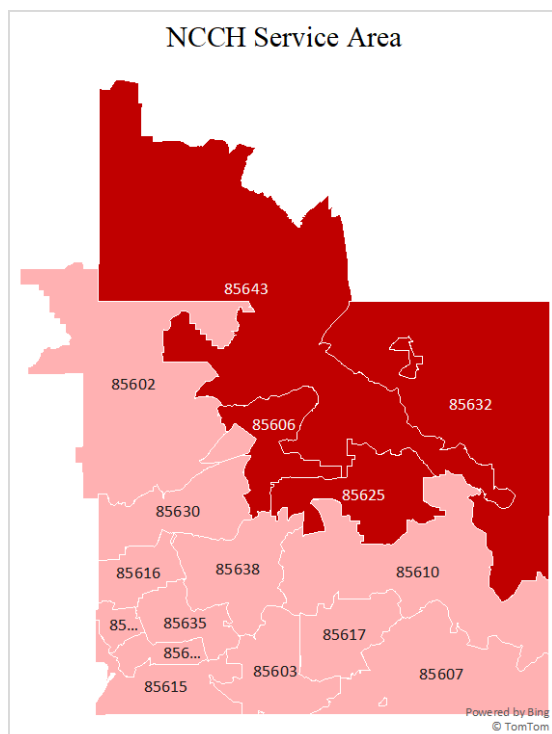
Figure 3 shows all the ZIP codes included within the Copper Queen Community Hospital Service Area.



***Northern Cochise Community Hospital***

Northern Cochise Community Hospital (NCCH) is operated by Tucson Medical Center (TMC). It is located in Willcox, AZ. It serves the northeastern portion of the County, including Willcox, Dragoon, Bowie, Sunsites, Sunizona, and Pearce. It is located near the I-10 thoroughfare and serves as one of Cochise County’s three CAHs.

Figure 4 shows all the ZIP codes included within the Northern Cochise Community Hospital Service Area.



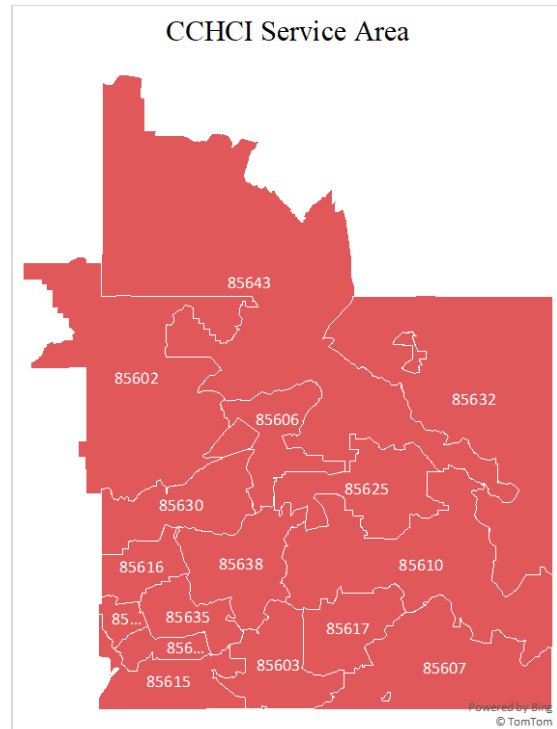
***Chiricahua Community Health Centers, Inc.***

Chiricahua Community Health Centers, Inc. (CCHCI) has a significant presence throughout the county with brick-and-mortar, mobile, and high school community clinics. Notably, Chiricahua is the only provider to serve the entire county, encompassing nearly every ZIP code contained within its boundaries (85611 excepted).

Chiricahua is a Federally Qualified Health Center, which means they are an integral part of providing primary health care to Cochise County's underserved community members.

They are one of two sliding-fee-scale health providers in the County (CCHCI, n.d.).

*Figure 5 shows all the ZIP codes included within the Chiricahua Community Health Centers, Inc. Service Area. It includes nearly all ZIP codes within Cochise County, except 85611, which is separated geographically from the county by the Huachuca Mountains.*

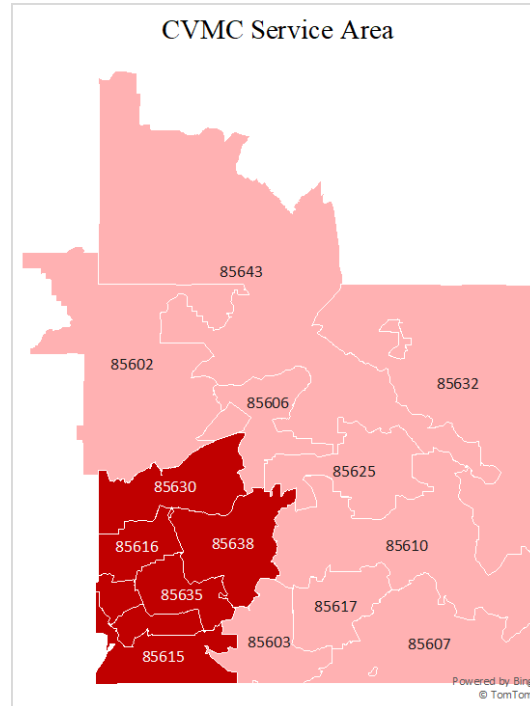


***Canyon Vista Medical Center***

Canyon Vista Medical Center (CVMC) is owned by LifePoint Health, headquartered in Brentwood, TN. It serves the southwestern portion of Cochise County, including the communities of Sierra Vista, Fort Huachuca, Hereford, Huachuca City, St. David, and Tombstone. CVMC is the only obstetric provider in the county.

As a for-profit institution, CVMC is not bound by the IRS non-profit reporting requirements.

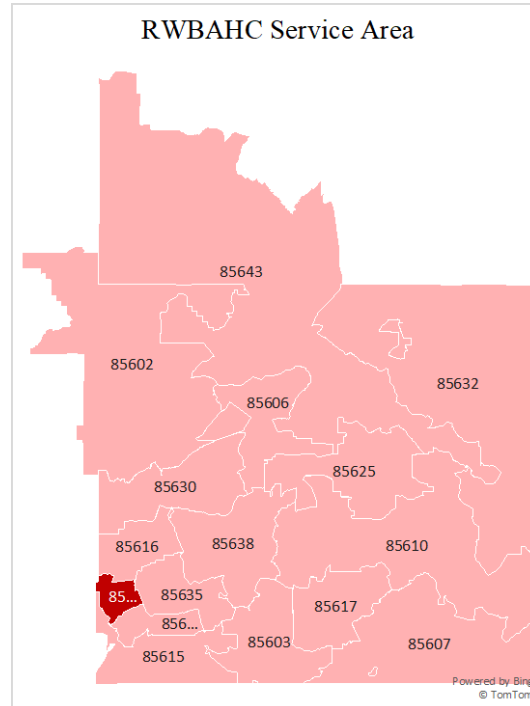
Figure 6 shows all ZIP Codes within the Canyon Vista Medical Center Service Area.



***Raymond W. Bliss Army Health Center***

Raymond W. Bliss Army Health Center (RWBAHC) is the Army-operated health clinic located on Fort Huachuca. RWBAHC is different from other medical facilities in the County because it only serves military members, their families, and military retirees. This limitation makes it difficult to pin down a service area, since their primary area would

Figure 7 shows all the ZIP codes included within the Raymond W. Bliss Army Health Center Service Area.



only be those who live within the confines of Fort Huachuca, though patients could come from anywhere within the county.

***The Arizona Center for Rural Health***

The Arizona Center for Rural Health (AzCRH) is an organization that is housed within the University of Arizona's College of Public Health. Its goal is to serve Arizona's rural communities by providing a resource for them by educating, training, and retaining health professionals and conducting data analysis to better inform healthcare policies and practices (AzCRH, n.d.).

***Community Research, Evaluation, & Development Team***

The Community Research, Evaluation, & Development (CRED) team is another University of Arizona office that is housed in the School of Human Ecology. They work with the UA Cooperative Extensions to facilitate community assessments using culturally-responsive techniques to improve the health and well-being of Arizona families (CRED, n.d.). They published the 2021 Building Healthy Communities Evaluation (BHCE).

## Methods

Hines et al. in *Progress in Community Health Partnerships* examined a match-to-standard approach to compare various published community assessments from the Flint, MI, area in the aftermath of the 2014 water crisis (Hines et al., 2020). Considering there are few published methodologies that are accessible to local health departments, it was identified as a viable option for conducting this assessment, given the funding and time constraints.

Eleven reports from community partners were identified through an Internet search and community networking. Each report had to meet one of three criteria to be considered: 1) county or state data that could be used for secondary analysis, 2) have at least one health metric as identified by Boothe et al., based on their analysis of CDC-recommended metrics, and 3) be the most recent report of its kind from each institution. All three elements were required for inclusion in the analysis. Despite the federal requirement to have these reports posted on the organization's website, many of the CHAs identified were difficult to find and required further inquiry via email. Canyon Vista Medical Center and RWBAHC reports, if they exist, were not made available. Reports from County Health Rankings (CHR), CCHSS, CCHCI, BCH & NCCH, CQCH, AzCRH, and the CRED Team at the University of Arizona were identified for use in this assessment (see [Appendix A](#)). The report from the AzCRH was not included in the analysis. Even though it meets all three requirements, it is also a meta-analysis, and its inclusion was redundant.

The search for reports was conducted in August and September 2022. Many were posted online, but some were obtained via personal correspondence with the publishing organization. Reports that did not meet the criteria were excluded, and the remaining candidates were included in the qualitative analysis.

Due to the different methodologies used to create each published report, it was imperative that an objective means for comparison was used. Included reports were examined for the presence of 42 frequently reported metrics, as identified by Boothe et al. (see [Appendix B](#)). A matrix was created to compare the frequency with which each metric occurred across all sources ([Appendix C](#)) using Microsoft Excel (Redmond, WA). During analysis, three additional metrics were identified (Opioid/Drug Abuse, Diabetes, and Access to Transportation), which appeared in nearly every report. Those metrics are also included in this analysis as “Other Metrics of Interest.”

Using these metrics, ratios were generated to measure the comprehensiveness of the existing reports. The denominator for the first comparison (Recommended Metrics) was 42. The numerator was the number of all metrics included in the individual report ( $0 \leq x \leq 42$ ). For the second comparison, the denominator was 45, where the 42 original metrics were combined with the additional metrics of interest. The denominator was the number of all metrics found in the individual report ( $0 \leq x \leq 45$ ). The resulting percentage was the “match-to-standard,” as determined by Hines et al.’s novel approach methodology. A higher percentage indicates a more comprehensive report, whereas a lower percentage indicates a less comprehensive report.

This also allows for identifying overlap in reports, where any overlap is indicative of possible duplication of effort. Overlap was identified by determining the frequency with which certain metrics are included between two reports. Then a ratio of duplicated categories is divided by the number of categories included between both analyses. The resulting percentage is the percent overlap between the two reports. Higher overlap indicates the possibility of inefficient use of local resources, therefore any metrics that occur uniquely are likely an efficient use of time and resources.

## Results

[Appendix A](#) lists the summary results for the ten reports that were analyzed. Also included was the report's title, the year it was published, the organization that published it, the number of health metrics per report, and the percentage match-to-standard (included for both the original 42 metrics plus the 42+3 other metrics of interest).

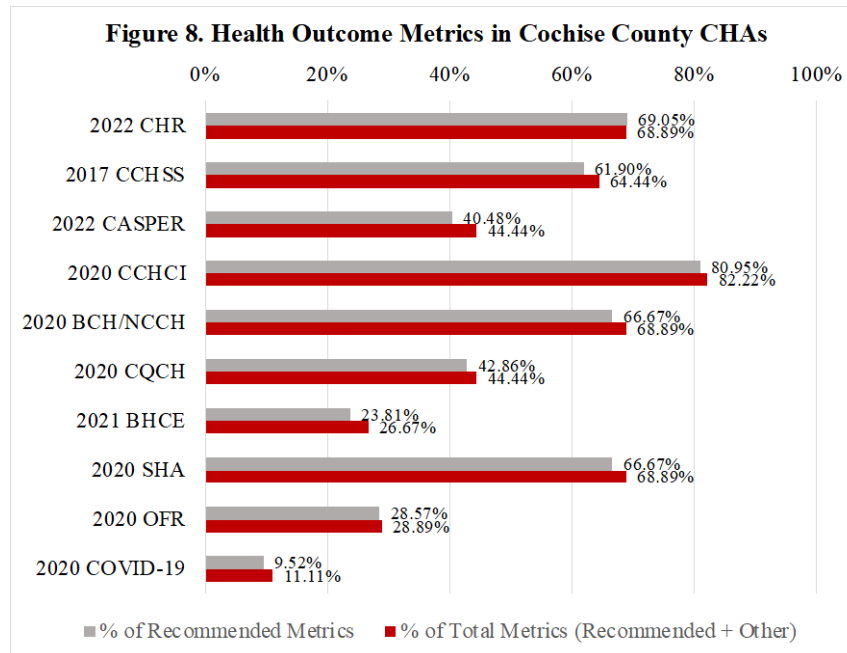


Figure 8 shows the relative coverage of each analyzed report. Gray boxes (top bar for each cluster) indicate the match-to-standard percentage against the original 42 metrics. The red boxes (bottom bar for each cluster) indicate the match-to-standard percentage for all metrics (42 recommended and 3 other).

Overall, there is a 4.44% gap in the information covered by all reports. The identified gaps are tuberculosis prevalence and seatbelt use, which were not included in any of the analyzed sources. Figure 8 (above) shows the comparative coverage of each CHA. When looking at individual reports, the one with the most coverage was the 2020 report produced by CCHCI, which provided information for 37 of 45 (82.22%) metrics. It captured leading causes of death, injury-related mortality, motor vehicle mortality, suicide, homicide, obesity, low birth weight, hospital utilization, cancer rates, health insurance coverage, provider rates, asthma-related hospitalization, tobacco use, physical activity, nutrition, alcohol use, immunizations and

screenings, age, sex, ethnicity, income, poverty level, educational attainment, employment status, foreign-born persons, language spoken at home, domestic violence and child abuse, violence and crime, social capital, air quality, water quality, housing, and all three of the other metrics of interest.

The next best coverage was on the BCH & NCCH Assessment from 2020, which included 31 of 45 (68.89%) metrics. It captured leading causes of death, infant mortality, injury-related mortality, motor vehicle mortality, obesity, low birth weight, cancer rates, motor vehicle injury, overall health status, STDs, health insurance coverage, provider rates, tobacco use, physical activity, nutrition, alcohol use, immunizations and screenings, age, race/ethnicity, income, poverty level, educational attainment, employment status, homelessness, violence and crime, air quality, water quality, housing, and all three other metrics of interest.

When comparing the top two local reports, the analysis showed a significant overlap between the two. 28 of 43 metrics (65.12%) overlap between the two highest-scoring local reports. Both reports reported metrics for the leading causes of death, injury-related mortality, motor vehicle mortality, obesity, low birth weight, cancer rates, motor vehicle injury, health insurance coverage, provider rates, tobacco use, physical activity, nutrition, alcohol use, immunizations and screenings, age, race/ethnicity, income, poverty level, educational attainment, employment status, homelessness, violence and crime, air quality, water quality, housing, and all three other metrics of interest. The CCHI CHA reported nine unique metrics: suicide, homicide, asthma-related hospitalization, sex, foreign-born persons, language spoken at home, domestic violence and child abuse, and social capital. The BCH/NCCH CHA had three unique metrics: infant mortality, overall health status, and STDs. Neither of them captured HIV/AIDS, tuberculosis, unsafe sex, seatbelt use, or marital status.



It is important to note that while many of the reports focus on the county or service area populations in a general sense, the BHCE and CASPER had more specific goals, resulting in fewer metrics being captured within the reports and, therefore, a lower match-to-standard (26.67% and 44.44%, respectively). BHCE specifically examined the access Cochise County residents have to healthy food and exercise, as well as their goals regarding access to those staples. CASPER was focused on the impact the coronavirus pandemic had on emergency preparedness. This is also seen with the OFR and COVID-19 reports. Each of these was created for a specific monitoring purpose, and it is reflected in the low coverage of CDC-included metrics.

## **Conclusions**

### **Outliers**

Three outliers were found that did not conform to the study model. Because the purpose was to analyze local reports, data that was not produced with an emphasis on the local community was not discussed in the results section above. The County Health Rankings & Roadmaps are a valuable tool for identifying health metrics. The match-to-standard for this report contained 31 of 45 identified metrics (68.89%), putting it on par with the BCH/NCCH report regarding comprehensiveness. The Arizona State Health Assessment (SHA) is presented here to show alignment with the County CHA. The SHA's match-to-standard rate also included 31 of 45 identified metrics (68.89%), making it only slightly more comprehensive than the county's most recent CHA (64.44%). The Arizona Center for Rural Health report comparing Arizona's Critical Access Hospitals CHNAs was its own meta-analysis. Still, it provides an interesting comparison of all rural areas within the state (Koch et al., 2022). Its exclusion was due to the lack of metrics presented, but it was still included as a resource for comparison.

### **Limitations**

This analysis was limited by the availability of materials and the willingness of local hospital administrations to share information. Two local hospitals were not included in the analysis because they did not have their information publicly available and/or did not respond to requests for information. Additionally, the type of information included in the analysis is a limitation on the conclusions that can be drawn from this assessment. While each had to present some sort of metric for each category, the definition of metric is not uniform. If there was a comparison between previous CHAs (e.g., "an increase in homelessness vs. 2017") or between locations (e.g., "is higher than the rest of the state"), it still counted as the report containing that

metric, even though it was not reported numerically. The rationale was that that information is available somewhere and can be found, even if it is not explicit within the report.

Gaps identified in public reports were metrics for tuberculosis and seatbelt use.

### **Comprehensiveness and Efficiency**

The comprehensiveness and efficiency of existing community data were assessed through the established match-to-standard method set forth by Hines et al. By comparing how thorough local data reports are with a list of CDC-recommended health data metrics, their comprehensiveness was measured. This measure should identify gaps in data availability across all available reports. Efficiency was measured by calculating the overlap across existing reports. Any metrics that are duplicated can be considered inefficient. Overall, the reports produced by local Cochise County hospitals and the local health department are not as comprehensive as the standard, and there is significant inefficiency in reported metrics. It is important to note that these reports were not created with the intention of comprehensiveness but rather a snapshot of the health of a community at a given point in time. The identified duplications represent opportunities for collaboration between community partners, which could increase efficiency.

### **Recommendations**

Given the overlap in service areas, the low comprehensiveness, and the low efficiency of the published local CHAs, it appears there is a potential for collaboration among Cochise County's health providers and CCHSS. A partnership between these organizations would allow them to pool resources, share costs, and eliminate redundancies in the required reporting for CHAs while increasing both the comprehensiveness and efficiency of published materials. This would require the facilitation of a task force to design, disseminate, analyze, and publish any collected data.

## Appendices

### Appendix A. Community Health Report Summary Comparisons

| Table 2. Community Health Report Summary Comparisons |   |  |      |                                  |         |                      |         |
|--|---|--|------|----------------------------------|---------|----------------------|---------|
| No.  | Report Title  | Published By   | Year | No. of Original Metrics          | % Match | No. of Total Metrics | % Match |
| 1  | Needs Assessment for Cochise County                                       | Chiricahua Community Health Centers, Inc.  | 2021 | 34                               | 80.95%  | 37                   | 82.22%  |
| 2  | Cochise County Health Rankings  | University of Wisconsin and RWJF   | 2022 | 29                               | 69.05%  | 31                   | 68.89%  |
| 3  | Community Health Needs Assessment   | Northern Cochise Community Hospital & Benson Hospital  | 2020 | 28                               | 66.67%  | 31                   | 68.89%  |
| 4  | 2021 Annual Update Arizona State Needs Assessment                         | Arizona Department of Health Services  | 2021 | 28                               | 66.67%  | 31                   | 68.89%  |
| 5  | Community Health Assessment   | Cochise County Health & Social Services  | 2017 | 26                               | 61.90%  | 29                   | 64.44%  |
| 6  | Community Health Needs Assessment   | Copper Queen Community Hospital  | 2020 | 18                               | 42.86%  | 20                   | 44.44%  |
| 7  | Community Assessment for Public Health Emergency Response (CASPER)        | Cochise County Health & Social Services  | 2022 | 17                               | 40.48%  | 20                   | 44.44%  |
| 8  | Cochise County Overdose Fatality Review Annual Report 2021                | Cochise County Health & Social Services  | 2021 | 12                               | 28.57%  | 13                   | 28.89%  |
| 9  | Cochise Building Healthy Communities Summative Evaluation Report          | The University of Arizona Norton School of Human Ecology Community Research, Evaluation, and Development (CRED) Team | 2021 | 10                               | 23.81%  | 12                   | 26.67%  |
| 10   | Cochise County COVID-19 Symptoms and Comorbidities: A Descriptive Summary | Cochise County Health & Social Services  | 2020 | 4                                | 9.52%   | 5                    | 11.11%  |
| 11   | Arizona Critical Access Hospitals: Community Health Needs                 | The University of Arizona Center for Rural Health  | 2022 | <i>Not included for analysis</i> |         |                      |         |

Table 2. Community Health Report Summary Comparisons (Arizona Department of Health Services, 2022; Benson Community Hospital & Northern Cochise Community Hospital, 2020; Chiricahua Community Health Centers, 2020; COCHISE COUNTY HEALTH & SOCIAL SERVICES, 2022; COCHISE HEALTH AND SOCIAL SERVICES et al., 2017; Copper Queen Community Hospital, 2020; *County Health Rankings & Roadmaps*, n.d.; Gilligan, 2021; Koch et al., 2022; Leih et al., 2021; Wager, 2020)

## Appendix B. Community Health Assessment for Population Health Improvement: Most Frequently Recommended Health Metrics

| <b>Table 3. Health Determinant and Correlate Metrics</b> |                                       |   |                              |  |                             |
|--|---------------------------------------|---|------------------------------|--|-----------------------------|
| <b>Mortality</b>   | <b>Morbidity</b>                      | <b>Health Care (Access &amp; Quality)</b> | <b>Health Behaviors</b>      | <b>Demographics &amp; Social Environment</b> | <b>Physical Environment</b> |
| Leading Causes of Death                                  | Obesity                               | Health Insurance Coverage                 | Tobacco Use & Smoking        | Age  | Air Quality                 |
| Infant Mortality   | Low Birth Weight                      | Provider Ratios (PCPs, Dentists)          | Physical Activity            | Sex  | Water Quality               |
| Injury-Related Mortality                                 | Hospital Utilization                  | Asthma-Related Hospitalization            | Nutrition                    | Race/Ethnicity                               | Housing                     |
| Motor Vehicle Mortality                                  | Cancer Rates                          |   | Unsafe Sex                   | Income                                       |                             |
| Suicide  | Motor Vehicle Injury                  |   | Alcohol Use                  | Poverty Level                                |                             |
| Homicide   | Overall Health Status                 |   | Seatbelt Use                 | Educational Attainment                       |                             |
|  | STDs (chlamydia, gonorrhea, syphilis) |   | Immunizations and Screenings | Employment Status                            |                             |
|  | HIV/AIDS                              |   |                              | Foreign Born                                 |                             |
|  | Tuberculosis                          |   |                              | Homelessness                                 |                             |
|  |                                       |   |                              | Language Spoken at Home                      |                             |
|  |                                       |   |                              | Marital Status                               |                             |
|  |                                       |   |                              | Domestic Violence and Child Abuse            |                             |
|  |                                       |   |                              | Violence and Crime                           |                             |
|  |                                       |   |                              | Social Capital/ Social Support               |                             |

Table 3. Most Frequently Recommended Health Metrics (Boothe et al., 2013)

**Appendix C. Match-to-Standard of Cochise County and Arizona Community Health Assessments**

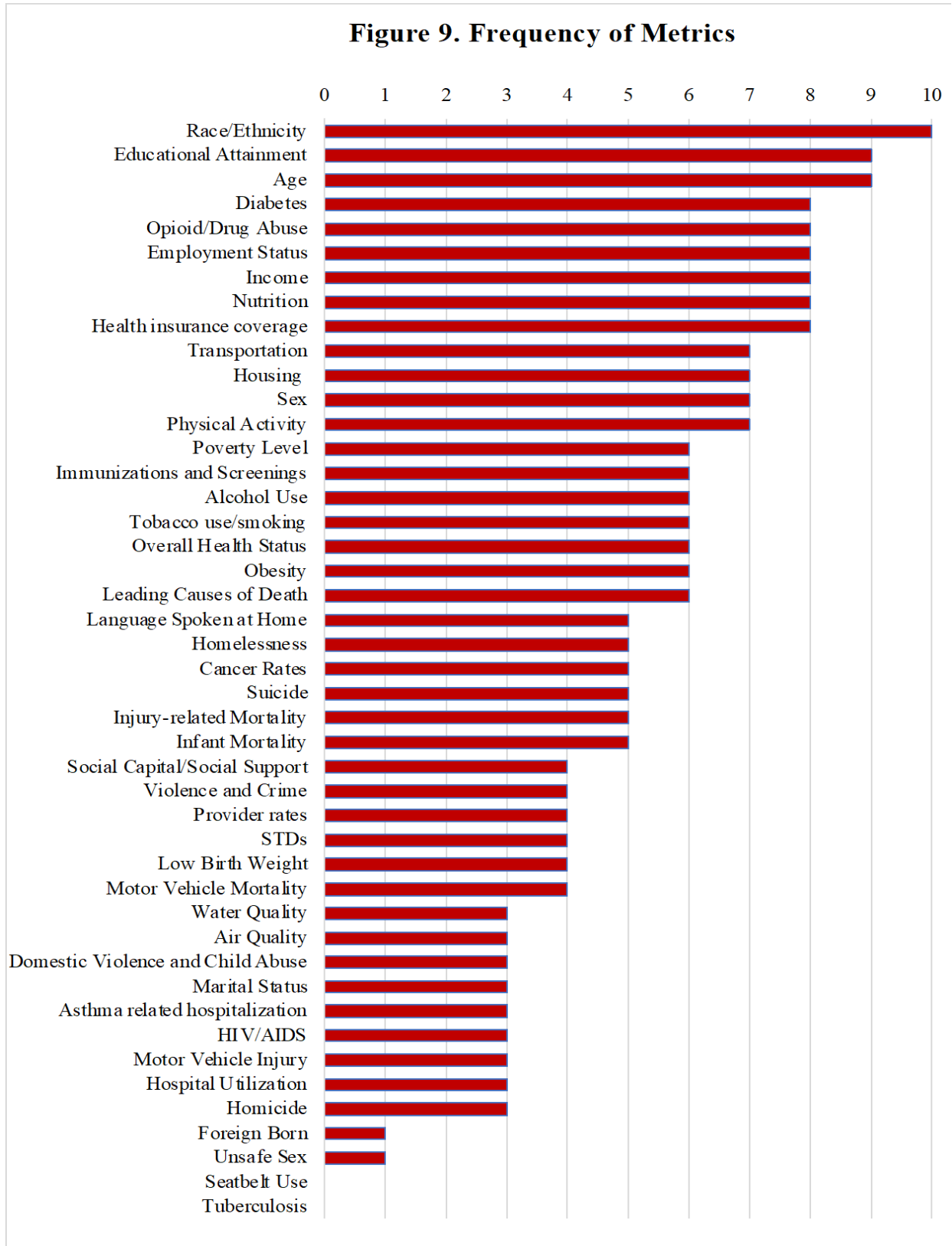
| <i>Health Outcome Metrics</i>           | <i>frequency</i> | 2022<br>CHR | 2017<br>CCHSS | 2022<br>CASPER | 2020<br>CCHCI | 2020<br>BCH/NCCH | 2020<br>CQCH | 2021<br>BHCE | 2020<br>SHA | 2020<br>OFR | 2020<br>COVID-<br>19 |
|---|------------------|-------------|---------------|----------------|---------------|------------------|--------------|--------------|-------------|-------------|----------------------|
| <b>Mortality</b>                        |                  |             |               |                |               |                  |              |              |             |             |                      |
| Leading Causes of Death                 | 6                |             | x             |                | x             | x                | x            |              | x           | x           |                      |
| Infant Mortality                        | 5                | x           | x             |                |               | x                | x            |              | x           |             |                      |
| Injury-related Mortality                | 5                | x           | x             |                | x             | x                |              |              | x           |             |                      |
| Motor Vehicle Mortality                 | 4                | x           | x             |                | x             | x                |              |              |             |             |                      |
| Suicide                                 | 5                | x           |               |                | x             |                  | x            |              | x           | x           |                      |
| Homicide                                | 3                | x           |               |                | x             |                  |              |              | x           |             |                      |
| <b>Morbidity</b>                        |                  |             |               |                |               |                  |              |              |             |             |                      |
| Obesity                                 | 6                | x           | x             |                | x             | x                | x            | x            |             |             |                      |
| Low Birth Weight                        | 4                | x           |               |                | x             | x                |              |              | x           |             |                      |
| Hospital Utilization                    | 3                |             |               |                | x             |                  |              |              | x           | x           |                      |
| Cancer Rates                            | 5                |             | x             |                | x             | x                | x            |              | x           |             |                      |
| Motor Vehicle Injury                    | 3                |             |               |                | x             | x                |              |              | x           |             |                      |
| Overall Health Status                   | 6                | x           |               | x              |               | x                |              | x            | x           | x           |                      |
| STDs                                    | 4                | x           | x             |                |               | x                |              |              | x           |             |                      |
| HIV/AIDS                                | 3                | x           | x             |                |               |                  |              |              | x           |             |                      |
| Tuberculosis                            | 0                |             |               |                |               |                  |              |              |             |             |                      |
| <b>Health Care Access &amp; Quality</b> |                  |             |               |                |               |                  |              |              |             |             |                      |
| Health insurance coverage               | 8                | x           | x             | x              | x             | x                | x            |              | x           | x           |                      |
| Provider rates                          | 4                | x           |               |                | x             | x                | x            |              |             |             |                      |
| Asthma related hospitalization          | 3                |             | x             |                | x             |                  |              |              | x           |             |                      |
| <b>Health Behaviors</b>                 |                  |             |               |                |               |                  |              |              |             |             |                      |
| Tobacco use/smoking                     | 6                | x           |               | x              | x             | x                |              |              | x           |             | x                    |
| Physical Activity                       | 7                | x           | x             | x              | x             | x                |              | x            | x           |             |                      |
| Nutrition                               | 8                | x           | x             | x              | x             | x                | x            | x            | x           |             |                      |
| Unsafe Sex                              | 1                |             |               | x              |               |                  |              |              |             |             |                      |
| Alcohol Use                             | 6                | x           | x             | x              | x             | x                | x            |              |             |             |                      |
| Seatbelt Use                            | 0                |             |               |                |               |                  |              |              |             |             |                      |
| Immunizations and Screenings            | 6                | x           | x             | x              | x             | x                |              |              | x           |             |                      |

|  |           |           |           |           |           |           |           |           |           |           |          |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| <b>Demographics &amp; Social Environment</b> |           |           |           |           |           |           |           |           |           |           |          |
| Age  | 9         |           | x         | x         | x         | x         | x         | x         | x         | x         | x        |
| Sex  | 7         |           | x         |           | x         |           | x         | x         | x         | x         | x        |
| Race/Ethnicity                               | 10        | x         | x         | x         | x         | x         | x         | x         | x         | x         | x        |
| Income                                       | 8         | x         | x         | x         | x         | x         | x         | x         | x         |           |          |
| Poverty Level                                | 6         | x         | x         |           | x         | x         | x         | x         |           |           |          |
| Educational Attainment                       | 9         | x         | x         | x         | x         | x         | x         | x         | x         | x         |          |
| Employment Status                            | 8         | x         | x         | x         | x         | x         | x         |           | x         | x         |          |
| Foreign Born                                 | 1         |           |           |           | x         |           |           |           |           |           |          |
| Homelessness                                 | 5         | x         |           |           | x         | x         |           |           | x         | x         |          |
| Language Spoken at Home                      | 5         |           | x         | x         | x         |           | x         |           | x         |           |          |
| Marital Status                               | 3         | x         | x         |           |           |           | x         |           |           |           |          |
| Domestic Violence and Child Abuse            | 3         | x         |           | x         | x         |           |           |           |           |           |          |
| Violence and Crime                           | 4         | x         | x         |           | x         | x         |           |           |           |           |          |
| Social Capital/Social Support                | 4         |           | x         | x         | x         |           |           |           | x         |           |          |
| <b>Physical Environment</b>                  |           |           |           |           |           |           |           |           |           |           |          |
| Air Quality                                  | 3         | x         |           |           | x         | x         |           |           |           |           |          |
| Water Quality                                | 3         | x         |           |           | x         | x         |           |           |           |           |          |
| Housing                                      | 7         | x         | x         | x         | x         | x         |           |           | x         | x         |          |
| <b>TOTAL</b>                                 | <b>40</b> | <b>29</b> | <b>26</b> | <b>17</b> | <b>34</b> | <b>28</b> | <b>18</b> | <b>10</b> | <b>28</b> | <b>12</b> | <b>4</b> |
| % of Recommended Metrics                     | 95.24%    | 69.05%    | 61.90%    | 40.48%    | 80.95%    | 66.67%    | 42.86%    | 23.81%    | 66.67%    | 28.57%    | 9.52%    |
|  | 4.76%     | 30.95%    | 38.10%    | 59.52%    | 19.05%    | 33.33%    | 57.14%    | 76.19%    | 33.33%    | 71.43%    | 90.48%   |
| <b>Other Metrics of Interest</b>             |           |           |           |           |           |           |           |           |           |           |          |
| Opioid/Drug Abuse                            | 8         | x         | x         | x         | x         | x         | x         |           | x         | x         |          |
| Diabetes                                     | 8         |           | x         | x         | x         | x         | x         | x         | x         |           | x        |
| Transportation                               | 7         | x         | x         | x         | x         | x         |           | x         | x         |           |          |
| <b>TOTAL</b>                                 | <b>43</b> | <b>31</b> | <b>29</b> | <b>20</b> | <b>37</b> | <b>31</b> | <b>20</b> | <b>12</b> | <b>31</b> | <b>13</b> | <b>5</b> |
| % of Total Metrics (Recommended + Other)     | 95.56%    | 68.89%    | 64.44%    | 44.44%    | 82.22%    | 68.89%    | 44.44%    | 26.67%    | 68.89%    | 28.89%    | 11.11%   |

Table 4. Match-to-Standard of Cochise County and Arizona Community Health Reports with 42 standard metrics and 3 other metrics of interest. (Arizona Department of Health Services, 2022; Benson Community Hospital & Northern Cochise Community Hospital, 2020; Chiricahua Community Health Centers, 2020; COCHISE COUNTY HEALTH & SOCIAL SERVICES, 2022; COCHISE HEALTH AND SOCIAL SERVICES et al., 2017; Copper Queen Community Hospital, 2020; County Health Rankings & Roadmaps, n.d.; Gilligan, 2021; Koch et al., 2022; Leih et al., 2021; Wager, 2020)



**Appendix D. Frequency of Health Outcome Metrics Across All Reports**



**Appendix E. Abbreviations**

- AzCRH: Arizona Center for Rural Health
- BCH: Benson Community Hospital
- CAH: critical access hospital
- CASPER: Community Assessment for Public Health Emergency Response
- CCHCI: Chiricahua Community Health Centers, Inc.
- CCHSS: Cochise County Health & Social Services
- CDC: Centers for Disease Control & Prevention
- CHA: community health assessment
- CHNA: community health needs assessment
- CMS: Centers for Medicare and Medicaid Services
- COVID-19: coronavirus disease of 2019
- CQCH: Copper Queen Community Hospital
- CRED: Community Research, Evaluation, & Development Team
- CVMC: Canyon Vista Medical Center
- FQHC: federally qualified health centers
- HIV/AIDS: Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
- HRSA: Health Resources & Services Administration
- IRS: Internal Revenue Service
- KFF: Kaiser Family Foundation
- LHD: local health department
- NCCH: Northern Cochise Community Hospital
- PHAB: Public Health Accreditation Board
- RWBAHC: Raymond W. Bliss Army Health Center
- SHA: state health assessment
- STDs: sexually transmitted diseases
- TMC: Tucson Medical Center

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