Appendix A: Methods

Comprehensive Data Collection

The needs assessment utilized a mixed-method approach to data collection including secondary quantitative data and primary quantitative and qualitative data. Each data collection strategy adhered to a recruitment plan to ensure a representative sample of community members, voices of underrepresented populations and providers across the health and social services sectors were captured. Below, each data collection strategy is outlined include the sampling or recruitment strategy, and analysis.

Secondary Data

Secondary data sources were used to capture community-level data on health conditions, healthcare access, and risk factors. Data sources are cited throughout the report. Large secondary data sources include the American Community Survey (ACS), National Center for Health Statistics, CDC's Behavioral Risk Factor Surveillance System, and Ohio Hospital Association (OHA) and Health Information Exchange (HIE) hospital and emergency department utilization data. Other secondary data regarding social determinants of health were pulled from 2021 County Health Rankings National Data (CHR).

Provider Survey

The primary goal of the provider survey was to assess the current state of system barriers to providing health care and to addressing the greatest health needs of the community, and to identify solutions to overcoming system and SDOH-related barriers. The online survey was open from April 2021 to May 2021. Below outlines the sampling and analysis strategy for the provider survey.

Sampling

A total of 859 provider surveys were included in the analysis.[1] Across the three regions, the representation of providers from different fields were relatively equal (Table A1) with the exception of Dayton-Kettering MSA where there was much higher representation from Medical Health professionals (general population; 29%) compared to Cincinnati MSA (10%) and Rural Counties (14%). As shown in Table A2, among healthcare professionals, more than half in each region provide direct patient care. Among social service professionals, the most common roles among respondents were in Administration/Senior Management. Providers also reported serving the Regional CHNA target populations with 50% or more serving children/youth, disabled, ethnic minority, homeless, low-income, parent/caretaker and older adult populations (Table A3).

Table A1. Percent of Survey Respondents from Each Region by Provider Type

Provider Type	Cincinnati MSA (n = 596)	Dayton-Kettering MSA and Clark County (n = 300)	Rural Counties (n = 335)
Behavioral Health, Non-School-Based	7%	8%	10%

[1] 974 individuals began and/or completed the provider survey, with 113 responses removed due to incompleteness (i.e., did not provide answers to questions beyond the counties they serve and their role). Another two responses were removed because the individuals did not work within the region.

Table A1. Percent of Survey Respondents from Each Region by Provider Type			
Provider Type	Cincinnati MSA (n = 596)	Dayton-Kettering MSA and Clark County (n = 300)	Rural Counties (n = 335)
Behavioral Health, School-Based	10%	5%	7%
Education: College/University	9%	6%	7%
Education: Early Childhood	6%	2%	4%
Education: K-12	3%	2%	4%
Emergency Medical Services/First Responder	5%	6%	6%
Faith-Based Organization	4%	3%	5%
Federally Qualified Health Center	3%	1%	2%
Justice or Corrections	2%	4%	3%
Medical Health -Adult	8%	12%	8%
Medical Health -General Population	10%	29%	14%
Medical Health -Geriatric	2%	2%	2%
Medical Health -Pediatric	3%	2%	2%
Oral Health	7%	5%	6%
Other organizations addressing social determinants of health	5%	6%	5%
Pharmaceutical	4%	2%	5%
Public Health Department	7%	3%	6%
Other	5%	4%	4%

Table A2. Percent of Survey Respondents from Each Region by Provider Role			
Provider Roles	Cincinnati MSA (n = 596)	Dayton-Kettering MSA and Clark County (n = 300)	Rural Counties (n = 334)
Health-Related			
Administration	33%	23%	37%
Provide direct patient care	59%	68%	54%
Academic	7%	4%	6%
Other Role	2%	4%	3%
Social Service-Related			
Administrative Support Staff	14%	9%	11%
Administrator/Senior Management	52%	47%	64%
Direct Service Provider	21%	28%	17%
Manager or Supervisor	10%	14%	5%
Other Role	3%	1%	3%

Table A3. Percent of Survey Respondents from Each Region by Populations Served			
Populations Served	Cincinnati MSA (n = 594)	Dayton-Kettering MSA and Clark County (n = 300)	Rural Counties (n = 335)
All Residents	43%	56%	48%
Children/Youth	28%	22%	24%

Table A3. Percent of Survey Respondents from Each Region by Populations Served			
Populations Served	Cincinnati MSA (n = 594)	Dayton-Kettering MSA and Clark County (n = 300)	Rural Counties (n = 335)
Disabled	20%	22%	19%
Ethnic Minorities	22%	25%	21%
Homeless	19%	22%	20%
Justice-Involved Individuals	9%	13%	11%
Language Minorities	10%	13%	7%
LGBTQ+	11%	18%	11%
Low-Income Populations	22%	25%	19%
Older Adults	26%	32%	30%
Parents/Caretakers	16%	19%	17%
Veterans	8%	15%	10%
Young Adults	13%	17%	10%
Another Population	2%	4%	2%

Analysis

The provider survey analysis assessed overall perceptions among providers in THC's region, as well as differences in perceptions and experiences among different types of providers. For overall perceptions and experiences, frequency and descriptive analyses were conducted.

To assess for differences in perceptions and experiences by provider characteristics, descriptive and frequency statistics were compared by provider types (e.g., behavioral healthcare providers compared to medical providers) and regions served. Multiple regression analysis was conducted to assess the extent to which best practice utilization impacts providers' perceptions of barriers. Table A4 outlines the research questions and subsequent analysis types including the outcome and predictor variables that were used in analysis.

Table A4. Population Survey Planned Analysis and Research Questions			
Research Question	Analysis	Outcome	Predictors
How do barriers providers face in addressing the needs of the community differ by provider characteristics?	Frequencies and descriptive statistics	Barriers scale scores	Provider region and type of provider
How do best practices to overcome these barriers to addressing the needs of the community differ by provider characteristics?	Frequencies and descriptive statistics	Has Successfully implemented this/Has not	Provider region and type of provider
Does best practice utilization significantly predict the extent to which providers experience barriers to providing care?	Multiple Regression	Barriers scale scores	Sum score of best practices successfully implemented, Provider region, and type of provider

Population Survey

The primary goal of the population survey was to gather a wide range of voices to share their experiences and insights with health conditions, risk factors, and structural barriers. The electronic survey was open from April 2021 to June 2021 and available in Arabic, English, French, Nepali, and Spanish. Paper surveys were provided when requested. To improve response rates, there were two drawings for a $100 Amazon gift card. An overview of the sampling and analysis strategies for the population survey are provided below.

Sampling

To ensure a representative sample of THC's geographic service area, three separate stratified sampling strategies were developed to reflect the age, race, and gender of Cincinnati Metropolitan Statistical Area (MSA),[2] Dayton-Kettering MSA (to include Clark County which is not part of the Dayton MSA but is similar in that it borders the Dayton MSA and is not a rural county),[3] and other rural counties in the geographic service area that are predominately rural and not included in other MSAs.[4] Over 11,000 individuals responded to an online survey with 8,321 valid responses.[5] Table A5 provides a description of the valid sample represented in the results. A full description can be found in Appendix B.

Table A5. Percent of Population Survey Respondents by Region

Demographic	Cincinnati		Dayton-Kettering		Other Rural Counties	
	MSA n=1,646,873	Sample n=4,415	MSA n=729,904	Sample n=2,543	MSA n=257,910	Sample n=1,363
	%	%	%	%	%	%
Age						
18-24	12%	8%	12%	6%	11%	7%
25-34	18%	30%	17%	20%	14%	30%
35-44	16%	16%	15%	22%	15%	16%
45-64	35%	29%	34%	44%	37%	33%
65+	19%	17%	22%	9%	23%	13%
Race						
Black or African American	12%	8%	14%	8%	1%	2%
Multiracial	1%	4%	2%	3%	1%	2%

[2] Includes the following counties: Grant, Butler, Clermont, Hamilton, Warren, Dearborn, Kenton, Boone, Campbell, Brown, Ohio, Union, and Franklin.
[3] Includes the following counties: Clark, Montgomery, Miami, and Greene.
[4] Includes the following counties: Clinton, Highland, Adams, Preble, Shelby, Darke, Auglaize, and Champaign.
[5] 11,615 total responses were gathered from our survey results. From here, 2,343 respondents were dropped from analysis due to listing their zip code as one clearly outside of our regions of interest. An additional 38 respondents were dropped based on unreliable reporting of needing treatment for five major diseases in the past year. 198 individuals were dropped due to their written selection for race being uninformative or unreliable. An additional 333 respondents were dropped for low question response rate (15 or less answered questions). 139 respondents were dropped for likely duplicate entries. Finally, those who did not have complete responses for MSA, age, sex, and race were dropped from analysis, resulting in 8,321 valid responses.

Table A5. Percent of Population Survey Respondents by Region						
Demographic	Cincinnati		Dayton-Kettering		Other Rural Counties	
Asian, American Indian/Alaskan Native, Native Hawaiian or Pacific Islander or another race that is not White or Black or Multiracial	5%	12%	4%	7%	2%	10%
White or Caucasian	82%	76%	80%	83%	96%	85%
Ethnicity						
Hispanic or Latino	2%	4%	2%	3%	1%	5%
Not Hispanic or Latino	98%	96%	98%	97%	99%	95%
Gender						
Male	48%	34%	48%	20%	49%	30%
Female	52%	66%	52%	80%	51%	70%

As shown in Table A5, as is often the case, the sample characteristics do not perfectly align to the population within the Health Collaborative's region. In order to make population-level conclusions and observations from our data, a survey data weighting method was applied to ensure the sample distribution of demographics align with the population distribution. The method of survey weighting used in this analysis is called raking**.** This method is also used by Pew Research Center, and the CDC also uses raking in their Behavioral Risk Factor Surveillance System (BRFSS) data. For more details related to the raking methodology, please refer to Appendix B.

Analysis

For overall perceptions and experiences, frequency and descriptive analyses were conducted using survey response weighting described above. To assess for differences in perceptions and experiences related to health, logistic and multiple regression analyses were conducted. Table A6 outlines the research questions and subsequent analysis types including the outcome, predictor, and control variables that were used. Because much of the needs assessment was focused on determining which individuals and in which regions individuals are experiencing the greatest health needs or gaps, reference groups were selected based on the literature and previous research which inform groups of individuals who are most likely to be negatively impacted relative to majority or historically not-underrepresented groups (e.g., White individuals, individuals from higher socioeconomic statuses, individuals without disabilities); choice of reference group does not change the reliability or validity of the statistics or model, but rather provides targeted insights into group differences.

Table A6. Population Survey Planned Analysis and Research Questions

Research Question	Analysis	Outcome	Predictors	Controls
How does need/prevalence of health conditions differ across communities and members?	Logistic Regression	Needed (received or not) for each of the health conditions of interest	Gender identity, sexual orientation, age, race/ethnicity, income or education, disability status, employment status, region, insurance, children in household, military status	The behavioral/health risk factors correlated with each health condition (options: alcohol, healthy diet, high blood pressure, high cholesterol, tobacco, exercise, BMI)
How do barriers to care differ across communities and members?	Multiple Regression	Each of the Barrier subscales as separate outcomes	Gender identity, sexual orientation, age, race/ethnicity, income or education, disability status, employment status, region, insurance, children in household, military status	
How does receipt of preventive care differ across communities and members?	Multiple Regression	Preventive Care frequency	Gender identity, sex orientation, age, race/ethnicity, income or education, disability status, employment status, region, insurance, children in household, military status	

Which SDOH are most predictive of need/prevalence of health conditions?	Logistic Regression	Needed (received or not) for each of the health conditions of interest	Each of the SDOH construct scale scores	The behavioral/health risk factors correlated with each health condition (options: alcohol, healthy diet, high blood pressure, high cholesterol, tobacco, exercise, BMI)
How does access to care (needing and not receiving relative to needing and receiving care) differ across communities and members?	Logistic Regression	Needed and Not Received vs. Needed and Received	gender identity, sex orientation, age, race/ethnicity, income or education, Disability status, Employment status, Region, Insurance, Children in household, Military Status	
How do experiences of SDOH differ across communities and community members?	Multiple Regression	Each of the SDOH subscales	gender identity, sex orientation, age, race/ethnicity, income or education, Disability status, Employment status, Region, Insurance, Children in household, Military Status	

How does the effect of COVID-19 **on access to care (delaying or going without) differ across communities and members?**	Multiple Regression	Post COVID-19 access	gender identity, sex orientation, age, race/ethnicity, income or education, Disability status, Employment status, Region, Insurance, Children in household, Military Status	Pre COVID-19 access

Focus Groups

The goal of focus groups was to document the unique health needs and experiences of community members known to experience health disparities or that do not tend to participate in online surveys. Focus group discussions centered around the following three broad questions:

- How do health needs differ across communities and community members?
- What are the personal experiences, local contexts, and social conditions (e.g., SDOH and root causes) driving the greatest health needs in and across community groups?
- How can healthcare providers better reach community members?

Focus groups were conducted, virtually, by researchers from MRC, Scale Strategic Solutions, and a team of University of Cincinnati (UC) faculty and students, with MRC facilitating the collaborative effort. Researchers collaborated with community champions in order to identify community members to participate. Focus groups lasted one hour, were conducted in person or via Zoom, and each participant received a $25 grocery gift card (Amazon, Walmart, or Kroger) for their expertise in the focus group. An overview of the recruiting and analysis strategies for the focus groups are provided below.

Recruiting

Based on the population groups the advisory committee identified as experiencing health disparities or being underrepresented in community data, MRC designed a recruitment strategy to ensure all the population groups were included. A total of 51 focus groups were conducted, with a total of 234 community members (65% female, 31% male). Table A7 identifies some of the unique populations represented in the focus groups.

Table A7. Population Representation in Focus Groups by Region			
Population Category	**Cincinnati MSA**	**Dayton-Kettering MSA**	**Other Rural Counties**
Adult Men	✓	✓	✓
Experience in Foster Care, or Foster Care Parent	✓		
Disabled Youth and Adults	✓	✓	
Ethnic, Cultural and Language Minorities	✓	✓	✓

Table A7. Population Representation in Focus Groups by Region			
Population Category	**Cincinnati MSA**	**Dayton-Kettering MSA**	**Other Rural Counties**
First- and Second- Generation Immigrants	✓	✓	
Homeless Community Members	✓	✓	
Justice-involved Individuals	✓		✓
Low-income Families/Individuals	✓	✓	✓
Older Adults	✓	✓	✓
Parents	✓	✓	✓
Veterans	✓	✓	
Young Adults (18-30 years)	✓	✓	✓
Youth (high school)	✓	✓	✓
Community Members with lived experience of mental health and/or addiction (including Peer Supporters)	✓	✓	

Analysis

Focus group discussions were transcribed, and content analyzed for common clusters of similar statements, organized by categories of clusters, and then analyzed for larger themes that summarize the global and unique perspectives of focus group participants.

Interviews

The goal of interviews was to assess the current state of system barriers to providing health care and to addressing the greatest health needs of the community, and to identify solutions to overcoming system and SDOH-related barriers. Interviews were designed around the following broad questions:

- What are the system barriers providers face in addressing the needs of community groups?
- What recommendations or best practices can be recommended to overcome system barriers to addressing the health needs of the community?
- What are the historical traumas, local contexts, and social conditions (e.g., SDOH and root causes) driving the greatest health needs of your communities?
- What specific action steps can be taken by various providers to address root causes to health disparities and achieve more equitable health outcomes?

Interviews were conducted via phone or virtually. MRC, Scale Strategic Solutions, and the UC research teams conducted interviews, each lasting approximately 45 minutes. An overview of the sampling and analysis strategies for the interviews are provided below.

Recruiting

MRC and UC worked with the Advisory Team to identify system experts and organizational-level stakeholders representing governmental, Regional CHNA partners, healthcare providers and community-based leaders. A total of 38 interviews were conducted, representing experience from the following health and social service sectors shown in Table A8.

Table A8. System Representation in Interviews by Region			
Provider Category	Cincinnati MSA	Dayton-Kettering MSA	Rural Counties
Community Health Centers and Federally Qualified Health Centers	✓	✓	
Public Health and County Health Departments	✓	✓	✓
Hospital Systems	✓	✓	
Mental and SUD Health Care	✓	✓	✓
Medical Health -Geriatric		✓	
SDOH -Housing		✓	
SDOH -Economic Disparity	✓	✓	✓
SDOH -Transportation		✓	✓
LGBTQ+ Health Care	✓		
Emergency Health Care	✓		
Healthcare Access and Policy Experts	✓	✓	✓
SDOH -Food Access	✓	✓	✓
Pharmacy Access Experts	✓	✓	✓
Healthcare Workforce Development Experts	✓	✓	✓
Correctional Facility-based Health Care			✓
School-based and Children’s Health Care	✓	✓	✓

Analysis

All individual stakeholder responses are confidential. Interviews were transcribed and content analyzed for common clusters of similar statements, organized by categories of clusters, and then analyzed for larger themes that summarize the global and unique perspectives of interview participants.

This comprehensive and inclusive data collection strategy resulted in a balanced representation across all three regions of the Regional CHNA. The success of the data collection is due largely to the advisory committee, community partners, and community champions.

Collaborative Data Collection

The University of Cincinnati (UC) received an applied research grant to conduct field research related to child and youth health. This grant allowed the Regional CHNA to expand data collection to include children and youth with wider representation. It is critical to uncover how to help youth, college students and families in our region, and to understand their perceptions.

The UC Team for the Regional CHNA utilized interviews and focus groups to understand perceptions of what it is to be healthy, needs of interest groups (focusing on youth and college students as well as families), barriers to health, ideas for overcoming barriers, perceptions of telehealth, needs for advocacy, healthcare access, healthcare successes in the region, and ideas for improving care and ways of interacting with patients. Twelve focus groups and 14 interviews were conducted by the UC team and the results were analyzed using deductive coding methods. The results were integrated into the final qualitative dataset for analysis. (Samples are included in Tables A7 and A8 above).

Data Considerations (Limitations)

When using the Regional CHNA community survey data to make generalizations of the population at large, it should be noted that a targeted snowball sampling methodology was utilized. Based on the importance and, often, largely differing perceptions of health by age, race, and gender, the sampling strategy prioritized oversampling numerically underrepresented populations to ensure a sufficient sample to conduct statistical analyses by key demographic variables. As a result, the Regional CHNA community survey has an overrepresentation of females, individuals ages 25 to 34 years, individuals classified as a race other than White, Black, or Multiracial, and Hispanic individuals. Because of this overrepresentation, MRC conducted a weighted analysis as previously described to show frequency and descriptive statistics for the three regions overall. Using the unweighted survey data, regression analyses were performed to understand differing perceptions by demographics.

Appendix B: Supplemental Data for Health Conditions

Survey Weighting Methods: Raking

The first step of the raking procedure is to choose our set of variables that we would use for the weighting procedure, and that have known values at the population level. In this analysis, these variables include sex assigned at birth, age category, race, and ethnicity (Hispanic or Non-Hispanic). The categories for age and race were matched to the population level data from the U.S. Census Bureau's American Community Survey (ACS Tables B01001 A-I, 2019, 5-year estimates).

Raking is unique in the sense that only the marginal proportions (proportion of data by level in a *single* variable) are needed for weighting our data. This weighting method iteratively adjusts the weights for individuals based off the differences in the survey sample and population proportions. In other words, first the weights are adjusted for the variable sex assigned at birth, then age, race, and finally ethnicity. When the weights are adjusted for race, for example, the distribution of weights for other variables may then be altered. To fix this alteration, another iteration of weighting is done, bringing the distribution of weights for each variable closer to what is necessary to match our distribution of data to the true population. The process continues until the distribution of variable weights in the sample most closely matches that of the population.[i]

In our raking procedure, the maximum weight value was set to five, and weights greater than five were then truncated. This is an arbitrarily chosen value consistent with literature, which in our case translates to five times the mean (mean of 1). The purpose of setting a limit on weights is to try and reduce the added sampling variability our data gains by adding weights.[ii] Additionally, the threshold for variable inclusion was set to 5% (0.05), and the method for variable selection was total discrepancies across variable levels. That is, for a variable to be selected in the raking procedure, the sum of discrepancies between sample proportions and population proportions must be greater than 5% or 0.05.[iii] The values selected for maximum weight and percent limit are common practice, and the default used in the "anesrake" function used in r.[iv] All three MSA datasets reached convergence and have minimal residual differences between the sample and population distribution of values after raking.

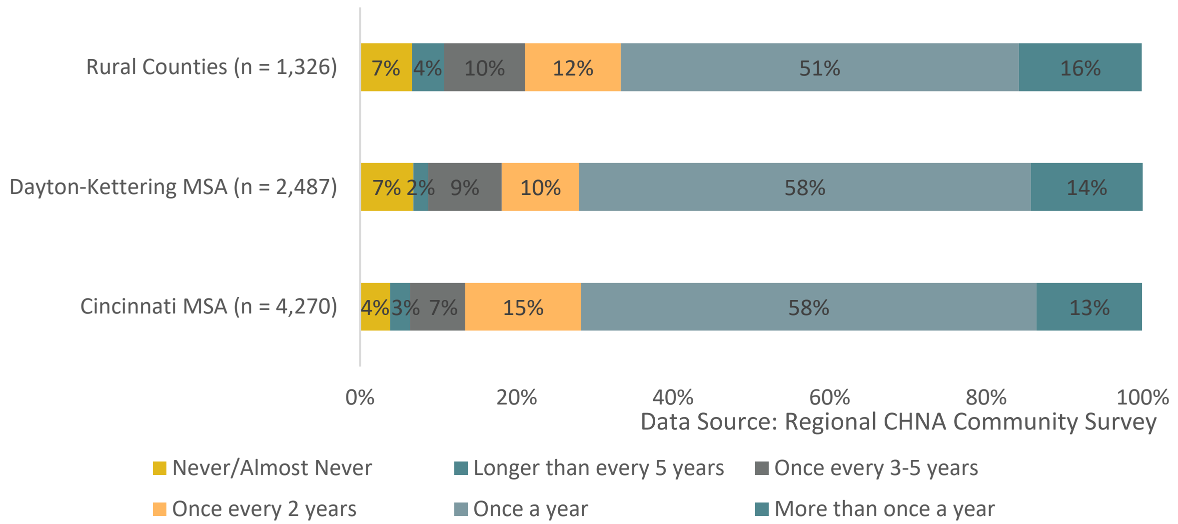
Behavioral Factors

Decades of data have linked behavioral factors to health conditions and this data has been used to inform health promotions and interventions in communities throughout the region. The Regional CHNA community survey asked community members about common behavioral factors most associated with the priority health conditions. To summarize the behavioral factors results of the survey across the region:

- 7 in 10 community members get a medical checkup or physical exam at least once a year (Figure B1).
- 2 in 10 community members get 30 minutes of physical activity 5 or more days a week (Figure B2).
- 3 to 4 in 10 community members reported very good to excellent healthy eating habits (Figure B3).
- 4 in 10 community members reported being normal weight (Figure B4).
- 9 in 10 community members reported not smoking/vaping (Figure B5).

- About half of community members reported never consuming 4 (for women) to 5 (for men) or more alcoholic drinks in one sitting, in the past month (Figure B6).
- Overall, Dayton MSA community members reported slightly higher rates of healthy behaviors than community members in Cincinnati MSA or the rural counties.

Because these factors are well integrated into the knowledge base of the field and the research questions do not directly ask about behavioral risk factors, further analysis on these were not conducted in this Regional CHNA. Risk factors were included as control variables as appropriate for this Regional CHNA.



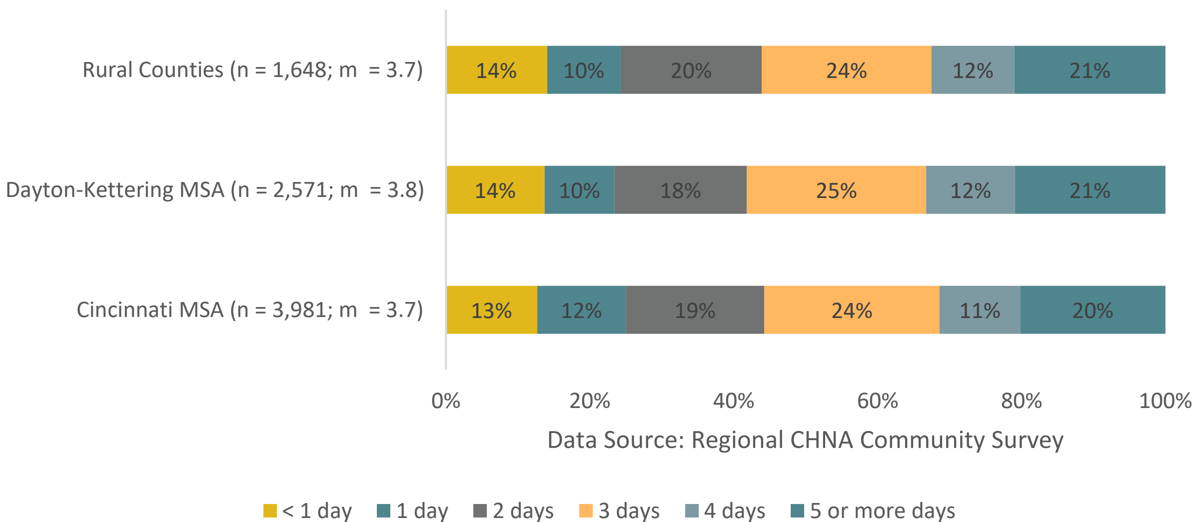


Figure B3. Healthy Eating Habits

How would you rate your overall habits of eating healthy foods (fruits, vegetables, grains, dairy, lean meats like poultry, fish, and eggs)?

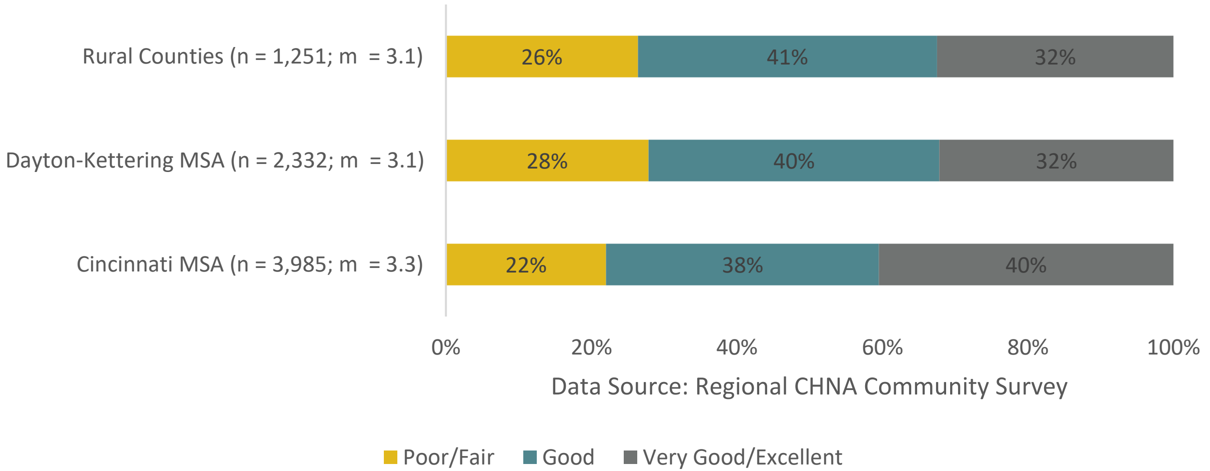
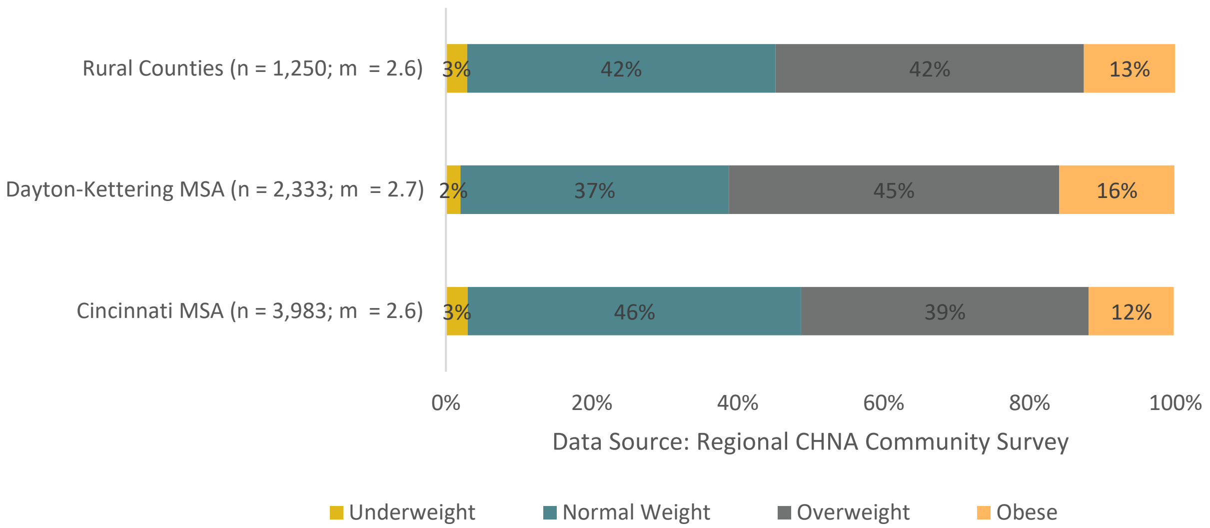
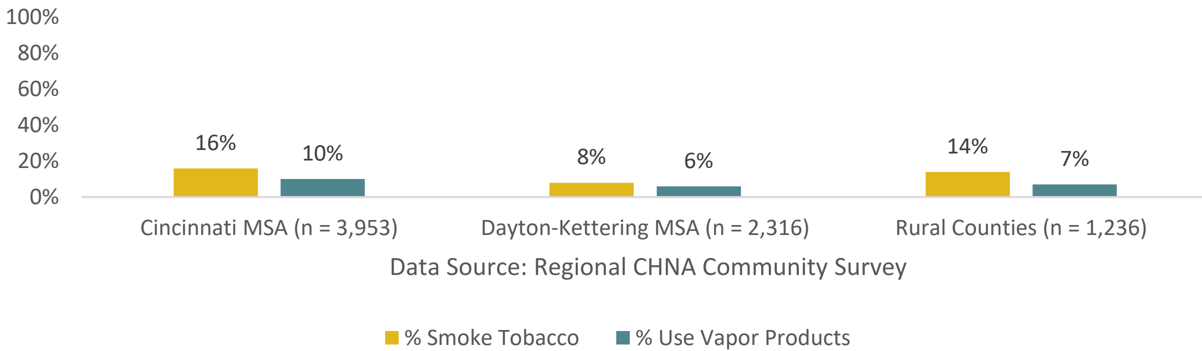
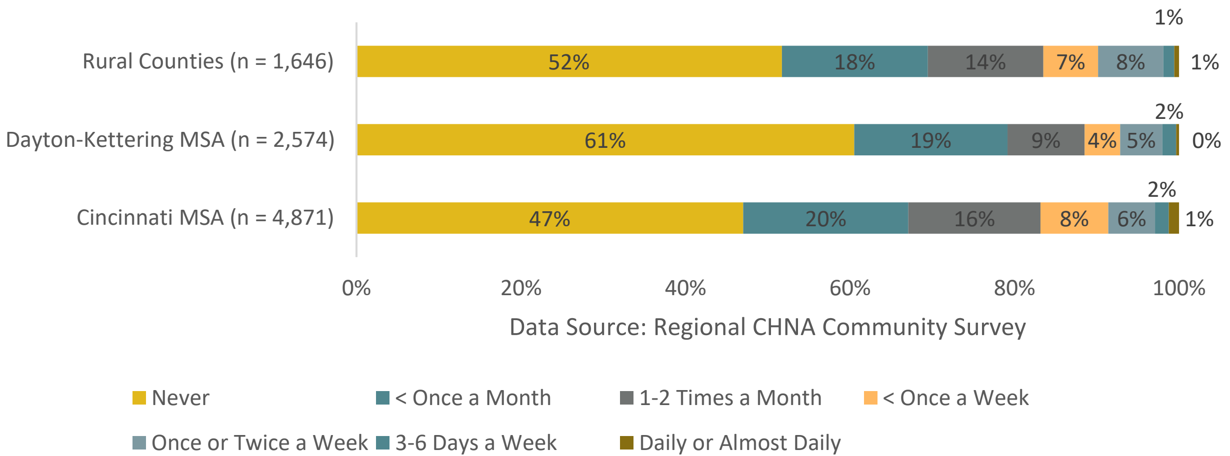


Figure B4. Body Weight

Which of the following best describes your body weight?







Other Community Conditions

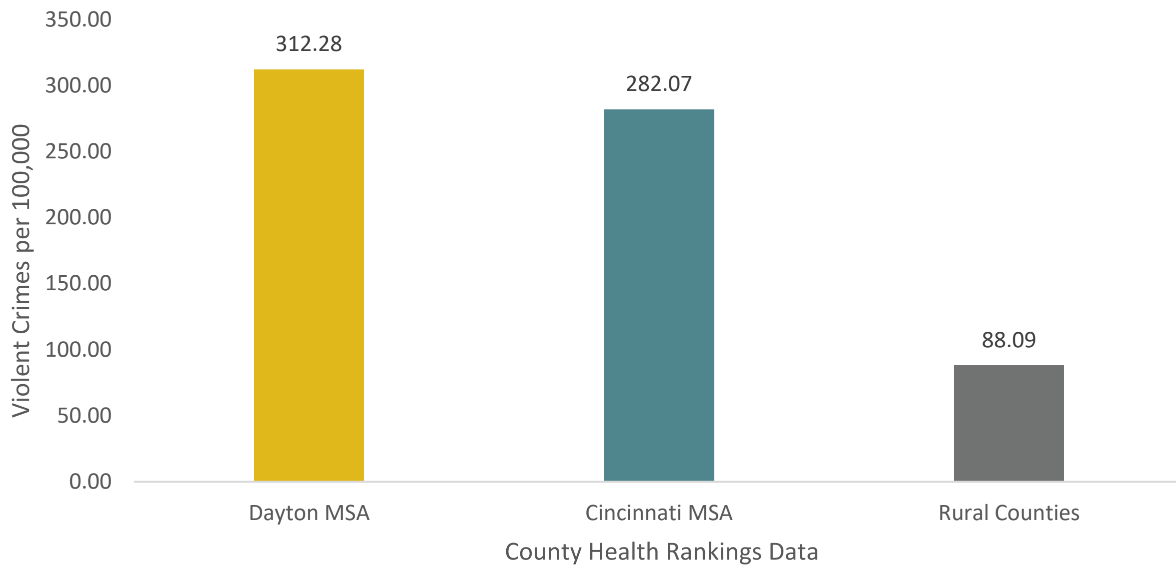
Weighted Average	Indianapolis MSA	Cincinnati MSA	Dayton MSA	Rural Counties	Ohio Avg.	Indiana Avg.	Kentucky Avg.	U.S. Overall
Preventable hosp. (rate per 100,000)	4,319	4,748	4,591	4,834	4,901	4,795	5,615	4,236
Life expectancy (rate per 100,000)	77.7	77.2	75.9	76.6	77.0	77.1	75.6	79.2
Drug OD mortality (rate per 100,000)	28.3	46.9	55.5	39.4	38	26	32	21

Weighted Average	Indianapolis MSA	Cincinnati MSA	Dayton MSA	Rural Counties	Ohio Avg.	Indiana Avg.	Kentucky Avg.	U.S. Overall
Suicide (rate per 100,000) (age-adjusted)	15.1	13.8	15.6	15.9	15	15	17	14
Homicide (rate per 100,000)	9.5	5.6	7.8	9.6	6	6	6	6
Firearm fatality (rate per 100,000)	16.5	12.3	15.1	10.8	13	14	16	12
Frequent Mental Distress	14.2%	14.7%	15.7%	16.4%	16%	15%	17%	13%
Infant mortality rate (per 1,000 live births)	6.7	7.6	6.8	7.0	7	7	6	6
Child mortality (rate per 100,000 under age 18)	56.5	58.8	60.7	57.0	60	60	60	50
High school graduation % (Defined as "Percentage of ninth-grade cohort that graduates in four years")	83.5%	87.4%	82.3%	90.1%	83%	88%	91%	85%
Some college education %	68.0%	69.2%	68.0%	54.8%	66%	63%	62%	66%
Median household income	$67,954	$68,125	$57,846	$57,598	$58,700	$57,600	$52,300	$65,700
Children in poverty %	13.4%	15.3%	19.4%	16.1%	18%	15%	21%	10%
Uninsured %	9.4%	6.5%	8.0%	8.0%	8%	10%	7%	6%
Primary care physician (rate per 100,000)	88.3	83.7	81.5	36.5	76.9	66.7	64.9	75.8
Mental health provider (rate per 100,000)	200.7	260.5	212.3	104.6	263.2	169.5	238.1	263.4
Dentist (rate per 100,000)	72.9	57.9	62.9	31.1	64.1	57.1	67.1	71.4
Physically inactive %	24.7%	24.2%	26.3%	30.6%	26%	27%	29%	23%
Obesity %	32.3%	32.4%	35.0%	35.3%	34%	34%	35%	30%
Diabetes %	11.9%	11.8%	13.0%	12.1%	12%	12%	13%	11%
Smoking %	20.2%	20.3%	22.1%	24.7%	21%	22%	24%	17%

Weighted Average	Indianapolis MSA	Cincinnati MSA	Dayton MSA	Rural Counties	Ohio Avg.	Indiana Avg.	Kentucky Avg.	U.S. Overall
Excessive drinking %	18.9%	19.2%	18.5%	18.5%	18%	19%	17%	19%
Source: This data is compiled from the 2021 County Health Rankings Report. More information on data sources used by County Health Rankings can be found here: https://www.countyhealthrankings.org/explore-health-rankings/measures-data-sources/2021-measures								

Appendix C: Supplemental Data for Social Determinants of Health

For the following supplemental figures, secondary data sources were used. Weighted averages for each MSA were calculated based off county-level averages and populations. The population of each county was used as a weight for every MSA level estimate. Counties included in each MSA calculation can be found in the footnote on page 11.



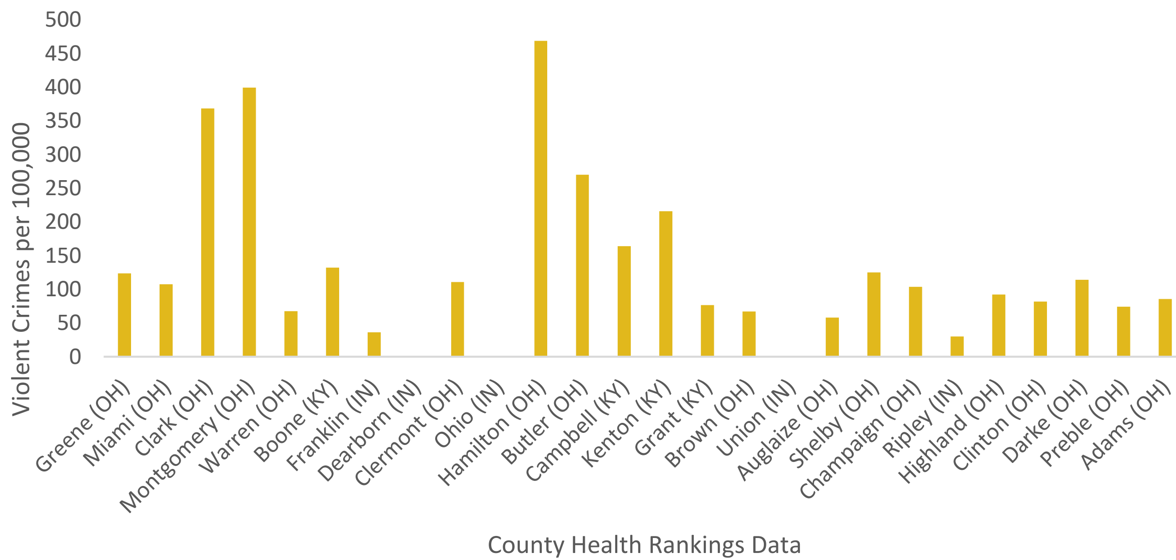


Table C1. Secondary Data Indicators for County-Level Economic Stability						
County	% Population Food Insecure Data Source: Feeding America's 2019 County Data Table	% Population Limited Access to Healthy Food Data Source: 2019 County Health Rankings	Food Environment Index* Data Source: 2019 County Health Rankings	% Children Population Food Insecure Data Source: Feeding America's 2019 County Data Table	% Of Food Insecure and SNAP ineligible Data Source: Map the Meal Gap (2019 data)	% Population that are Housing Cost Burdened Data Source: ACS
Adams, OH	19%	4%	6.7	26%	35%	26%
Auglaize, OH	10%	2%	8.7	12%	59%	18%
Boone, KY	9%	6%	8.5	10%	46%	21%
Brown, OH	15%	4%	7.6	19%	48%	25%
Butler, OH	12%	7%	7.8	15%	52%	25%
Campbell, KY	12%	8%	7.9	12%	42%	27%
Champaign, OH	12%	1%	8.3	16%	56%	19%
Clark, OH	15%	11%	6.9	19%	45%	25%
Clermont, OH	12%	9%	7.8	13%	60%	24%
Clinton, OH	15%	9%	7.2	20%	47%	25%
Darke, OH	12%	2%	8.3	15%	54%	19%
Dearborn, IN	11%	7%	8.0	13%	57%	23%
Franklin, IN	11%	5%	8.3	16%	52%	19%
Grant, KY	14%	8%	7.3	18%	20%	26%
Greene, OH	12%	8%	7.7	15%	57%	24%
Hamilton, OH	13%	9%	7.3	18%	43%	30%
Highland, OH	17%	2%	7.3	22%	42%	26%
Kenton, KY	11%	6%	7.9	13%	41%	22%
Miami, OH	12%	3%	8.2	13%	58%	21%
Montgomery, OH	14%	10%	7.0	21%	44%	28%
Ohio, IN	11%	-	-	13%	62%	16%
Preble, OH	12%	0%	8.3	15%	59%	21%
Ripley, IN	12%	1%	8.4	15%	52%	22%
Shelby, OH	11%	6%	8.1	14%	56%	19%
Union, IN	16%	-	-	12%	56%	24%
Warren, OH	9%	5%	8.5	9%	75%	20%
United States	11%	-	-	15%	50%	28%
Region's Mean	**13%**	**6%**	**7.8**	**16%**	**51%**	**23%**
*Rating scale = 1 is the worst, 10 is the best						

Community Voices Defining Access to Quality Health Care

Defining Barriers to Accessing Quality Health Care According to Region's Community Members

This section highlights what healthy living, quality health care, and accessible health care means from a community perspective. Many barriers to a healthy life and to health care identified by community members (outlined in this section) align with SDOH-related barriers discussed above. **The barriers discussed in this section emerged as themes from focus groups and interviews with community members. Significantly, community members identified SDOH-related barriers without being prompted to discuss SDOH**. This supports the appropriateness of the SDOH framework in this Regional CHNA and in strategic planning moving forward.

*According to community members, to have **accessible** health care is to have confidence that, when needed, community members will know what services are available, where to find them, will not have cause to fear seeking them, and will not suffer social stigmatization or economic debt for using them. **To have accessible health care is to be able to receive physical, mental, and spiritual support** in order to live a holistically healthy life.*

In focus groups and interviews, community members were asked to define "health." Overall, health is defined by community members as holistic; living a healthy life means to be physically, mentally, and spiritually safe and well. In focus group, interview, and Regional CHNA community survey data, community members shared barriers that prevent or have prevented them from accessing the health care they needed when they needed it and from leading a healthy life in the region. Community members identified experiences related to **information accessibility and service availability**; **affordability and health insurance**; and **feeling unsafe and having negative past experiences** as barriers to accessing quality health care when they need it.

Barriers Rooted in Limited Accessibility to Healthcare Information and Service Availability

Lack of Centralized, Up-to-Date Information on Healthcare Services and Providers

Across the region, 14% to 20% of Regional CHNA community survey respondents reported they do not know where to get health care that is right for them (Figure C3). In focus groups and interviews, community members identified a need for a centralized resource where they could more easily find a healthcare provider in their insurance network at a reasonable geographic distance and find a healthcare professional that matches race/gender/culture preferences. In focus groups and interviews, community members and providers alike highlighted the difficulty in finding accurate information because insurance policies, healthcare staff, and services change often. Community members reported that even organizations did not keep their websites up-to-date. Community members and providers agree in focus groups and interviews that outside of one's department, there is little understanding of what services are available, even within the same service organization or hospital system. As a result of the difficulty in identifying a healthcare professional, community members report opting not to receive health care.

Community Members' Access to Quality Health Care is Limited by:

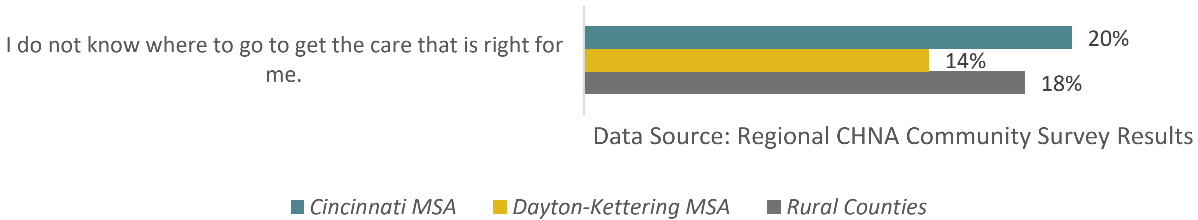
- A Lack of Centralized, Up-to-Date Information on Healthcare Services and Providers
- A Limited or Lack of Access to Culturally and/or LGBTQ+ Competent Healthcare Professionals
- A Limited Number of Service Appointments and Appointment Times

Community members reported that the lack of a centralized resource for healthcare service information also means there is a lack of a centralized resource for local public health information that is trusted. Community members suggest that if there was a resource where the public could search for healthcare professionals that meet their preferences and this source was found reliable, this resource could also be leveraged to communicate accurate health information and discredit misinformation (for example with COVID-19).

Mental health care, primary care, and reproductive health care were three areas where community members most often expressed a need for having a preference of physician gender and race. In focus groups, Black, African New Americans and immigrants, and Muslim community members also identified poorer quality in terms of maternal health care during delivery and postnatal periods. For example, Muslim community members recalled experiences where male doctors were sent to deliver the baby or perform an exam on the mother, despite making specific requests for female doctors only. Black and Muslim adults expressed a feeling of disempowerment at hospitals during delivery, feeling little power to advocate for their needs or fearing a backlash when they do advocate for themselves or a loved one.

Figure C3. Barrier to Care: Not Knowing Where to Go to Get Care

Overall, how often have the following been true for you when seeking/receiving health care? % Sometimes to Always



Limited or Lack of Access to Culturally and/or LGBTQ+ Competent Healthcare Professionals

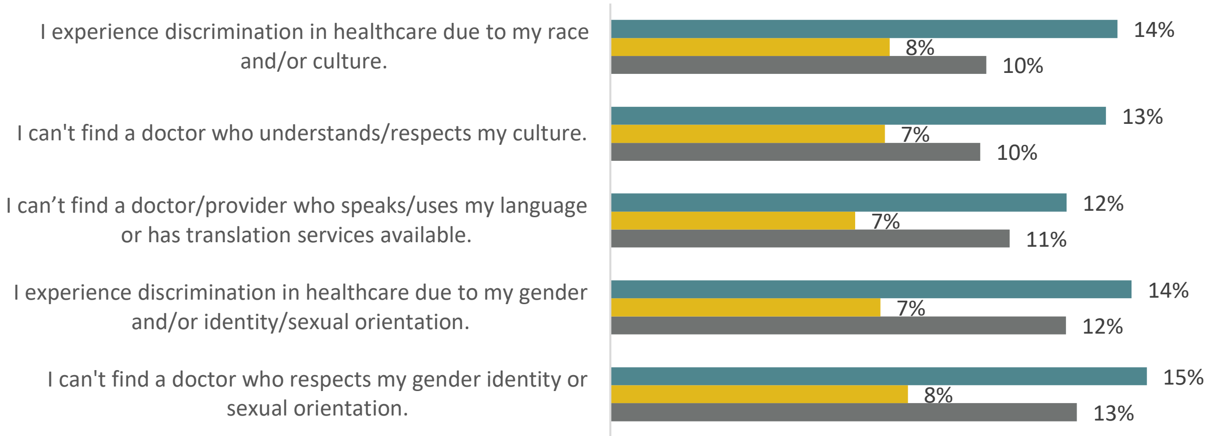
A greater percentage of Regional CHNA community survey respondents in the Cincinnati MSA and in rural counties reported not being able to find a doctor who understood/respected their culture and/or gender identity or sexual orientation compared to Dayton MSA. The same is also true for Regional CHNA community survey respondents who reported not being able to find a healthcare professional who spoke their language or had translation services (Figure C4).

According to UC interview data, misgendering and obtaining gender-affirming prescriptions and treatments are priority issues for health care among the LGBTQ+ community. In rural areas, these issues are exacerbated as there are often limitations on the number of providers who have the medical and social skills to support LGBTQ+ community members. When competent providers are not available, interviewees indicated that community members oftentimes choose to discontinue care altogether.

Community members in focus groups and interviews who do not speak English, who speak English as a second language, or who are advocates for immigrant community members identified cultural and **language barriers as a primary cause for low quality health care for minority communities**. “Asian immigrants who have been here for a while still feel they are not getting quality care because doctors do not understand their culture or parts of their language. That is a persistent problem. There are people here who could help bridge the language barrier and they need to do that,” explained a focus group member. “Another thing I’ve noticed is many providers simply look at the skill sets of the interpreter but it turns out they can just speak the language but do not have an understanding of the culture and that can be disastrous. It’s very important to have an interpreter who does not just interpret the language but who also has the ability to understand the cultural context of the patient,” explained a physician.

Figure C4. Barriers to Care: Inclusivity

Overall, how often have the following been true for you when seeking/receiving health care? % Sometimes to Always



Data Source: Regional CHNA Community Survey Results

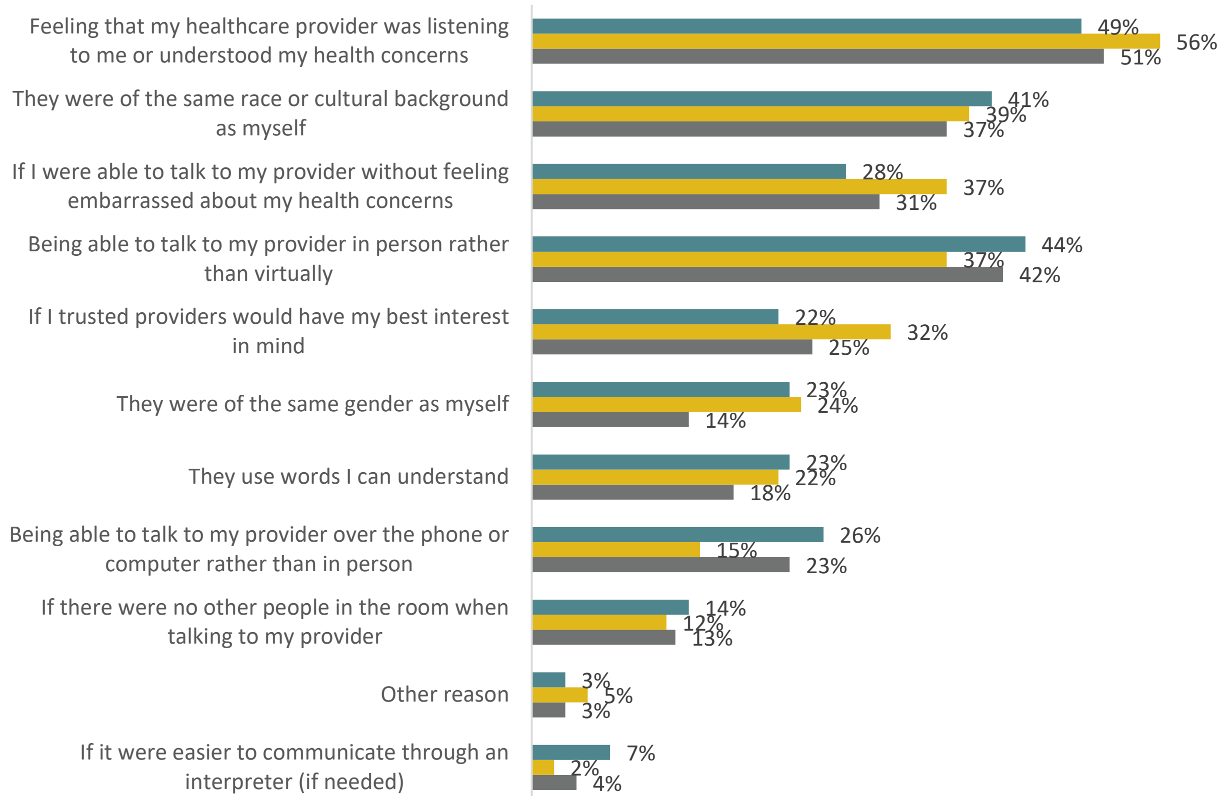
Cincinnati MSA *Dayton-Kettering MSA* *Rural Counties*

Black community members in focus groups expressed feelings that “my doctor doesn’t listen to me.” Asian and Hispanic community members expressed feelings of not being understood. Community members across all focus groups expressed a feeling that healthcare professionals do not know about or understand the impact of community members’ past experiences or traumas on the experience of receiving health care, including culturally specific traumas faced by immigrants, experiences of racism in America, being a victim of violence, and/or traumas related to poverty. In fact, among Regional CHNA community survey respondents who reported not being comfortable talking with healthcare providers, 49% or more in the MSAs and rural counties reported that feeling heard would improve their comfortability (Figure C5).

Regional CHNA community survey results also show that compared to White community members, multiracial and other race individuals (Asian, American Indian/Alaskan Native, Native Hawaiian or Pacific Islander or another race that is not Black, White or multiracial), and younger community members are more likely to report being uncomfortable speaking with healthcare professionals. *When community members do not feel heard they reported being more hesitant to trust a diagnosis, to follow treatment plans, and/or to attend future healthcare appointments, according to focus groups.*

Figure C5. Opportunities to Increase Patient Comfortability in Accessing Care

Which of the following would make you feel more comfortable talking with a healthcare provider? Check all that apply.



Data Source: Regional CHNA Community Survey Results

Cincinnati MSA *Dayton-Kettering MSA* *Rural Counties*

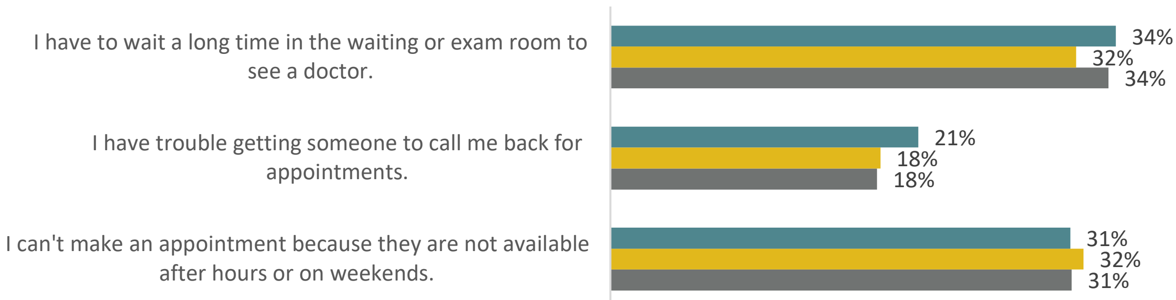
Limited Number of Service Appointments and Appointment Times

About one in three Regional CHNA community survey respondents across the region reported having to wait a long time in a waiting or exam room and/or not being able to make an appointment for health care because appointments were not available after work hours or during weekends (Figure C6).

Across focus groups, community members reported similar experiences. In particular, mental health care, OB/GYN, and other medical specialist's care were the most common healthcare services that community members reported having to wait multiple months for a first appointment. In focus group and Regional CHNA community survey data, veterans also reported long wait times for VA healthcare services. Community members in focus groups that reported not having to wait long to get an appointment reported it was due to having private insurance, a flexible work schedule, and/or a personal connection to a physician who could fast-track a referral. These results are also replicated in the Regional CHNA community survey data as well.

Figure C6. Lack of Appointment Accessibility

Overall, how often have the following been true for you when seeking/receiving health care? % Sometimes to Always



Data Source: Regional CHNA Community Survey Results

■ *Cincinnati MSA* ■ *Dayton-Kettering MSA* ■ *Rural Counties*

Furthermore, community members highlighted that even after overcoming barriers to getting an appointment, the quality of the healthcare services is diminished when doctors rush into and out of appointments. While physicians know the "15-minute appointment" to be a policy goal, community members associate the short appointments as:

a. an indication that healthcare professionals care more about making money than making the best decisions for the health of the patient
b. a reason to doubt diagnosis or treatment plans because doctors do not know enough about the patient's symptoms or stresses at home
c. a reason to avoid health care overall in the future, for what is the point of paying for another doctor visit if it's only for 15 minutes?
d. an impossible time frame for community members with disabilities or language barriers to have a meaningful conversation with a physician with a good level of comprehension on both sides

Due to the long waits for getting a first appointment, community members reported being caught in an uncomfortable position when that appointment turns out to be a negative experience. Community members are left with the choice to continue services with a healthcare professional that makes them uncomfortable/doubt diagnosis or wait another long period to be a "new patient" somewhere else. Community members are in a particularly vulnerable position when it comes to mental health, where a good relationship with a clinician is critical to success but service availability is acutely low; and when it comes to specialty services that require immediate intervention.

Barriers Rooted in High Healthcare Costs and Convoluted Insurance Policies

Limited or Lack of Resources to Pay for and/or Receive Healthcare Service

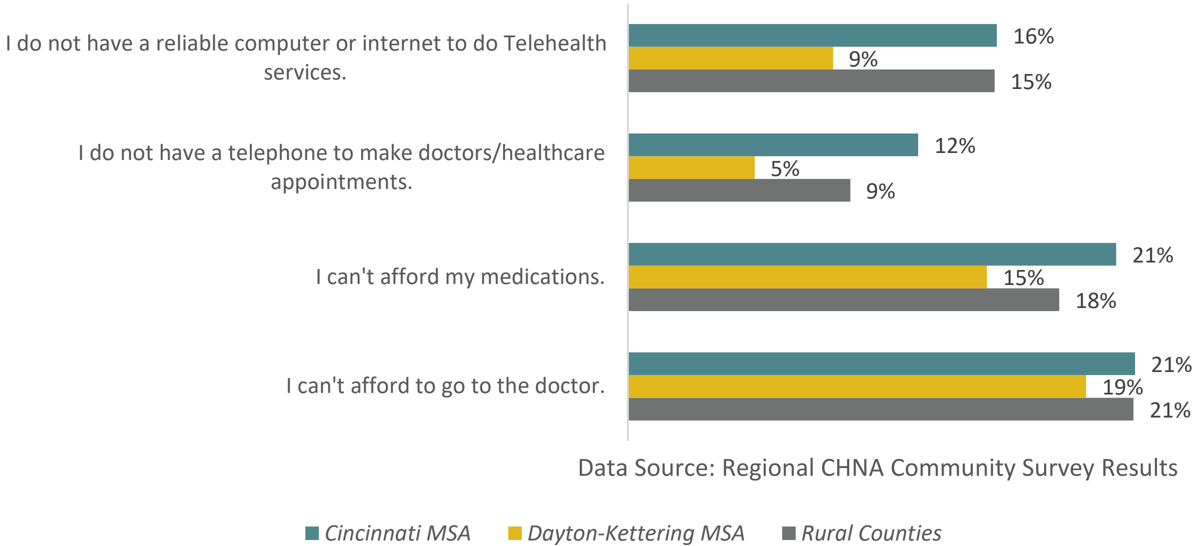
Community Members' Access to Quality Health Care is Limited by:

- Limited or Lack of Financial Resources to Pay for Healthcare Service
- Limited or Lack of Transportation
- Limited or Lack of Technology Resources to Receive Health Care
- Limited Experience Navigating Health Insurance Systems

Upwards of one in five Regional CHNA community survey respondents across the region reported **not being able to afford their medications and/or to afford to go to the doctor** (Figure C7). In focus groups, community members reported the unknown cost of a healthcare service (e.g., a "surprise medical bill") made them avoid seeking health care even when they knew they needed care. This was true even for some focus group participants that had private health insurance and identified as likely having enough money to cover costs. Community members shared that they would be more motivated to receive health care if they were clearly informed of the cost ahead of time. Even if it was a more expensive intervention, they could plan ahead for the expense.

In focus groups with community members, a limited or lack of transportation was a primary reason for not receiving needed health care. This also includes commutes being too long (in distance, in time, or both), even when individuals have access to a personal vehicle or public transportation. In particular, improved coordination of health care and transportation and other services is needed for low income and older adult community members. "There should be more convenience for the elders of any community to access health care. Transportation is needed because the elders don't drive. Any time there is an appointment they should make sure there is transportation to get them to the appointment. There are others who have pacemakers and are living on machines, and the language barriers make it hard for them to read instructions and learn how to maintain those machines. So, there needs to be regular house nurses. Often times, elders are more traumatized over how to handle [medical] gadgets than taking care of their sickness," explained a community member. Community members transitioning out of jail/prison, shelters, and/or recovery/halfway housing also identified the need for more coordination between their healthcare and social service providers.

Access to reliable internet has become a basic need. Healthcare institutions are shifting more and more of their patient communication/service options to online platforms. According to Regional CHNA community survey results, about 15% of community members in rural counties and the Cincinnati MSA reported not having reliable internet or a computer for telehealth.



Limited Experience Navigating Healthcare and Health Insurance Systems

Community members in focus groups explained they only learned how to navigate the healthcare system after negative and/or expensive experiences. Young professionals new to employee-based health care and managing their own healthcare insurance expressed a lack of knowledge as to what their insurance covers and how to anticipate healthcare costs. Veteran community members explained that they struggle with not only the navigation of the VA health system, but also the insurance policies/networks of their spouse and children. New American, immigrant, second generation Americans, and Black community members expressed a desire for more knowledge and skills navigating health care and insurance because their families have limited generational knowledge of the workings of healthcare and insurance systems. Service providers to low-income community members identified a need for better informing the public on Medicare options, particularly for adults who are uninsured but not yet Medicaid eligible. Furthermore, focus group participants were generally not aware of financial assistance policies related to healthcare expenses.

"As a child we didn't go to the doctor. So now, as an adult we struggle with going to the doctor," explained a Black community member.

Barriers Rooted in Negative Past Experiences and Negative Perceptions of the Healthcare System

Perceptions that Healthcare Providers Care More About Money

Overall, community members in each region of this Regional CHNA perceive that the healthcare system does not have the best interest of community members in mind (Figure C8). Across focus groups, community members spoke about healthcare providers, hospitals, clinics, pharmacies, insurance companies, health departments, etc. as a single system that generally favors profit over what is best for patients.

> **Community Members' Access to Quality Health Care is Limited by:**
>
> - Perceptions that Healthcare Providers Care More About Money
> - Feeling Unsafe in Receiving Care
> - Experiences of Discrimination when Receiving Care
> - Fear of Judgement

Community members, in general, do not distinguish a physician/clinician from hospital administration. In focus groups, positive perceptions of health care were associated with single physicians that spent "extra" time or "went above and beyond" to get a community member connected with a needed service. In these cases, community members saw these doctors as "different from the system. They care about what is best for [people], not our money."

Figure C8. Community Member Perception of Healthcare System

Overall, how often have the following been true for you when seeking/receiving health care? % Sometimes to Always

Data Source: Regional CHNA Community Survey Results

Cincinnati MSA | *Dayton-Kettering MSA* | *Rural Counties*

Feeling Unsafe in Receiving Care

Feeling safe in getting to and receiving health care is a concern among community members. Interview, focus group, and Regional CHNA community survey data highlighted that the COVID-19 pandemic has had a significant impact on community members' sense of feeling safe to receive healthcare services. Healthcare professionals reported in focus groups that people are signing out of hospitals because they are scared to stay overnight, lest contracting COVID-19. "Volumes remain high in emergency departments. Not due to COVID patients, but its fallout of not managing health over the past year: not managing diabetes or hypertension, ignoring that stomach pain for fear of being infected. This is in combination with all the people that lost their jobs due to COVID, and therefore their health insurance.

We need more effort to tell the public that it is safe to seek health care in the ER," explained an Emergency Room Physician.

In expert interviews, providers and community advocates noted that some community members will not seek health care even when they need it due to fear that they will be punished or stigmatized for their citizenship status.

In focus groups, Black and older adult community members identified a lack of feeling safe in their homes/neighborhoods as a health risk, but also as a barrier to accessing health care (e.g., waiting for a bus is not safe), food (e.g., not safe to walk to go grocery shopping), and to socializing (e.g., not safe to attend local social events).

According to Regional CHNA community survey data regression analysis, community members unemployed and looking for work, who are men, in race category Other, who have a military background, who do not have private insurance, living in the Cincinnati MSA, and/or who have limited or no English language ability are significantly more affected by the safety barrier to receiving healthcare.[6] Across the region, community members in the Cincinnati MSA were more likely to feel unsafe receiving health care due to COVID-19 compared to the rest of the region (Figure C9). However, Regional CHNA community survey data shows an opportunity to improve comfort levels related to COVID-19 by offering more telehealth services (Figure C10).

[6] The outcome for this multiple linear regression was calculated by taking the average of responses to the last two questions in Figure C9 regarding feeling unsafe going to healthcare facilities. Lower scores indicate the safety barrier to receiving health care is less of an issue. On average, males have an expected mean safety scale score 0.15 higher than females, adjusting for all other predictors. ($b = 0.15$, $p < 0.001$); On average, "Other" race individuals have an expected mean safety scale score 0.29 higher than White individuals, adjusting for all other predictors. ($b = 0.29$, $p < 0.001$); Those living in Cincinnati MSA have an expected mean safety scale score 0.21 higher than those in Dayton MSA, and 0.16 higher than those in Rural counties, adjusting for all other predictors. ($b = -0.21$, $p < 0.001$; $b = -0.16$, $p < 0.001$); Active military and veterans have expected mean safety scale scores 0.25 points higher than those not in the military, adjusting for all other predictors. ($b = 0.25$, $p < 0.001$); Those without private insurance have expected mean safety scale scores 0.31 points higher than those with private insurance, adjusting for all other predictors. ($b = 0.31$, $p < 0.001$); Those who speak no English have expected mean safety scale scores 0.64 points higher than those who speak English fluently, adjusting for all other predictors. ($b = 0.64$, $p < 0.05$); Those who speak limited English have expected mean safety scale scores 0.37 points higher than those who speak English fluently, adjusting for all other predictors. ($b = 0.37$, $p < 0.001$); Those who are unemployed and looking for work have an expected mean safety scale score 0.24 points higher than those fully employed, adjusting for all other predictors. ($b = 0.24$, $p < 0.001$).

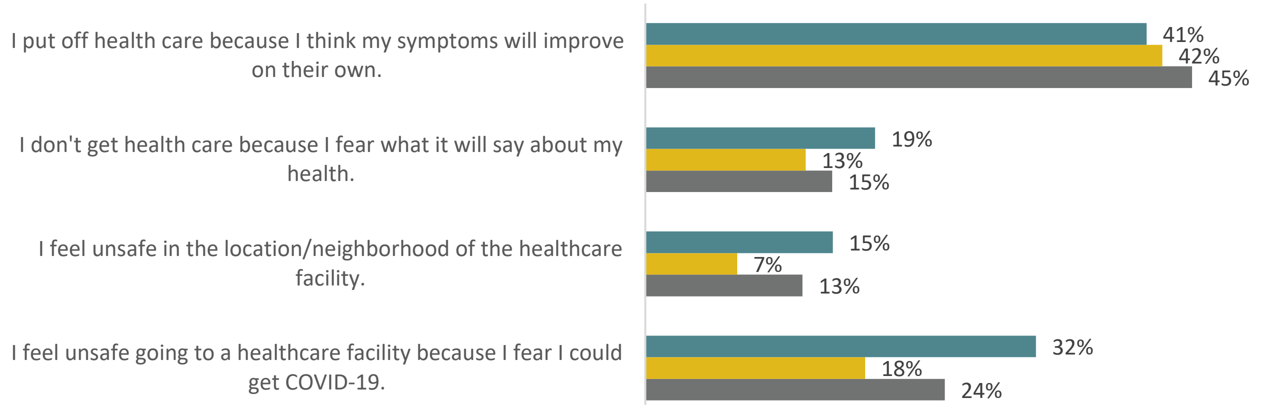
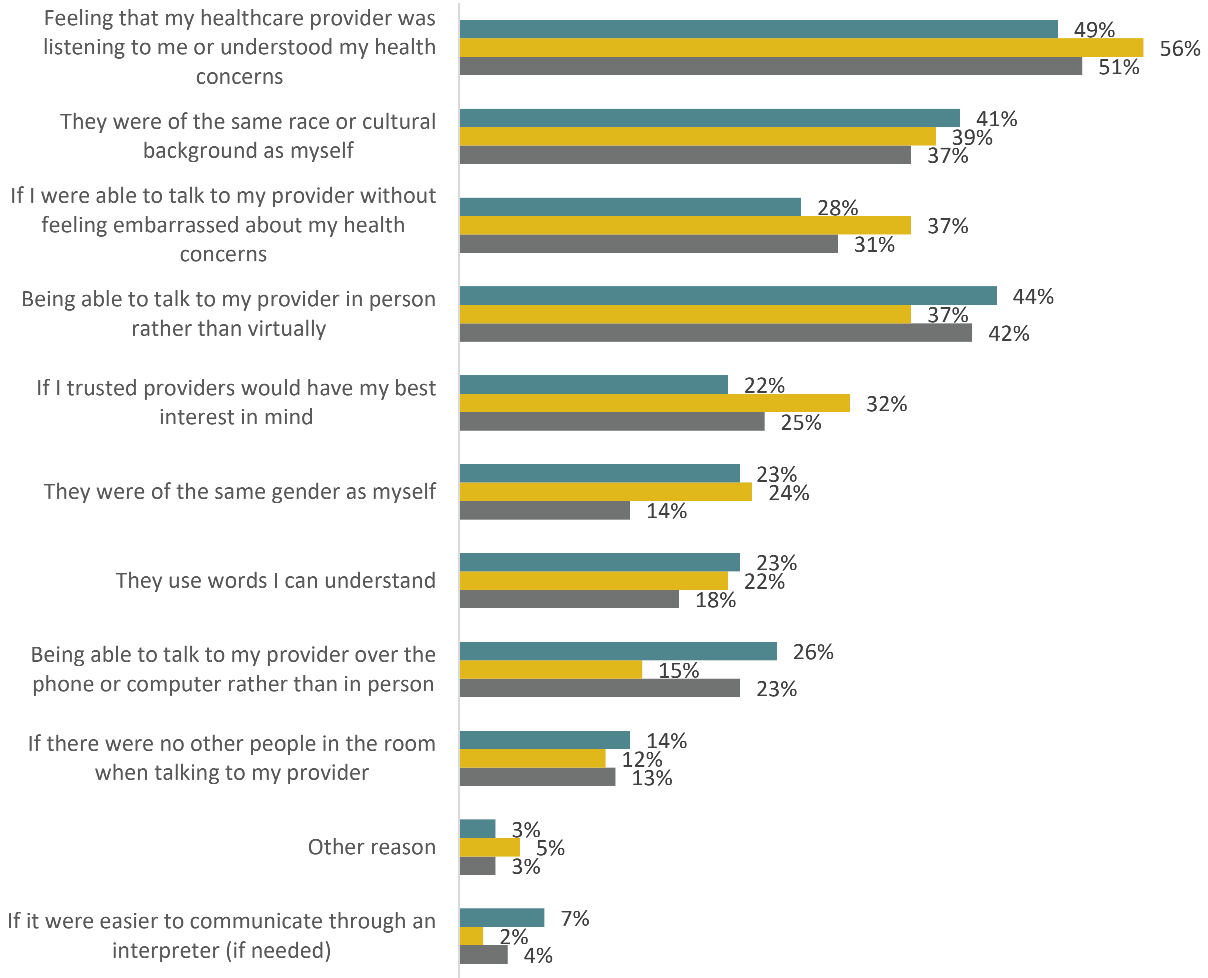


Figure C9. Barriers to Care: Safety
Overall, how often have the following been true for you when seeking/receiving health care? % Sometimes to Always
I put off health care because I think my symptoms will improve on their own.
41%
42%
45%
I don't get health care because I fear what it will say about my health.
19%
13%
15%
I feel unsafe in the location/neighborhood of the healthcare facility.
15%
7%
13%
I feel unsafe going to a healthcare facility because I fear I could get COVID-19.
32%
18%
24%
Data Source: Regional CHNA Community Survey Results
Cincinnati MSA
Dayton-Kettering MSA
Rural Counties

Figure C10. Opportunities to Increase Patient Comfortability in Accessing Care

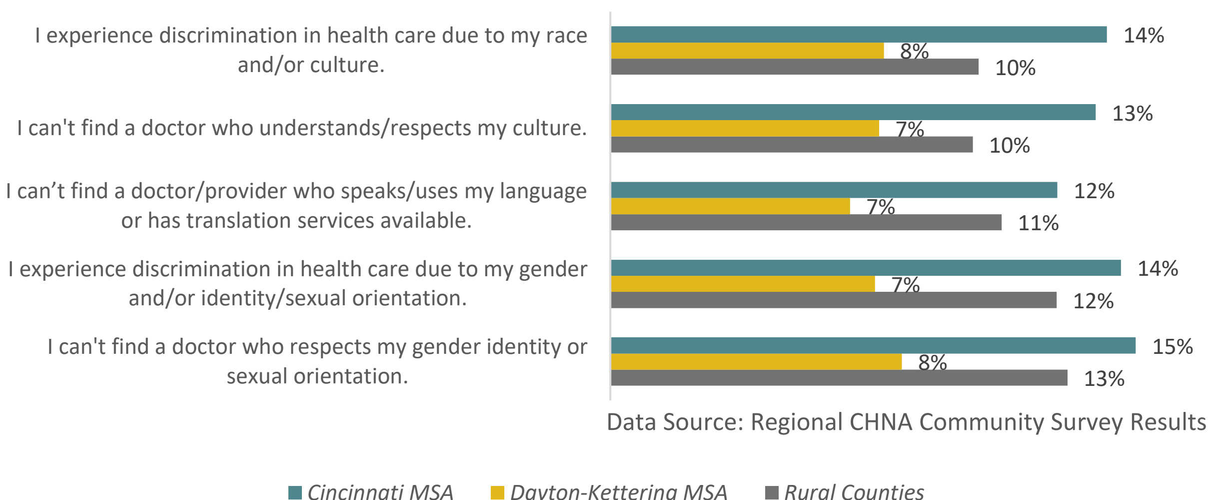
Which of the following would make you feel more comfortable talking with a healthcare provider? Check all that apply.



Data Source: Regional CHNA Community Survey Results

Negative Past Health Care Experiences Rooted in Discrimination

As shown in Figures C11 and C12, community members reported in the community survey that they experience barriers related to inclusivity. In focus group and Regional CHNA community survey data, community members reported having personally experienced discrimination by a healthcare professional. As community members generally perceive all healthcare institutions as a single system, a single experience of discrimination or experiences someone they know, perpetuates a negative perception of all healthcare institutions and healthcare professionals. Experiences of discrimination also make it easier for disinformation to take hold, like in the case of COVID-19 vaccinations, according to Black community members in focus groups.

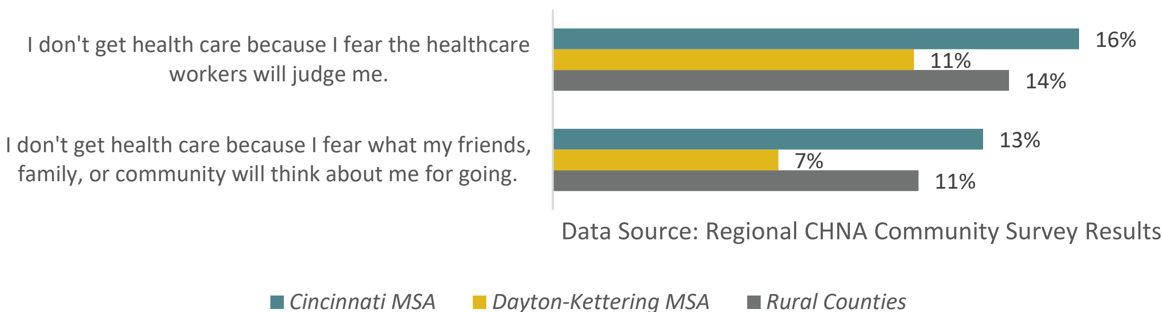


Fear of Judgement or a Negative Diagnosis

Across focus groups, community members reported feeling judged by healthcare providers, rather than being supported to overcome unhealthy habits. Community members in recovery, homeless community members, and incarcerated/justice-involved community members also reported feeling judged by mental healthcare providers. In general, when community members spoke about feeling judged, it went hand in hand with healthcare professionals “talking down” to community members. In fact, Regional CHNA community survey data regression analysis shows that community members who are men, those falling in race category “Other”, less educated, unemployed and looking for work, involved in the military, with a disability, speak little to no English, and/or without private insurance are significantly more affected by the barrier to healthcare of stigma and fear of negative diagnosis.[7]

[7] The outcome for this multiple linear regression was calculated by taking the average of responses to the two questions in Figure C12, as well as the question regarding fear of what the healthcare provider will say about their health in Figure C9. The scale is a 5-point scale. Lower scores indicate the stigma and fear barrier to receiving healthcare is less of an issue. On average, males have an expected mean stigma scale score 0.11 higher than females, adjusting for all other predictors. ($b = 0.11$, $p < 0.001$); On average, “Other” race individuals have an expected mean stigma scale score 0.17 higher than White individuals,

Community members who are caretakers of family members were also more likely to describe experiences of being judged and undermined by healthcare professionals.



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adjusting for all other predictors. (b = 0.17, $p < 0.001$); Those with a graduate degree or higher have an expected mean stigma scale score 0.10 points lower than those with a high school diploma/GED, adjusting for all other predictors. (b = -0.10, $p < 0.05$); Those living in Cincinnati MSA have an expected mean stigma scale score 0.11 higher than those in Dayton MSA, and 0.09 higher than those in Rural counties, adjusting for all other predictors. (b = -0.11, $p < 0.001$; b = -0.09, $p < 0.001$); Active military and veterans have expected mean stigma scale scores 0.37 points higher than those not involved with the military, adjusting for all other predictors. (b = 0.37, $p < 0.001$); Those without private insurance have expected mean stigma scale scores 0.26 points higher than those with private insurance, adjusting for all other predictors. (b = 0.26, $p < 0.001$); Those who speak no English have expected mean stigma scale scores 0.73 points higher than those who speak English fluently, adjusting for all other predictors. (b = 0.73, $p < 0.05$); Those who speak limited English have expected mean stigma scale scores 0.39 points higher than those who speak English fluently, adjusting for all other predictors. (b = 0.39, $p < 0.001$); Those who are unemployed and looking for work have an expected mean stigma scale score 0.18 points higher than those fully employed, adjusting for all other predictors. (b = 0.18, $p < 0.05$); Those with a disability have an expected mean stigma scale score 0.17 points higher than those without a disability, adjusting for all other predictors. (b = 0.17, $p < 0.001$).

Appendix D: Service Model, Policy and Practice Initiatives Identified by Region's Healthcare Professionals and Community Members

The service model, policy, and practice initiatives in the list below were identified by asking healthcare professionals and community members about what is working well when it comes to health care in the region or their neighborhoods. These insights can be leveraged in order to identify common goals, action steps, and strategic partners. These are the assets/resources health systems should focus on when designing strategies for addressing the prioritized health needs. More details about the listed initiatives can be found in the following section.

1. Good Food Purchasing Program
2. Mobile Food and Basic Needs Truck
3. Initiate partnership with City planning agencies
4. Better leverage public transportation agencies/transit authorities
5. Health and Cultural Fairs
6. School-based Healthcare Model
7. LGBTQ+ affirming care practices based on Human Rights Campaign's Healthcare Equality Index
8. Peer Supporter Model
9. Strategic coordination between healthcare provider and pharmacies
10. Invest in centralized resource for community members to find services, providers that meet needs/preferences, and healthcare cost transparency across the region
11. Culturally competent design of healthcare spaces
12. Coordinate advocacy efforts
13. Maintain best practices (and failed practices to avoid) learned from regional collaboration during COVID-19 pandemic and in Opioid epidemic.
14. Doula Model
15. Community Health Worker Model and On-site Social Workers
16. Improve and initiate partnerships with Community Based Organizations
17. Invest in future healthcare workforce through partnering with schools and Career Stat Network Hospitals
18. Establish regional approach to screening for health and SDOH-related needs/supports
19. Additional safety and prevention interventions
20. Additional partnership opportunities

Recommendations from Community and Providers: Service Model, Policy, and Practice Initiative

1. **Good Food Purchasing Program,** as modeled by Cincinnati Public Schools. Cincinnati Public School District (CPS) adopted the Good Food Purchasing Program and is a model for healthy local food messaging, food education, and leveraging system-level purchasing power to improve food security in their communities (https://goodfoodcities.org/portfolio/cincinnati/).
    a. There is the opportunity for healthcare and hospital systems to adopt the program as well, leveraging their purchasing power to drive improved regional food systems and local supply chains. The region's health system can also look to the coalition practices Cincinnati Public Schools used to adopt the program.

b. “Coalition of stakeholders came together to advocate that CPS should adopt this policy; other partners worked with the food service director to make the shift doable… To make change in food security, you need to get the attention of big distributors like Cisco. [To get their attention, you need large institutions like CPS and hospitals] to request union, organic poultry in order to get the distributor to be incentivized to carry it, for example.” -Regional Food Systems Expert

2. **Mobile Food and Basic Needs Truck.** This was identified by older adults in Dayton as the best way for them to access healthy foods and ingredients to cook themselves in their neighborhoods, as opposed to frozen meals they receive weekly. The truck also carries basic household supplies and cleaners and provides coupons/vouchers to increase affordability. Having the truck come directly to apartment buildings was key to older adults accessing foods/goods, even providing help to carry groceries to their door. Green Umbrella for healthy food systems in the region were identified as a potential partner. The **Urban Institutes’ Disrupting Food Insecurity** model (https://apps.urban.org/features/disrupting-food-insecurity/) and **strategies to address root causes** (https://apps.urban.org/features/disrupting-food-insecurity/Strategies_full%20list.pdf) is also another framework through which to identify action steps for the region.

3. **Initiate partnership with City planning agencies**. Healthcare professionals and community experts identified opportunity to increase partnership and engagement with city planning agencies in order to think about health care in neighborhood design, increase equity in location of health providers, as well as making more equitably accessible outdoor and other recreational spaces. Healthy Places by Design was identified as a potential partner. Better partnerships with Community councils and movement organizations that neighborhoods have in order to build trust and ongoing engagement.

4. **Better leverage public transportation agencies/transit authorities**. Transit authorities report being more flexible than perceived to be by healthcare professionals/administrators. Transit experts explained being a public service and adapting to healthcare providers’ and community members’ needs to the best of their ability. Transit authorities would be better positioned to serve community if healthcare institutions took on responsibility for Medicaid billing, rather than requiring transit authority to learn it. Successful models:
    a. Days with big buses for free transportation for vaccinations, back-to-school physicals, dentist visits
    b. Individualized service contracts with healthcare provider centers
    c. Dedicated day of appointments for patients using public transport
    d. RTA Works with veteran service commission for vet to get to non-emergency medical appointments- those are coordinated with Lyft, Uber, Taxi to find the cheapest ride available. Benefit is that it costs less than what transit would charge. The challenge is they are not disability accessible. Uber and Lyft let us get to veteran faster than transit could get to them; Transit authority does all the scheduling, so veteran does not have to worry about it.

   e. Shuttle service set for certain days from shelters to health/mental provider- standing contract.

5. **Health and Cultural Fairs.** Immigrant, New Americans, Hispanic, Black and Asian community groups identified local health fairs and cultural fairs where health tents were present as an effective model for accessing health care (e.g., learning about available services, preventative care, building relationships with healthcare professionals, etc.)

6. **School-based Healthcare Model**

   How does the initiative address community health needs?

   Establishing working partnerships with school districts increases access to health care for community members and promotes more preventative health care behavior and wellness. Partnerships can lead to school-based clinics and mobile health clinics being hosted in school parking lots (e.g., youth physicals, mammograms, dentistry care, etc.). School-based health care increases access in terms of affordability (can be free) and accessibility (timesaving, lower transportation needed).

   When school districts have positive relationships with communities, schools can provide healthcare professionals the opportunity to build trust with communities as well, improving the quality of health care in the region.

   School-based healthcare initiatives were reported by rural county community members as having positive outcomes. In developing initiatives, be intentional about providing health care in a non-stigmatizing way.

   How does the initiative address structural barriers to improved health outcomes and health equity?

   Healthcare initiatives successful in school settings are more often associated with preventative health care behavior and wellness. Prioritizing these partnerships can help to balance how the region approaches treating illness versus preventing illness.

7. **LGBTQ+ affirming care practices** based on Human Rights Campaign's Healthcare Equality Index

8. **Peer Supporter Model**

   How does the initiative address community health needs?

   Peer Supporter Model increases access to and quality of mental health care for higher-risk community groups. Healthcare professionals, social service providers and community members in this Regional CHNA identified that the Peer Supporter Model is/would be effective for better serving:

   - First responders
   - Community members with lived experiences with substance abuse disorders
   - Community members with lived experiences with human trafficking
   - Community members with lived experiences with domestic violence

- Military active duty and veterans
- Blue Star Family Members
- Caretakers for family members

How does the initiative address structural barriers to improved health outcomes and health equity?

Peer Supporter Model shifts power dynamics towards more equitable power over knowledge and system navigation skills. Peer Supporter Model shifts power to the community, particularly those with lived experiences. Peer Supporter Model also increases employment opportunities and professional development of communities currently facing healthcare inequities. Down the line, this is also a viable solution to increasing workforce diversity among mental healthcare professionals: community members helped by Peer Supporters can be inspired to pursue mental healthcare careers; and Peer Supporters themselves gain experience with a range of mental healthcare career tracks in which they could pursue.

Strategic Action Steps Identified by Regional CHNA

- Collaborate to advocate for sustainable funding sources for long-term support of Peer Supporters across the region. Current billing is not sustainable on its own, hospitals currently have to find additional funding to employ Peer supporters.
- Collaborate to advocate for integration of Peer Supporters throughout region's health system
- Peer Supporters can be strategically placed within the health system to align with priority populations
- Working group to assess what is working well in the Peer Supporter model, what could be better in the region, including standardized certifications and certification accessibility
- Strategically recruit new Peer Supporters (providing them with transparent knowledge and skills for navigating health care) from community-based organizations that represent priority populations in order to create collaborative and trusting partnerships for all future health initiatives.
- Train healthcare professionals on how to pay/bill for Peer Supporters and how to work effectively with Peer Supporters on-site in emergency departments, Fire/EMS stations, Police departments, etc. Peers on-site are also effective in terms of continuous education for medical staff in terms of cultural competency and trauma-informed treatment/care.
- In first responder partnership, consult on legislation to clarify if what is told to a Peer Supporter is confidential or discoverable (currently policy in draft stages to introduce it).

9. **Strategic coordination between healthcare provider and pharmacies.** Charity pharmacies have been found to reduce ER visits among community members using the charity pharmacy. If emergency departments invested resources into charity pharmacies, their costs associated with treating uninsured community members would be reduced. In addition, primary care physicians could increase knowledge of patients' adherence to prescriptions by communicating more with

pharmacies to track pick-up dates. National Association of Free Clinics and Charitable Healthcare Network can be a model for partnering with pharmacists.

10. **Invest in centralized resource for community members to find services, providers that meet needs/preferences, and healthcare cost transparency across the region.** Prioritize usability and language. Invest in community members' skills and knowledge to know costs of care ahead of time and increase transparency of cost assistance policies. Also, invest in community partners' knowledge and ability to leverage Medicaid benefits for community members, and billing for services they are providing.

11. **Culturally competent design of healthcare spaces.** This involves the consideration of how the physical space of where health care is provided impacts how safe and welcomed community members feel.

12. **Coordinate advocacy efforts.** Lead region to publicly recognize racism as a public health crisis. POLICYLINK was identified as a resource for helping to coordinate service, funding and policy partnerships in health care - this can help to identify action steps to overcome competitive structures.

13. **Maintain best practices (and failed practices to avoid) learned from regional collaboration during COVID-19 pandemic and in Opioid epidemic**. Healthcare professionals identified benefits of COVID-19 collaborations that the region's health system can keep or advocate to continue:
    a. Collective action designed funding, less restrictive dollars
    b. Regular meetings where boots-on-the-ground staff were recognized as experts; meetings included funders, boots-on-the-ground staff, and CEO/Director administrators that had decision-making power (meetings were not individually helped by level of staff)
    c. Private businesses engaged (e.g., Kroger provided their data analytics team, mapped distribution of foods when all partners submitted their data to Kroger)
    d. Children's Hospital and UC contributed to data and strategic interventions

14. **Doula Model.** According to Community Health Advocates for Black community members, increasing access to doulas is an effective way to increase cultural relevancy of maternal health care and to personalize support for women -prenatal, birth, and postnatal.

15. **Community Health Worker (CHW) Model and On-site Social Workers**

    How does the initiative address community health needs?

    To address *healthcare affordability*, CHWs/LSWs can specialize in:

    - Interpretation of insurance policy and navigation of insurance customer service
    - Medicare/Medicaid eligibility and navigation of application process
    - Hospital financial assistance policies and procedures
    - Navigation of prescription costs and charitable pharmacy eligibility/transition
    - Navigation of basic needs for older adults

To address *economic stability*, CHWs/LSWs can specialize in directly connecting (e.g., meeting social workers with community members, making phone calls with community members, etc.) community members to social services like transportation, housing, food pantry, SNAP, etc.

CHWs can increase the quality of health care when:

- CHWs are on staff or have an on-site office (e.g., in emergency departments, hospitals, clinics, doctor offices, schools, health departments, etc.)
- Have mutually respectful and collaborative professional relationships with healthcare professionals with whom they work
- Are compensated with wages and benefits that reflect the value added to the quality of health care and health outcomes for the system's community members

CHWs and Social Workers can increase the quality of health care because:

- They increase the cultural relevancy of health care in that they often share cultural backgrounds, language, and lived experiences with community members/patients.
- Healthcare professionals may not be able to increase their face-to-face time with patients. CHWs/LSWs can provide that extra time with patients needed for screening for needs and information sharing.
- CHWs can build working relationships with healthcare professionals, offering opportunities for CHWs/LSWs to pass on best practices in cultural and trauma-informed care to healthcare professionals.
- CHWs can support transitions when community members are changing providers, adding a new provider, etc.

Providers and community members identified the following areas where CHWs/LSWs would have great impact:

- On-site in jails/courts for community members transitioning back into the community and for individuals on probation. Medical issues can contribute to someone breaking probation. While these occurrences are typically resolved, the resolution takes a while. This period triggers a lot of stress and fear in an individual on probation.
- On-site at shelters for community members transitioning out of shelter into the community
- Embedded in community-based organizations (CBOs), schools, and cultural centers
- On-site in emergency departments, health department programs, clinics, health provider offices

How does the initiative address structural barriers to improved health outcomes and health equity?

CHW Model shifts power dynamics towards more equitable power over knowledge and system navigation skills. CHW Model shifts power to the community, particularly women of color. CHW Model also increases employment opportunities and professional development of communities currently facing healthcare inequities. Down the line, this is also a viable solution to increasing workforce diversity among healthcare professionals: community members helped by CHWs as

children or young adults can be inspired to pursue healthcare careers; and CHWs themselves gain experience with a range of healthcare career tracks in which they could pursue.

Strategic Action Steps Identified by Regional CHNA

- Collaborate to advocate for sustainable funding sources for long-term support of CHWs across the region.
- Collaborate to advocate for integration of CHWs throughout region's health system.
- CHWs can be strategically placed within the health system to align with disease priorities, for example heart and/or lung disease clinics, diabetes specialists, maternity/OBGYNs, etc.
- Set regional standards of skills/knowledge for CHWs that align with priorities, fund trainings to make the skills/knowledge available to current and prospective CHWs.
- Strategically recruit new CHWs (providing them with transparent knowledge and skills for navigating health care) from community-based organizations that represent priority populations in order to create collaborative and trusting partnerships for all future health initiatives.
- Train healthcare professionals on how to pay/bill for CHWs and how to work effectively with CHWs on-site.
- While published in 2016, UHCAN's *Integrating Community Health Workers in Ohio's Health Care Teams* outlines a number of specific action steps and CHW models for the region to consider. https://www.chcf.org/wp-content/uploads/2021/02/IntegratingCHWsOhiosHealthCareTeams.pdf

16. **Improve and initiate partnerships with Community Based Organizations** (CBOs) to identify CHWs, consult on translation services, build trust between healthcare professional and community members, identify/promote culturally relevant prevention/wellness programming (e.g., social connectivity, yoga, food education). "We counted there were 32 different countries represented in Dayton. I'm lucky the only time I'm with a doctor is during my annual physical but communication wise there are some medical terms I have a hard time understanding what they are in English. With the doctor it seems they don't have a lot of time to spend. We may get 15 minutes if lucky. That presents some challenges right there. Maybe if they had a list with common medical terms in English and other languages," suggested an Asian community member.

    Region's healthcare providers to standardize HIPAA interpretation for the region and in preparation of HIPAA policy changes and future CBO partnerships to address SDOH (e.g., mental health and health care in jails; for community members transitioning in/out of shelter system and justice system; between hospitals and county health departments).

17. **Invest in future healthcare workforce through partnering with schools and Career Stat Network Hospitals.** Hospitals feel huge pressure of hiring locally, but not finding the talent pool. This is where systems can come together. Partner with schools to increase youth exposure to the diversity of healthcare careers and their career paths while still in school. Partner with

apprenticeships, internships, and community colleges. Also, improving healthcare experiences across communities will inspire more members to pursue healthcare professions.

18. **Establish regional approach to screening for health and SDOH-related needs/supports,** including the sharing of screening results.

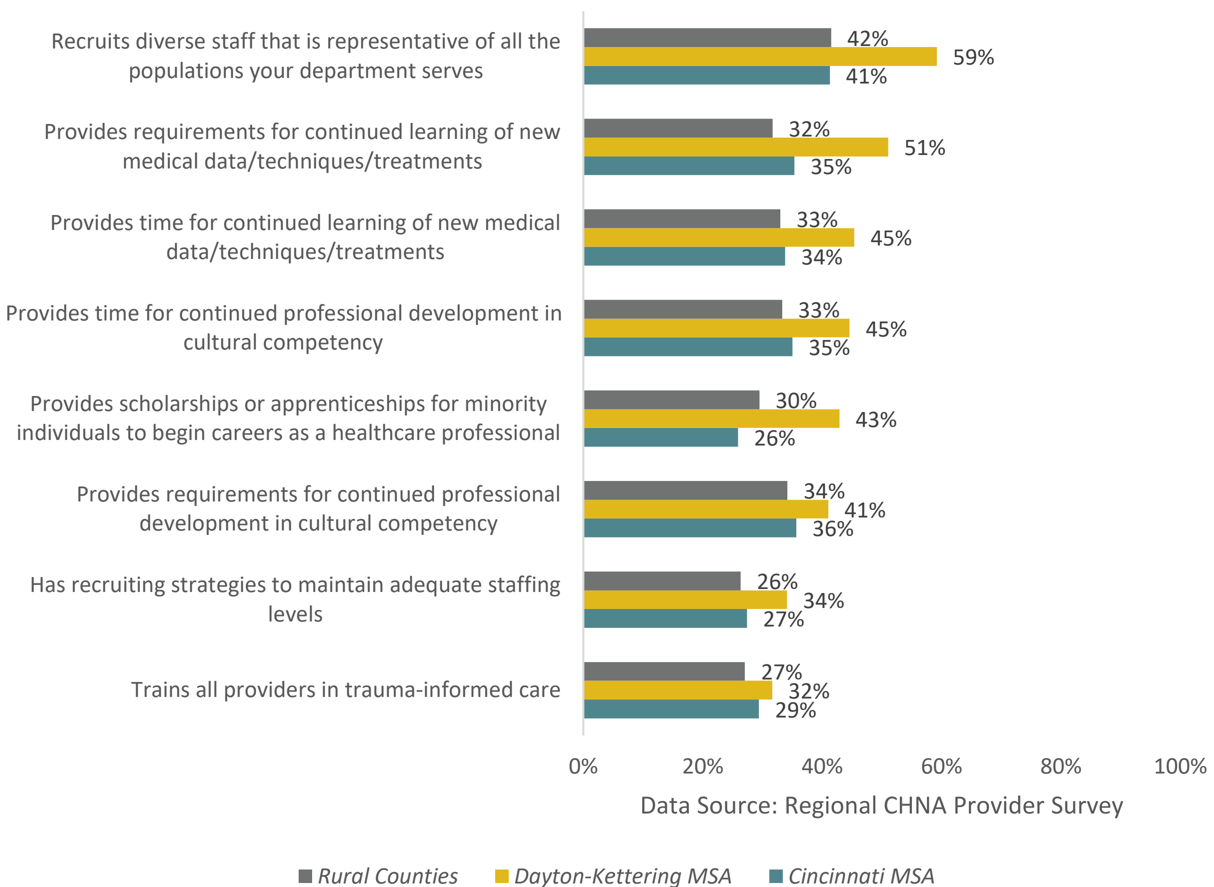
19. **Additional safety and prevention interventions** identified by community:
    a. Lobbying region's states to pass Erin's Law, which requires all public schools to implement a prevention-oriented child sexual abuse program.
    b. Sharing the Safer Campus Guidebook
    c. Safe Bars helps bars, restaurants, breweries, and other alcohol-serving spaces create safe and welcoming cultures for patrons, and safe and respectful spaces.

20. **Additional health care and community organization partnership opportunities,** identified by community:
    a. Early childhood centers
    b. Mental Health First Aid training providers
    c. Crossroads Center
    d. All-in Cincinnati for economic stability of Black women
    e. Urban League
    f. The Center for Closing the Health Gap for engaging community
    g. Catholic Social Services for reaching immigrant population
    h. Helen Jones-Kelley at Montgomery County ADAMH board
    i. Caracole, which provides HIV/AIDS prevention, housing, case management, and pharmacy services
    j. Heartland Trans Wellness
    k. Central Clinic's transgender wellness program
    l. Queen's Village
    m. UC welcomes the opportunity to support this work. Please reach out with your request and I will do my best to connect you with potential resources at UC. This could be in terms of research support, interns, co-ops, Service-Learning classes, funding support to pay interns, collaboration on grants, sprints, etc. Paula.Harper@uc.edu
    n. Regional veteran and Blue Star family organizations that provide a range of social services for veterans and their families when connected to them. Healthcare professionals can play a larger role in making those introductions.

Appendix E: Local Implementation of Best Practices to Overcome Barriers to Health Care

Staff Development and Recruitment

There is opportunity to increase organizations' implementation of best practices across all areas, with fewer than half of providers indicating their organization has successfully implemented most best practices surveyed. However, healthcare providers working in the Dayton MSA are most likely to report implementation of the various best practices surveyed. Among best practices related to staff development and recruitment, the most common successfully implemented best practice is recruiting diverse staff that is representative of the populations served with four in ten providers in the Cincinnati MSA and Rural regions, and six in ten providers in the Dayton MSA, indicating their organization has successfully implemented this (Figure E1).



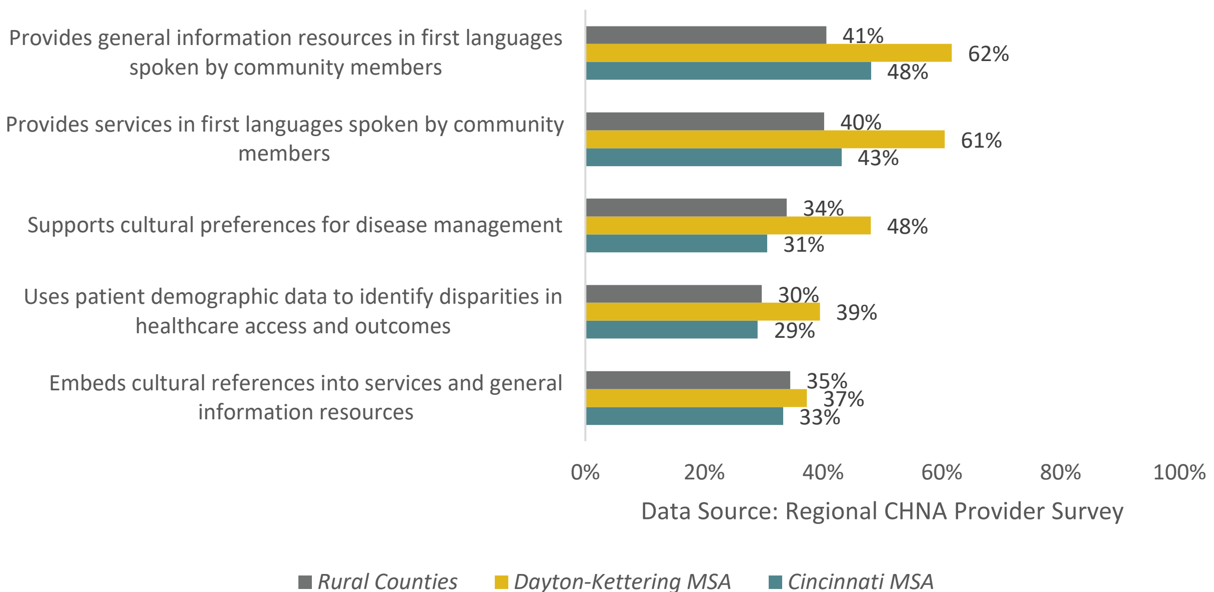
Ensuring Cultural Relevance of Services

While 6 in 10 providers in Dayton MSA indicate their organizations successfully provide services and general information in first languages spoken by community members (Figure E2), fewer than half of providers in all regions indicate that their organization:

- Uses patient demographic data to identify disparities in healthcare access and outcomes
- Supports cultural preferences for disease management
- Embeds cultural references into services and general information resources

Figure E2. Best Practices in Ensuring Cultural Relevance of Services for Healthcare Providers

% My department or organization successfully implements this in some or all areas



Screening and Care Coordination

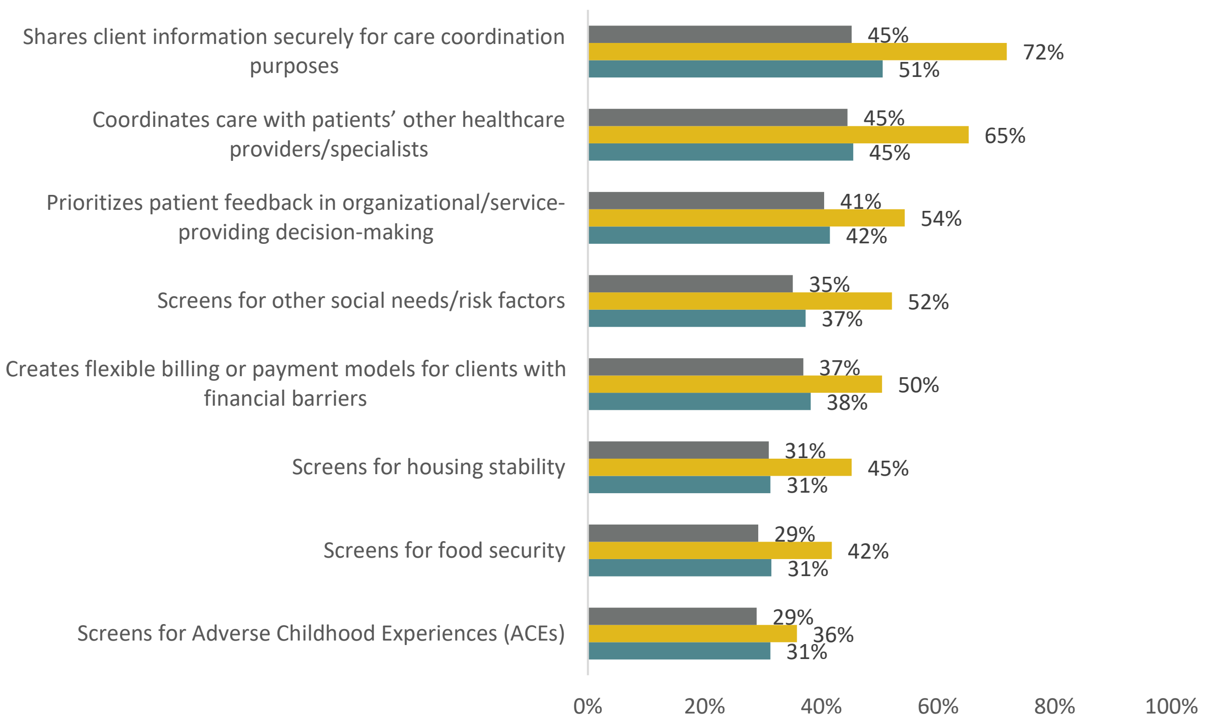
Providers in Dayton MSA are more likely to indicate that their organizations are successfully implementing best practices surrounding screening and care coordination.

- More than half of these providers indicate their organization screens for social needs/risk factors
- Prioritizes patient feedback in decision-making
- Coordinates care with patients' other providers/specialists
- Shares information securely for care coordination purposes

There are opportunities to improve organizations' screening for adversity and other SDOH; fewer than half of providers screen for ACEs, food security, and housing stability (Figure E3).

Figure E3. Best Practices in Screening and Care Coordination for Healthcare Providers

% My department or organization successfully implements this in some or all areas

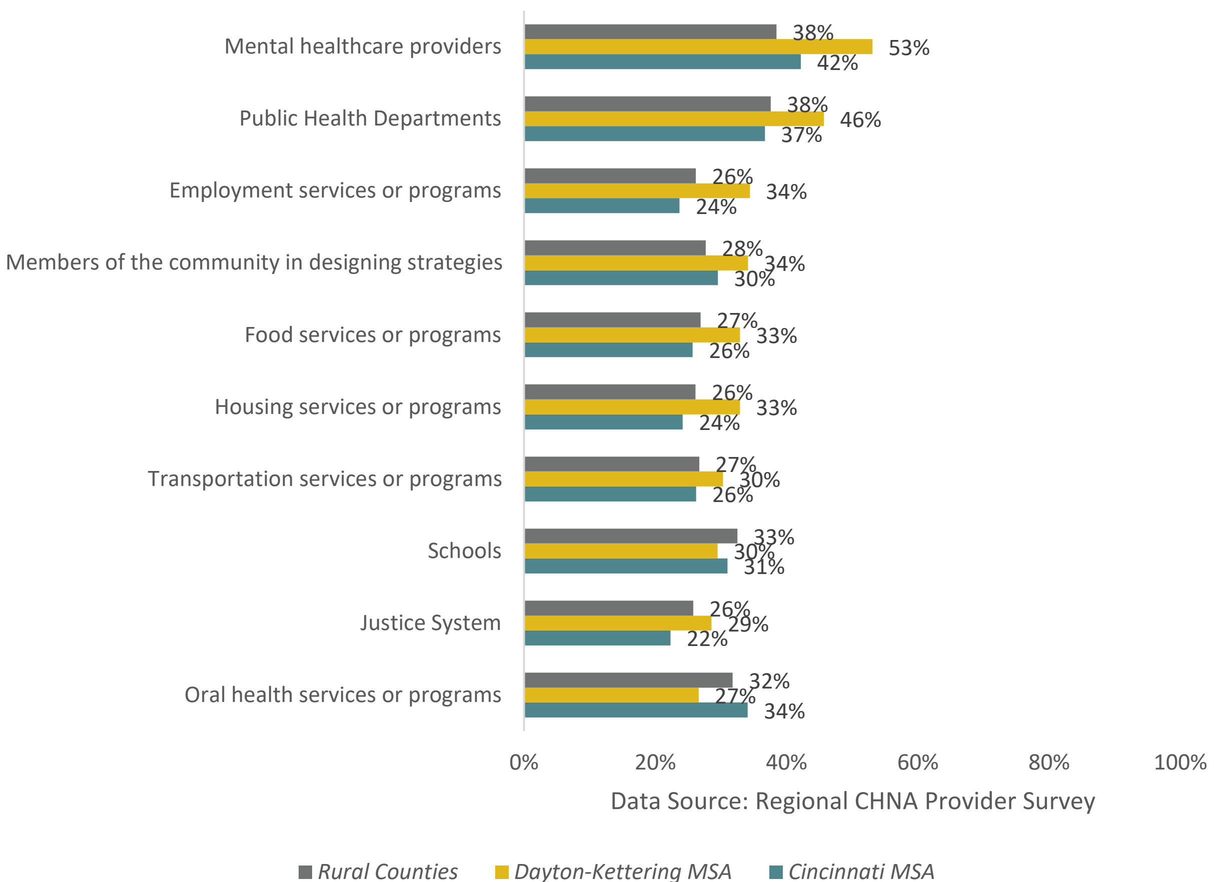


Data Source: Regional CHNA Provider Survey

Rural Counties *Dayton-Kettering MSA* *Cincinnati MSA*

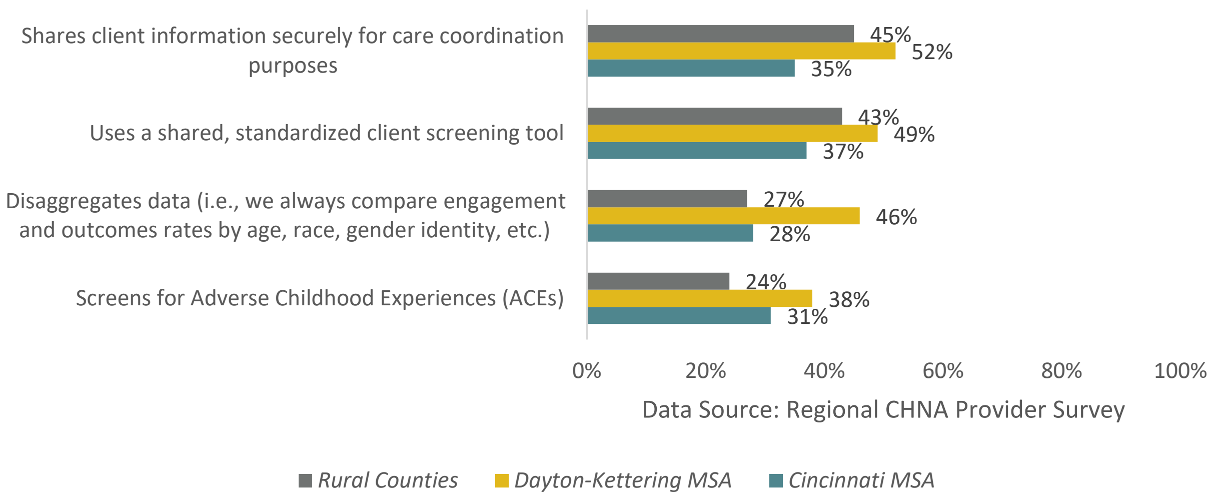
Collaboration

Providers across the regions are most likely to indicate they successfully collaborate with mental health providers and public health departments, though still only about one-half or fewer indicated this (Figure E4). Successful collaborations with the justice system, schools, transportation services, food and housing services are relatively uncommon among providers. Further, few providers indicate that they successfully collaborate with members of the community in designing strategies.



Data and Information

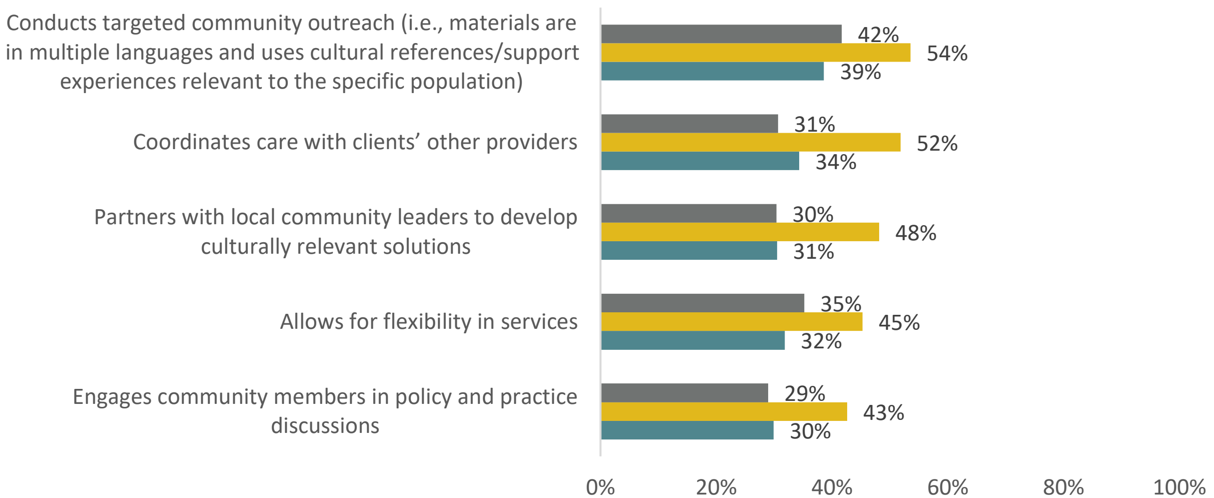
Again, Dayton MSA social service providers are more likely to report successful best practice implementation in all areas relative to social service providers working in the other two regions. About 4 in 10 providers indicate they use a shared, standardized client screening tool (Figure E5). While about one-half of providers in Dayton MSA indicate their organization successfully disaggregates data to look at outcomes by demographics, less than one-third of providers in other regions indicate this best practice implementation. Similar to healthcare providers, social service agencies have an opportunity to increase screening for adversities in order to link clients to needed care/interventions.



Responsive Client Services

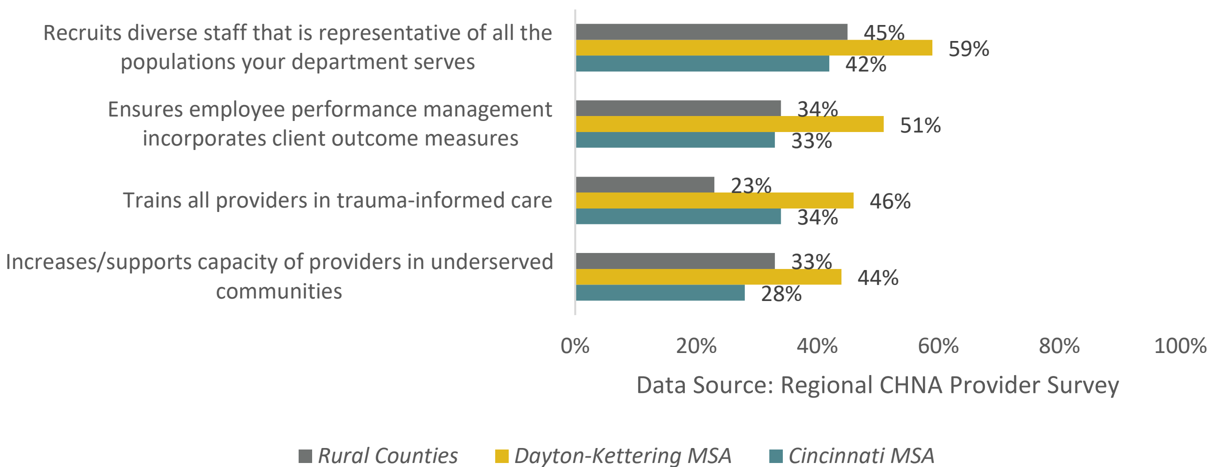
Social service agencies, especially those in Rural counties and within Cincinnati MSA, have an opportunity to increase their coordination and community outreach to ensure clients are provided holistic services. About one third or fewer of all providers in Rural counties and Cincinnati MSA (Figure E6):

- Coordinate care with clients' other providers
- Engages community members in policy and practice discussions
- Partners with local community leaders to develop culturally relevant solutions



Workforce Development in the Social Sector

Similar to healthcare providers, the most prevalent best practice surrounding workforce development for social service providers is in recruiting diverse staff who are representative of the populations they serve; still fewer than half of providers in Rural and Cincinnati regions do this successfully (Figure E7). There is also an opportunity to increase social service workforce development surrounding trauma-informed care, with fewer than half of providers in all regions perceiving this has been successfully implemented.



A Regional Assets datafile was created to capture the individuals and organizations who were identified by their peers as implementing one or more of these best practices successfully. As a resource for ongoing planning and partnerships, the Regional Assets datafile will be managed by The Health Collaborative and shared with community partners.

Appendix F: Original Data-Driven Recommendations

Based on the themes that emerged from multiple data collection strategies, the following broad recommendations were proposed to guide THC in the setting of regional health priorities.

Research demonstrates that community members experiencing lower economic stability, and access to quality health care are at greater risk of heart disease, diabetes, obesity, disability, lung disease, maternal complications, mental health, arthritis, vision concerns, dental concerns and allergies. To address these health concerns, the community will need to address housing stability, food security, healthcare affordability, and improving patient-provider relationships.

Recommendation 1: Improve healthcare access and quality.

The health of the community hinges on access to quality health care**.** To address the healthcare access and quality needs defined by the community across the region, The Health Collaborative may consider the following **priorities:**

- Strengthen collaboration with community partners who serve priority populations (i.e., increase in resources provided to community-based organization (CBOs), consulting with CBOs as community health experts, and committing to more long-term partnerships that CBOs can count on.)
- Increase workforce diversity across health fields and at every level
- Improve patient-provider interactions to increase trust and transparency
- Increase transparency of costs of health care and financial assistance polices

Recommendation 2: Improve economic stability through collaboration and coordination.

Economic stability (i.e., having enough food, money to pay bills, and a safe place to live) is a key predictor of several health needs. One's economics is also correlated with one experiencing structural barriers (i.e., high-cost healthcare system) and access barriers (i.e., lack of insurance, unable to afford medications or a doctor's visit, etc.). Therefore, a regional approach to improve health will be limited if the economic factors are not addressed. These factors include:

- Safe and stable housing
- Food security
- Health care affordability

Potential **priorities** for THC may be:

- Increase collaboration with local food security and housing stability efforts.
- Improve communication, referral and data sharing with partners who are addressing healthcare affordability (i.e., including bringing community health workers and social workers on-site (in ERs, clinics, offices, etc.).

Recommendation 3: Adapt metrics to monitor diversity, equity and inclusion (DEI) across all priorities.

The above recommendations are inclusive of DEI best practices for service providing organizations. The Health Collaborative leadership are also committed to DEI, which is another necessary component of successful DEI strategies. To ensure implementation of strategies that support DEI, THC should take the time to establish metrics for all priorities that will allow the region to track progress towards DEI goals.

Endnotes

[i] Mercer, A., Lau, A., & Kennedy, C. (2020, July 7). How different weighting methods work. *Pew Research Center Methods*. Retrieved September 20, 2021, from https://www.pewresearch.org/methods/2018/01/26/how-different-weighting-methods-work/.

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[iii] ibid

[iv] Pasek, J. (2018). anesrake: ANES Raking Implementation. *R package version 0.80*. https://CRAN.R-project.org/package=anesrake