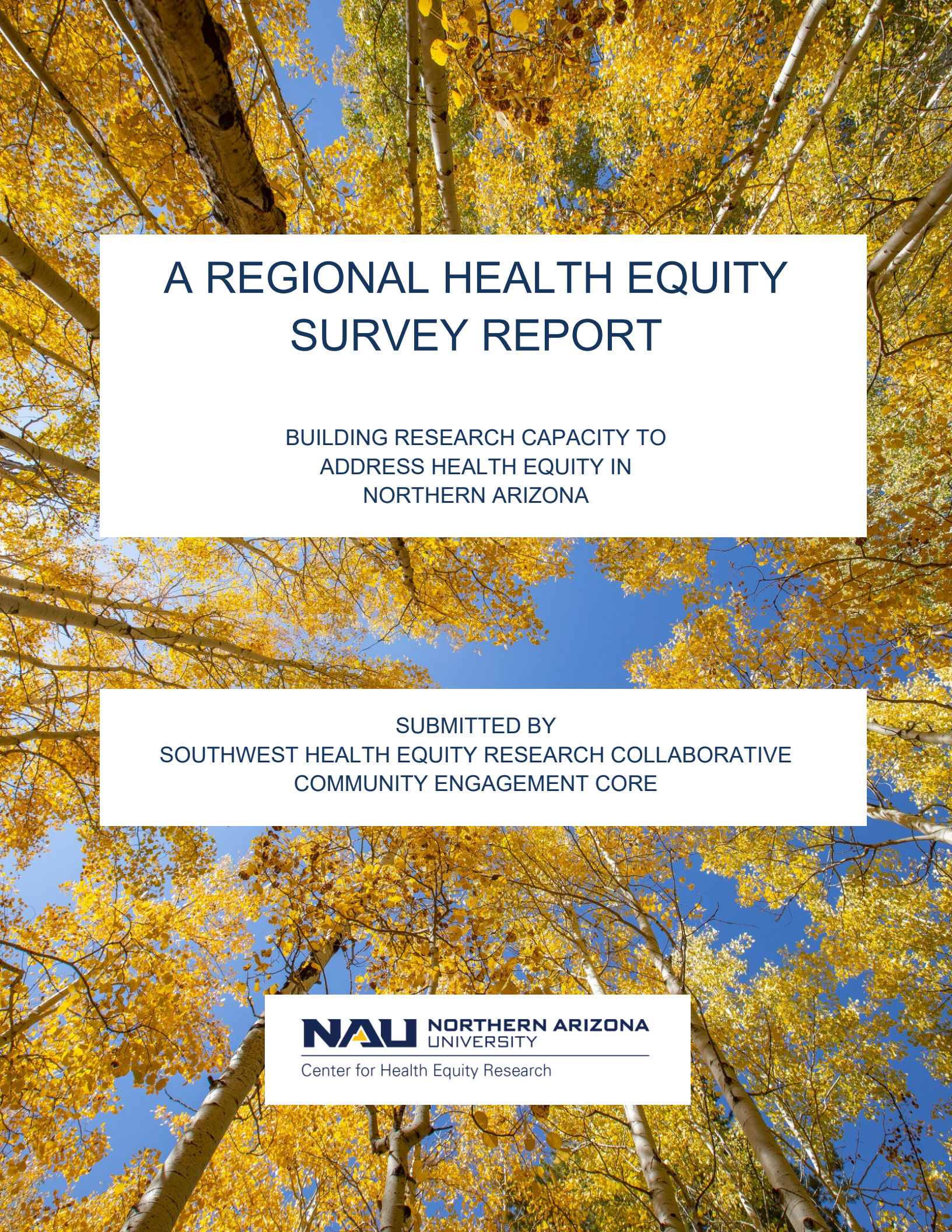

A REGIONAL HEALTH EQUITY SURVEY REPORT

BUILDING RESEARCH CAPACITY TO
ADDRESS HEALTH EQUITY IN
NORTHERN ARIZONA

SUBMITTED BY
SOUTHWEST HEALTH EQUITY RESEARCH COLLABORATIVE
COMMUNITY ENGAGEMENT CORE

NAU NORTHERN ARIZONA UNIVERSITY
Center for Health Equity Research

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EXECUTIVE SUMMARY

Over the last decade, public health research and practice sectors have shifted their focus away from identifying health disparities and towards addressing health equity. Although defining the differences in the burden of disease among specific populations is required to understand the scope of the disparities, to yield change public health needs to address the patterns of social inequalities that produce this variance. The social determinants of health (SDoH) framework can guide the next step to define the conditions in which people are born, grow, live, work, and age.

While health disparities and SDoH approaches have offered valuable insights into the conditions and contexts that contribute to sickness and wellness among specific populations, these concepts are limited because they do not expose the important pathways by which social identity (e.g., race and gender), the distribution of power and resources, and institutional policies shape opportunities for health. More recently, to address the underlying social inequalities that lead to differential health outcomes across population groups, public health research has shifted its focus toward a health equity framework.[1,2,3] By focusing on health equity, researchers, practitioners, and decision-makers make explicit the systematic, avoidable, unfair, and unjust differences in health status across population groups, sustained over time and generations, which are beyond the control of individuals. It is here we acknowledge our collective role in shaping the health and wellbeing of the communities in which we live, learn, work, play, move, and grow.

This report describes the inspiration and results of the **2020 Regional Health Equity Survey (RHES)**. The RHES is designed to understand and strengthen research, practice, policy infrastructure, and organizational capacity to address locally identified health equity issues from a multisectoral approach. The RHES builds from the highly participatory 2017 Regional Health Equity Assessment (RHEA)[4] conducted by the Northern Arizona University, Center for Health Equity Research. The RHEA, which aimed to inform dialogue among diverse partners and service delivery organizations so that novel solutions can be developed, implemented, and evaluated to address disparities that may be prioritized for collaborative intervention.

The RHES is a strategic effort of the National Institute of Health (NIH)-funded Southwest Health Equity Research Collaborative (SHERC), Community Engagement Core (CEC). The RHES was developed and administered in collaboration with our 11-member Community Advisory Council, composed of northern Arizona multisectoral leaders representing early childhood development, education, criminal justice, public health, and policy. Composed of 48-questions, the RHES covers topics related to distribution of resources in the communities served, personal understanding of social determinants of health, organizational capacity to address health inequities, extent and focus of cross-sectoral partnerships, use of data in decision making, and the role of research in addressing health inequities in the community. Generally, the RHES has three primary and mutual community- university benefits:(1) Establish a baseline of regional organizational capacity to advance health equity, (2) Produce local reports to support strategic planning, and (3) Inform NAU research, evaluation, training, and policy efforts.

Overview of Results

Over 200 county-level leaders representing various sectors shared their knowledge, attitudes, and actions related to addressing the social, environmental, and economic conditions that impact the health and wellbeing of the communities they serve. In their responses, participating multisector leaders demonstrated their profound knowledge of the drivers of health inequity and were especially cognizant of how their own beliefs, values, and privilege influence their worldviews on issues of equity. Organizational cultures across northern Arizona were found to be primed for action on the social determinants of health and actively engaged in cross-sectoral partnerships. Research on issues related to health equity was perceived as highly valuable. Leaders specified the following strategies to advance equity in northern Arizona:

- Build community knowledge and capacity
- Develop economic, workforce, and infrastructure
- Activate collaboration and partnerships
- Establish referral and resource systems
- Provide direct services
- Ensure flexible, fair, and equitable access
- Conduct community outreach and engagement
- Engage in advocacy and policy change
- Be culturally and community responsive
- Utilize evidence-based practices

This assessment will serve as the basis for a productive dialogue about the various and unique contributions that each county-level sector can activate to influence and strengthen health equity in our region.

Knowing is not enough; we must apply. Willing is not enough; we must do.
~Johann Wolfgang von Goethe

Data generated from the RHES will also guide the following research, practice, and policy efforts:

- Build research and evaluation capacity to address the social, economic, and environmental conditions of health inequity
- Design research to inform strategic planning, policy, or practice to advance health equity
- Strengthen research and training infrastructure to support community-engaged and participatory action-oriented research approaches
- Ensure that research is conducted responsibly, ethically, and in collaboration with communities and impacted populations; Ensure results are returned to communities for action
- Match and mentor community-engaged scholars to community-identified research priorities
- Develop systems to support research faculty, students, and staff that represent and reflect the cultural diversity and backgrounds of the northern Arizona region
- Leverage institutional history and receptivity to multi-disciplinary teams and collaborative grant submissions to produce high impact team science

INTRODUCTION

Background

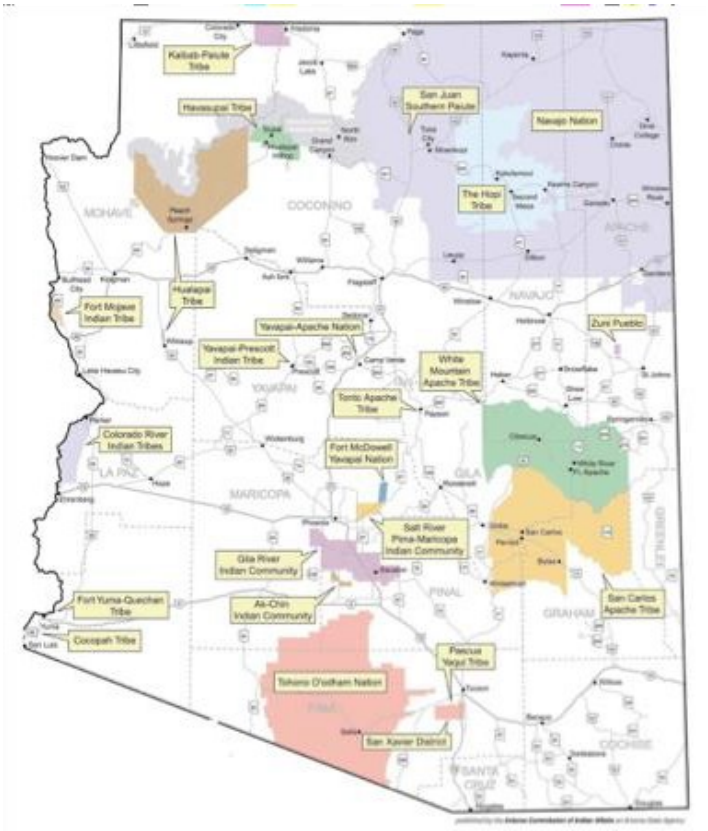


Figure 1. Map of Arizona County and Tribal Lands

Over recent decades, eliminating health disparities has been a major focus of public health efforts in the United States.[5,6] A social determinants of health (SDoH) framework is often used to guide health disparities research by defining the conditions in which people are born, grow, live, work, and age, and demonstrating how these factors differentially shape health outcomes within and between populations. While health disparities and SDoH approaches have offered valuable insights into the conditions and contexts that contribute to sickness and wellness among specific populations, these concepts are limited because they do not expose the important pathways by which social identity (e.g., race and gender), the distribution of power and resources, and institutional policies shape opportunities for health. More recently, to address the underlying social inequalities that lead to differential health outcomes across population groups, public health research has shifted its focus toward a health equity framework.[1,2,3]

In 2013, The Robert Wood Johnson Foundation launched a nationwide health equity effort called the Culture of Health Initiative aimed at making health a shared value, fostering cross-sector collaboration to achieve well-being, and creating healthier, more equitable communities.[7] Health equity initiatives have also been incorporated at the federal level in the United States through the creation of Offices of Minority Health and the goals of Healthy People 2020, which focus on achieving health equity through eliminating disparities and improving the health of all groups.[8] Despite these worthwhile efforts, health disparities and health inequities still loom large in the United States, particularly for people of color and rural communities.[9,10]

The barriers to effective action on health equity may be due in part to a lack of intersectoral collaboration and consensus on how to identify and overcome the root causes of health inequity, defined as the underlying social, economic, and environmental inequalities that create different living conditions among and between populations. A multi-sectoral approach (MSA) to addressing health equity, refers to "deliberate collaboration among various stakeholder groups and sectors (e.g., public health, transportation, education, criminal justice) to jointly achieve a policy outcome".[11] Employing MSA to improve health equity can have multiple benefits including pooling resources, leveraging unique knowledge bases, expanding reach, and avoiding duplication of work. This approach is highlighted in the Health in All Policies framework, which engages cross-sectoral partners in the promotion of health equity while simultaneously advancing other goals such as promoting job creation and economic stability.[12]

A major contributor to the lack of successful cross-sectoral collaboration is the problematic perception that addressing issues related to health equity is the sole responsibility of those working in health-related

fields.[13] However, given that the root causes of health inequity are diverse, complex, evolving, and interdependent in nature,[14] making progress toward health equity will require collaboration across sectors.[1,15]

To address this fundamental issue, we describe the community-engaged development and implementation of the Northern Arizona University (NAU), Southwest Health Equity Research Collaborative (SHERC) Regional Health Equity Survey (RHES). The RHES is designed to understand and strengthen research, practice, and policy infrastructure and organizational capacity to address locally identified health equity issues using a multi-sectoral approach.

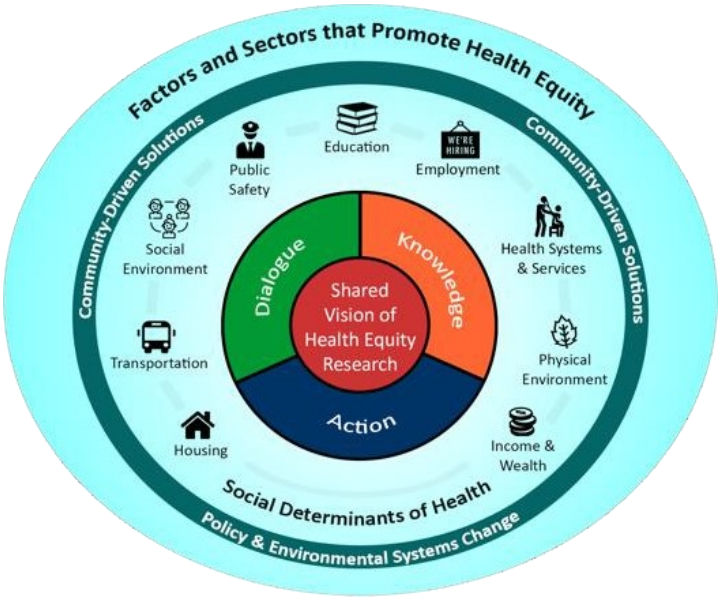
"The complex nature of most social problems belies the idea that any single program or organization, however well managed and funded, can singlehandedly create lasting large-scale change."

- Fay Hanleybrown, John Kanai, and Mark Kramer

Southwest Health Equity Research Collaborative: Community Engagement Core

The RHES is a strategic effort of the National Institute of Health (NIH)-funded SHERC Community Engagement Core (CEC). Northern Arizona University (NAU) is one of 19 universities funded through NIH's National Institute of Minority Health and Health Disparities (NIMHD)'s Research Center in Minority Institution (RCMI) award that provides support to establish a research center at universities that award doctoral degrees in the health professions or health-related sciences and have a historical and current commitment to serving students from underrepresented populations. The NAU SHERC operates within the Center for Health Equity Research.

Figure 2. Adapted Communities in Action



The overarching goal of SHERC is to increase basic biomedical, clinical, and behavioral health research capacity to address health equity among diverse populations in the Southwest region. The SHERC consists of five cores (administrative, research infrastructure, researcher development, recruitment, and community engagement) that interact synergistically to achieve this goal.
The CEC – the SHERC core producing this report – endeavors to cultivate and sustain productive collaborations and partnerships with community-based organizations and leaders in meaningful ways that foster awareness and participation in health equity research among diverse populations in Arizona.

Broadly, the CEC is guided by the Communities in Action – Pathways to Health Equity Model grounded in the Robert Wood Johnson Culture of Health Action Framework (Figure 2) and the Prevention Institute's Systems Framework of Emerging Systems to Achieve an Equitable Culture of Health.[7]

This asset-based framework recognizes health as a product of social determinants shaped by poverty, structural racism, and discrimination in which community-based solutions are necessary but not sufficient to achieve health equity.

Multisectoral and public-private partnerships are considered critical in building the necessary infrastructure, policy, and political will to ameliorate health inequity. Our activities and actions are guided by a four-direction framework of inquiry and action which include Dialogue, Knowledge, Action, and Reflection domains (Table 1).

Community Engagement Core Four-Direction Framework		
Domain	**Goal**	**Activity**
Dialogue	To engage community-based organizations, community leaders, policy experts, and researchers to identify commonalities in health trends, drivers of health disparities and assets nurturing resilience.	Regional Health Equity Survey
Knowledge	To increase awareness of health disparities research among community-based organizations and other stakeholders to promote recruitment, participation, and retention in health disparity research.	Fairness First podcast "Stories of Community-Engaged Research" 5-part video series
Action	To mobilize multisectoral, public, private, and community-based organizations to address priority health disparities research areas through implementation and translational science.	Community-Campus Partnership Support (CCPS) Program
Reflection	To document stakeholders and researchers' assessment of each year's dialogue, knowledge, and action activities to inform the following year's work.	Ongoing and iterative evaluation

Table 1. Community Engagement Core Four-direction Framework

Regional Health Equity Survey (RHES)

The RHES is inspired by the Bay Area Health Inequity Initiative (BARHII), Organizational Self-Assessment for Addressing Health Inequities.[16] The BARHII is a regional collaborative of San Francisco Bay Area's eleven urban health departments aimed at addressing the underlying environmental, social, and economic conditions, including structural racism, defined as the complex system by which racism is developed, maintained, and protected, that drive inequity. Through a collective impact approach, collaborating public health directors, health officers, senior managers, and staff, build public health workforce competencies and organizational characteristics to address health inequities as a region.

Workforce competency and organizational characteristics are fundamental to effectively address health inequity driven by the social systems and structures that circumscribe the production of health (Table 2). Research demonstrates that underlying social inequities based on class, race, gender, and the distribution of power and resources and the priorities of institutional policies and practices, define the ways in which social determinants of health contribute to health inequities.

In line with the BARHII self-assessment tool, the RHES serves as a first step to understand and build research support for organizational and departmental leaders from various sectors, beyond public health,

to strengthen organizational capacity to address health inequity.[16] Guided by the principle that all civic efforts have an active and vital role in shaping the health of our communities, RHES respondents hold appointed and elected leadership positions of various sectors including: health, housing, transportation, planning, parks and recreation, public safety, justice, economic development, not for profits, and government.

Generally, the RHES has three primary and mutual community-university benefits: (1) Establish a baseline of regional organizational capacity to advance health equity, (2) Produce local reports to support strategic planning, and (3) Inform NAU research, evaluation, training, and policy efforts.

Valuable organizational characteristics and workforce competencies to address health inequities	
Organizational Characteristics	**Workforce Competencies**
• Institutional commitment • Hiring to address health inequities • Structure that supports true community partnerships • Support to address health inequities • Institutional support for innovations • Community accessible data and planning • Streamlined administrative process	• Personal attributes • Knowledge of public health frameworks (e/g ten essential services, public policy development, advocacy and data) • Understand social determinants of health • Community knowledge • Leadership • Collaborative skills • Community organizing • Problems solving • Cultural competency and humility

Table 2. Valuable Organizational Characteristics and Workforce Competencies to Address Health Inequities

APPROACH

Community Advisory Council

Community advisory councils (CACs) can benefit research institutions by ensuring that the research agenda aligns with priorities salient within the community. In addition to providing their unique perspectives and expertise to guide the development of research questions, CAC members can help to bridge gaps and build trust between the community and the research institution. Prior to engaging in the development of the RHES, the CEC assembled an 11-member CAC composed of leaders across northern Arizona from sectors including early childhood development, education, criminal justice, public health, and policy. Researchers and CAC members met face-to-face and remotely throughout the survey development process.

Survey Development

A primary step in defining public health priorities and understating the community's current capacity to impact health inequities is through the systematic collection of information, achieved in this case through the Regional Health Equity Survey (RHES).

The initial stage of the survey development occurred in April of 2018 with an in-person meeting between members of the CAC and the CEC researchers and staff. After an introduction to the overarching goals of the RHES, the CAC members participated in a free listing activity aimed at narrowing the focus of the RHES questions.

Free listing is a technique used for gathering data about a specific domain or topic by asking people to list all the items they can think of that relate to the topic. In this case, CAC members were asked to generate thoughts related to five aspects of health equity: outcomes, innovations, measurement, sustainability, and partnership (Figure 3).

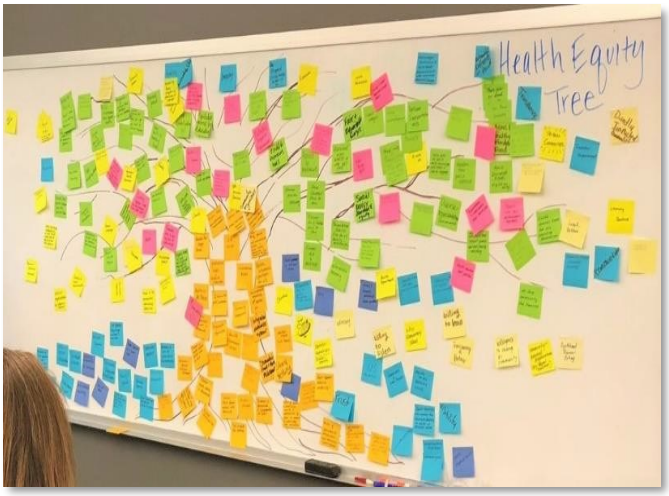


Figure 3. Community Advisory Council Free Listing Activity

Following the free listing activity, the CEC research staff collected all CAC responses, sorted them into their corresponding categories, and identified themes within each category.

These themes were used by the CEC to generate a set of community-driven questions for the RHES. Additionally, the CEC adapted survey questions from previous health equity assessments (e.g. the BARHII). Together, these comprised the initial set of questions for the RHES. Survey questions underwent two rounds of edits by CAC members and leadership from other SHERC core areas including research infrastructure and investigator development. Once a final set of questions was agreed upon, the final RHES survey was generated using Qualtrics, an online survey platform.[17]

The final RHES is composed of 48 questions covering topics related to distribution of resources in the communities served, personal understanding of social determinants of health, organizational capacity to address health inequities, extent and focus of cross-sectoral partnerships, use of data in decision

making, and the role of research in addressing health inequities in the community. Table 3 provides an overview of each survey domain.

Regional Health Equity Survey Domains				
Community	**Organizational Culture**	**Personal Experiences**	**Partnerships**	**Research and Initiatives**
Root causes of inequity	Organizational focus on health inequity	Personal understanding of SDoH	Extent of cross-sectoral partnerships	Use of data in decision making
Distribution of resources and services	Organizational capacity to impact SDoH	Experiences with staff and supervisors	Focus of cross-sectoral partnerships	Inspiring initiatives
Strategies to overcome inequities	SDoH training	Opportunities to reflect on addressing health inequities	Desired qualities in partners	Role of research in addressing health inequities

Table 3. Regional Health Equity Survey Domains, "SDoH" = Social determinants of health

Participant Recruitment

Figure 4. Vitalyst Health Foundation, Elements of a Healthy Community

The population of interest for the current study includes community, organizational, and grassroots leaders from five northern Arizona counties: Apache, Coconino, Mohave, Navajo, and Yavapai.

In line with the Vitalyst Health Foundation's elements of a healthy community (Figure 4)[18], the RHES sectors of interest included community health and economic development; health and human services; law, justice, and public safety; parks and recreation; policy; early childhood development; transportation; food systems; housing; education; arts, music, and culture; planning and zoning;

The CEC staff used a 3-pronged approach to identify potential participants for the RHES. First, extensive internet searches were conducted to identify individuals in positions of leadership across sectors and regions. Second, CAC members nominated leaders from their region and sector. Finally, CEC staff circulated RHES sign- up sheets at county leadership meetings

All potential participants names were compiled, duplicate names were removed, and county-level participant lists were generated for each sector. Prior to administering the RHES, county leaders (e.g. assistant county manager, public health director) vetted each county's list, removing names of individuals who were no longer in their positions and filing in gaps in sectors having no representation.

Once participant lists were finalized, introductory e-mails were sent by county champions alerting all potential participants to our efforts. Invitations to participate in the RHES, including links to the survey, were circulated electronically by CEC staff one day after introductory e-mails were sent. Participants received two reminder e-mails, two and four weeks after the initial invitation. All respondents were offered a $25 gift card as compensation for their participation.

Data Analysis

All descriptive statistics were cleaned and analyzed using IBM SPSS (version 26).[19] Depending on the responses, qualitative data from open-ended questions were analyzed using either a priori coding or emergent coding and a thematic analysis approach in ATLAS.ti 8.[20] The Vitalyst Health Foundation's elements of a healthy community (Figure 4)[18]were applied to questions where the data were suited for a priori coding. Data was coded by one researcher and consensus on codes and themes was achieved through intensive discussion with a second researcher throughout the analysis process.

SUMMARY OF RESULTS

Participant Demographics

A total of 206 of the 560 invited multisectoral leaders from across northern Arizona participated in the RHES (response rate = 37%) (Table 4). While there was a relatively equal distribution across gender (female=53%, male=43%), a majority of the respondents identified as white (83%). The average age of participants was 49 years old.

Participant Demographics

	County					
	Apache (n=8)	**Coconino (n=94)**	**Mohave (n=34)**	**Navajo (n=28)**	**Yavapai (n=42)**	**Total (N=206)**
Gender (n=129)						
Female	1	20	16	8	24	**69 (53%)**
Male	4	26	7	11	8	**56 (43%)**
Other	0	0	0	0	1	**1 (1%)**
No Answer	0	1	0	2	0	**3 (2%)**
Race and Ethnicity (n=129)						
American Indian/Alaskan Native	0	2	0	1	0	**3 (2%)**
Asian/Pacific Islander	0	0	1	0	0	**1 (1%)**
Black/African American	0	3	0	0	0	**3 (2%)**
Hispanic/Latino	0	2	0	0	4	**6 (5%)**
White	5	40	19	17	27	**108 (84%)**
Other	0	0	1	0	2	**3 (2%)**
Prefer No Ans	0	0	2	3	0	**5 (4%)**
Age in years (n=127)						
Mean (SD)	52.6(5.9)	45.8(10.1)	52.7(11.1)	50.9(9.7)	49.4(14.4)	**49 (11.6)**
Position time in months (n=195)						
Mean (SD)	21.1(15.6)	58.1(71.9)	79.8(78.5)	69.9(59.2)	65.4(77.2)	**63.7(71.7)**
Sector time in months (n=194)						
Mean (SD)	91.1(87)	192.4(116.2)	233.6(147.3)	480(199.6)	204.2(150.8)	**199.4(133.3)**
Organization (n=204)						
Government	5	53	13	16	15	**102 (50%)**
Non-gov.	2	22	11	5	17	**57 (30%)**
Private sector	0	4	2	3	2	**11 (5%)**
Academic	0	9	5	1	5	**20 (10%)**
Other	0	5	3	3	3	**14 (7%)**
Do you work with community members? (n=192)						
Yes	7	76	33	27	38	**181 (94%)**
No	0	5	1	1	4	**11 (6%)**

Table 4. Participant Demographics. Abbreviations: "prefer no ans" = prefer not to answer; Position time = time in current position; Sector time = total time working in sector; Organization: "Government" = Federal, State, County, and Municipality; Work with Community = works directly with or supervises staff who work with community members.

Most of the participants reported working in their respective sectors for over 16 years and had been at their current position for an average of 5.25 years. Half of all participants held government positions at the Federal-, State-, County-, and Municipality-level and approximately two-thirds of respondents said they had an active role or were the primary decision maker within their organization. The reported leadership positions of participants included, but were not limited to, county managers and department directors, chief of police, superintendents, presidents, CEOs, and executive directors. A vast majority of all participants reported working directly with community members or supervising staff who work directly with community members.

Participants were allowed to identify with more than one sector. While there was representation from all 14 sectors, 95% of all participants identified with either Health and Human Services (49%), Education (26%), or Community and Economic Development (20%) (Figure 5).

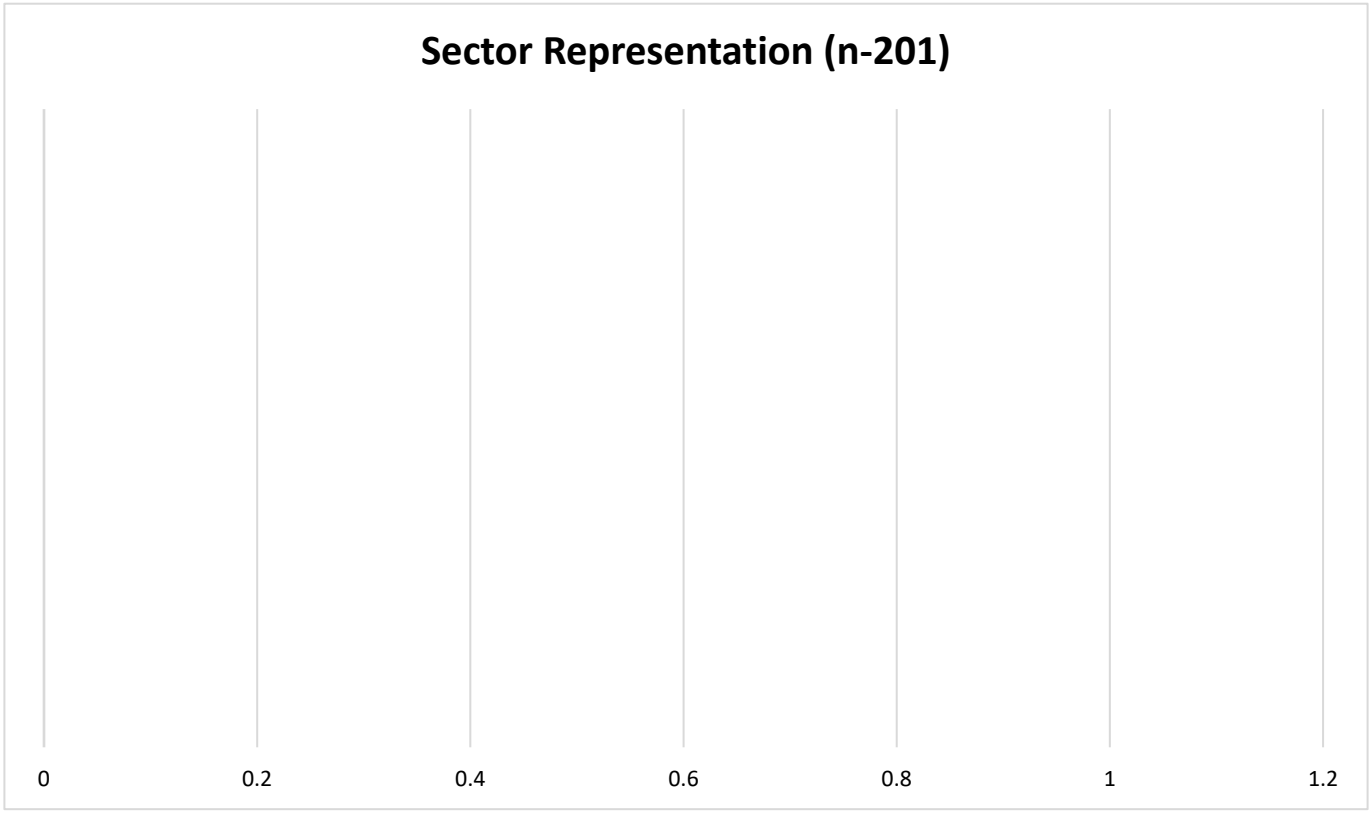


Figure 5. Sector Representation. Note: Sector respondents were allowed to check all that apply, Abbreviations: "CRM" = Cultural Resource Management, "HHS" = Health and human services, "Comm./eco dev" = Community and Economic Development

Community Demographics

In this section, leaders describe the communities they serve, including the perceived distribution of resources and services, the root causes of health inequity, defined as the underlying social, economic, and environmental inequalities that create different living conditions, and the potential strategies to overcome these challenges.

Leaders unanimously agreed that resources and services across all sectors were unevenly distributed in their communities (Figure 6). Public safety and children's education, which were both perceived to be the most well distributed resources in the community, still were perceived to be evenly distributed by only one-quarter of the respondents.

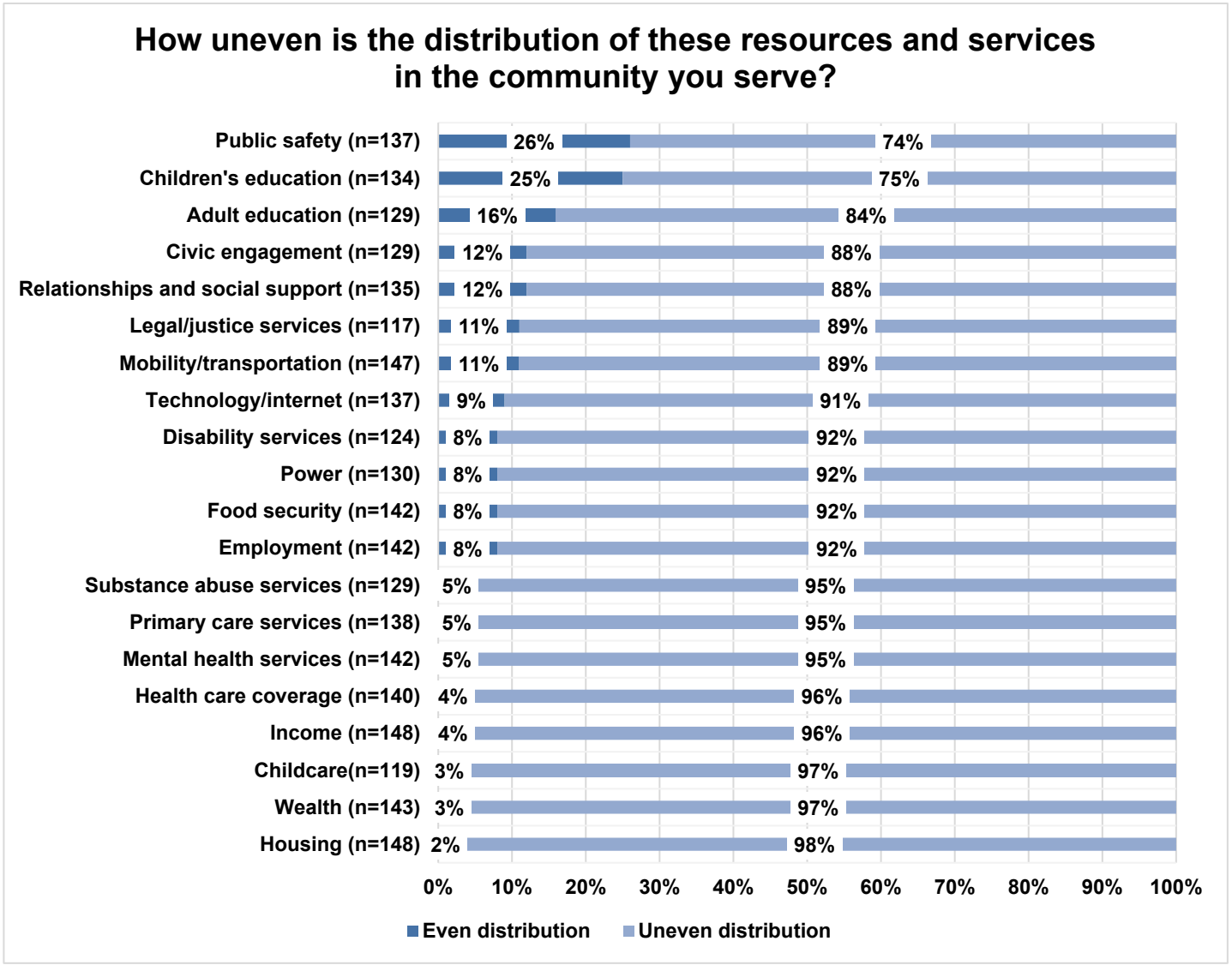


Figure 6. Perceived Distribution of Community Resources. Note: "Uneven distribution" includes responses to both "Very uneven" and "Somewhat uneven"

Leaders Description of Communities Served

Participating leaders (*n*=136) described the primary communities they serve. Leaders described characteristics of the communities which align with the rich cultural and geographic diversity of northern Arizona. Most leaders described the communities they serve by geographic location or boundary (e.g. specific regions, counties, cities, towns, tribal lands) or geographic characteristic (e.g. rural, urban, small, large, remote or isolated).

Other leaders described their primary community served using socioeconomic and demographic characteristics (e.g. income, poverty, age, gender) and/or as lacking or having limited resources and opportunities. Additionally, leaders characterized the racial, ethnic, and cultural diversity of the community, inclusive of predominately White, American Indian, and Latino residents. Other participants specified population groups or even sectors as the primary community served, such as public-school students and families and the legal sector.

Some participants used health-related conditions or outcomes to describe the community served, namely around individuals living with disabilities and experiencing substance use disorder. Finally, participants commonly described the community they serve on a number of intersections, related to two or more "identities" or dimensions of inequality.

"We are a rural community, with Tribal lands included. With that comes challenges specific to us based on a struggling economy, and a not-so-sure future based on one of our main providers possible fading out within the next decade. We have small towns, and because of that, we lack some of the resources that other counties with a greater population would have access to."

Root Causes of Health Inequity

The definition below of the root causes of health inequity was provided to leaders who were asked to describe the root causes of health inequity in the community they serve. Approximately 66% (*n*=136) of participants provided a response to this question. Although leaders were asked describe the root cause of inequities facing their community, which are defined by elements of interlocking systems of fairness and justice, the majority of leaders described the social determinants of health (SDoH), which are different than root causes; SDoH are defined as the conditions in which people are born, grow, live, work and age (e.g air quality, schools, parks, jobs, housing conditions). Unlike the root causes, SDoH do not address how or why these social, economic, and environmental conditions are inequitably distributed.

The root causes of health inequity *are the underlying social, economic and environmental inequalities which create different living conditions. Discrimination based on class, race, ethnicity, immigration status, gender, sexual orientation, disability, and other 'isms' influence the distribution of resources and power. Past discriminatory practices are often reinforced in the policies and practices of institutions that define the context of our daily lives.*
This in turn creates an unequal distribution of beneficial opportunities and negative exposures, resulting in health inequities.

In the few instances when leaders did describe root causes of inequity, they articulated systemic factors affecting the communities they serve and primarily described discrimination and unequal allocation of power and resources.

“Inequality in distribution and solicitation in the types of services/businesses provided communities versus more established municipalities. This in turn creates and maintains food deserts where access to quality, affordable food is diminished. Many unincorporated townships passing laws stating throughout the county, for example; dollar stores increasing presence in rural/lower income the outright ban of "box stores" and other affordable/accessible services.

Past policies around land distribution and land use disproportionately impacting native communities. Infrastructure, or lack thereof, favoring higher income brackets and more able- bodied peoples: lack of sidewalks, elevators, handicap access, specialized services, etc. Classism affecting poor families, and especially families of color with childcare and early education opportunities being too expensive for most to afford, free or reduced-price options fill up quickly with wait times being years long. Historic and continued lack of representation at the local and county level being anything other than white, male dominated.”

Some leaders articulated the interlocking systems of power that place certain communities, especially communities of color and people living in poverty, at a direct disadvantage.

“The root cause here is the same as it is anywhere - unequal distribution of money, opportunity and power. How that shows up in my community is: Essential services provided in population hubs where cost of living is too high for those who most need services. Virtually no public transportation. Wage disparity. Lack of entry level employment opportunities Social and geographic isolation Technology vacuums outside of population hubs — although about 95% of the population owns a smart phone, data services for their use is too expensive, or there is spotty/no service in many of the outlying rural areas. Very limited affordable housing. The most "affordable" housing is the furthest from services/food/socialization.”

For many more leaders, the underlying SDoH for the community they served was economic opportunity. Various aspects of economic opportunity were identified, such as poverty, income inequality, high cost of living, unemployment, limited job opportunities, limited high-quality job opportunities, and struggling economies.

One participant summarized several of these areas within economic opportunities:

“Many people are unable to make ends meet, even if they are working their paycheck just doesn't cover their living expenses. Many are seeking employment which is very short within our city.”

Another commonly cited SDoH was access to healthcare. Leaders identified barriers to quality and affordable healthcare services, including lack of healthcare providers and quality medical specialists, long wait times for appointments and in waiting rooms, extended travel distance to receive healthcare, lack of affordable health plan coverage, and limited dental, vision, urgent care,

preventive care, and mental health services. Barriers related to access, quality, and cost of healthcare services overlapped and were considered to be compounded by rurality.

Education was considered an influential SDoH by participating leaders. Leaders discussed limited access to educational opportunities, low educational attainment, and lack of quality education, and concerns related to underfunded and thus underperforming schools.

When leaders described root causes of inequity in their communities, they often described them in synergy with other SDoH, and described complex systems of disparity.

"Few residents have evidence-based knowledge about effective health maintenance. Additionally, distance to even minimal healthcare are often prohibitive, especially transportation. School funding for health education is also too low in many rural communities. Poverty, with a dearth of consistent well-paying jobs, contributes to diseases becoming chronic through lack of prevention and understanding of long-term healthy behaviors. Poor health literacy also contributes to poor health maintenance."

Social and cultural cohesion as a SDOH was a concern for leaders. Participants noted the lack of infrastructure and support for mental health, and supportive relationships, families, and homes. Leaders stated that lack of social and cultural cohesion was linked to or contributed to high rates of poor mental health, substance use, stigma related to substance use, and other health conditions such trauma and risky behaviors that might contribution to HIV and substance abuse.

Furthermore, participants identified both social and physical isolation as contributing factors to health inequity in their communities. Social and geographic isolation was largely described by leaders as a function of rurality and the unique challenges rural communities face. Challenges identified were primarily around lack of connection and limited services and resources for the community across sectors.

"I study four key areas currently that affect our rural region; Domestic Violence, Substance Abuse, Homelessness (or the economic threat of homelessness), and suicide. I believe that the root cause of disparities is a lack of connection among rural populations. This includes transportation, technology, and social connection"

To a lesser extent but nonetheless notable, leaders described the lack of comprehensive transportation systems that provide affordable and reliable transportation and the lack of affordable housing as contributing to health inequity in the communities they serve.

Strategies to Address Root Causes of Health Inequity

Participating leaders (*n*=133) were asked to provide strategies to address the root causes of health inequity in the communities they serve. Table 5 describes those strategies and some examples of how they implement them.

Strategies to Address Root Causes of Health Inequity (n=133)	
Strategies	**Exemplar Quotes**
Build Community Knowledge and Capacity	"Education and awareness building to support people to become their own advocates" "Honest education regarding risk/benefits of chosen lifestyles that contribute to long term poor health and poor quality of life."
Develop Economic, Workforce, and Infrastructure	"We have been trying to attract some different types of businesses that could employ people who have little or no secondary education" "Economic development efforts, development of regional transit service"
Activate Collaboration and Partnerships	"Collective community collaborations, sharing of resources among community agencies, looking for avenues to partner with others." "Community Partnership to tackle infrastructure challenges together versus in silos. Strength is in numbers and joining forces is critical for funding and future enhancements."
Establish Referral and Resource Systems	"Linking people to community resources is the best strategy I see to help individuals and families address the challenges they face and find support to overcome many of the problems that occur." "The school district provides a full time RN to services our students. She provides referrals as needed."
Provide Direct Services	"Delivery of services which are responsive to these challenges" "Provide as much food as possible so no one goes hungry."
Ensure Flexible, Fair, and Equitable Access	"Working around work schedules" "Meeting clients where they are. Coming to them." "Provide care to all people regardless of their ability to pay." "Treat everyone equally." "Scholarships for children to attend quality childcare facilities"

Strategies to Address Root Causes of Health Inequity (n=133)	
Strategies	**Exemplar Quotes**
Conduct Community Outreach and Engagement	"Putting a 'face' to local government--helping residents see that public servants are not part of a nameless machine, rather they are friends, neighbors and live in the same communities." "Work with positive community members that want to help students, participate in local radio show in the past to give positive messages, newsletters, open listening, focus decisions on what is best for students, try and recruit positive role models for children"
Engage in Advocacy and Policy Change	"Provider groups banding together to lobby for change." "Advocating for system review/change. Push for outcomes vs outputs. Asking 3 questions: How much did you do, how well did you do it and is anyone better off."
Be Culturally and Community Responsive	"I was born and raised in Navajo County and plan on staying here my entire life. Our organization tries to bring together professionals from a range of sectors, help ensure that prevention strategies are culturally, linguistically, and age appropriate, and that they match people's health literacy skills, provide internet skill-building courses to help residents find reliable prevention services." "Acknowledgment of historical trauma and focus on resiliency building for children and youth"
Utilize Evidence-Based Practices	"Being informed on evidence-based practices and incorporating them into our strategies. Updating policies to prioritize addressing root causes, rather than how we "feel" about them." "Working with community residents and partners, achieving agreement on proposed service delivery models, implementing evidence-based programs, and monitoring/providing feedback on program results. When supported, adopt public health ordinances to promote health (i.e., smoking ordinances, texting while driving ordinances, etc.)."

Table 5. Strategies to Address the Root Causes of Health Inequity

Workforce Competencies for Addressing Health Inequities

In this section, leaders described their beliefs, actions, and personal commitment and opportunities for cultivating cultural competency and humility to better address health inequities (Figure 7). Nearly 100% (*n*=139) of organizational and departmental leaders surveyed agreed that it is important to understand the beliefs and values of the community members they serve. Find a complete alt description on page 44.

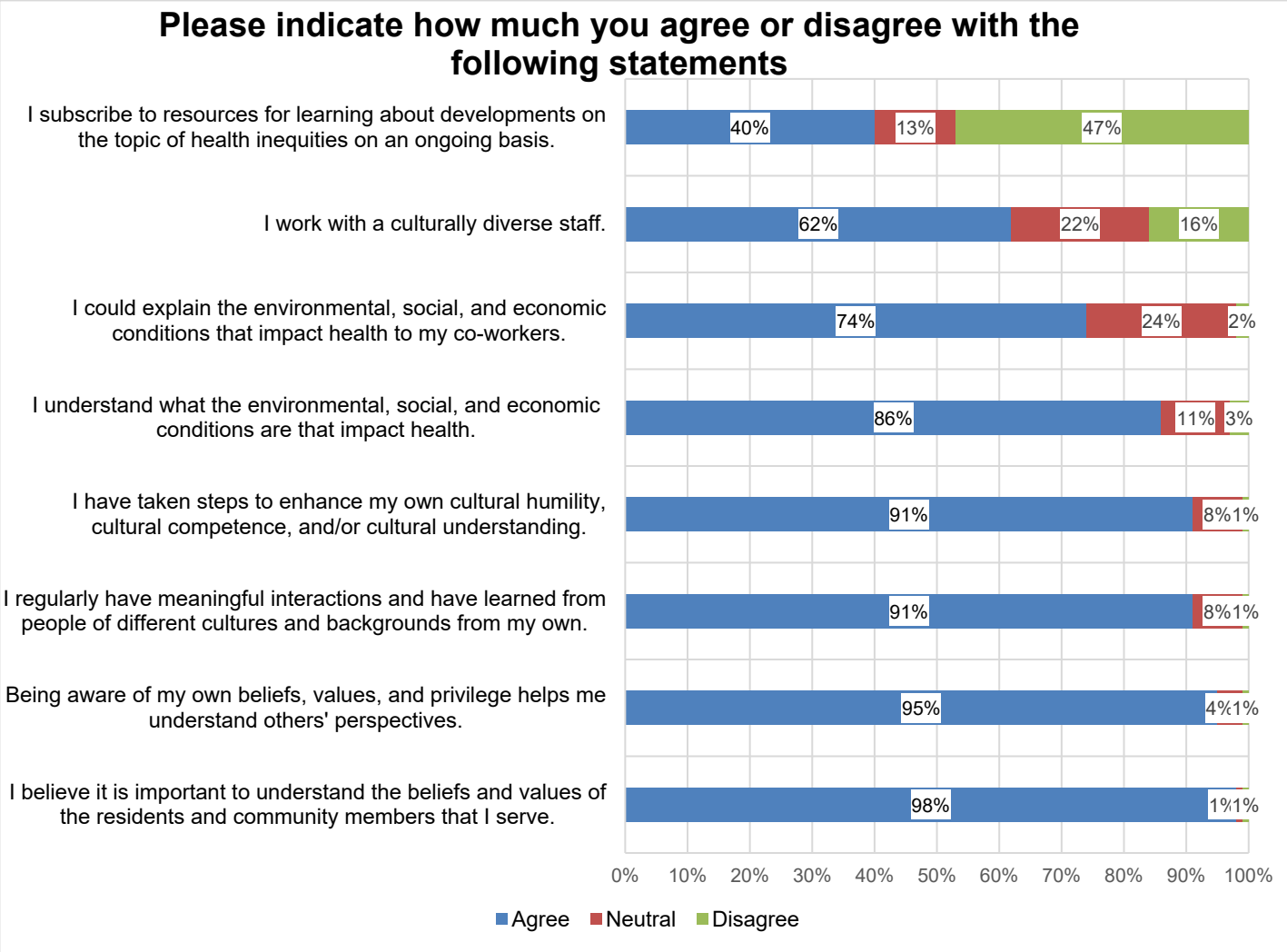


Figure 7. Workforce Competencies

Leaders agreed that being aware of their own beliefs, values, and privilege supported their own understanding of others' perspectives. Approximately 90% (*n*=127) of leaders surveyed regularly engaged in meaningful interactions with people of different cultures and backgrounds than their own and have taken steps to enhance their own cultural humility, competence or cultural understanding though a training, self-reflection, or personal relationships.

Approximately 40% (*n*=55) of leaders surveyed subscribe to a web-based source for learning about developments on the topics of health inequities on an ongoing basis. Although 86% (*n*=121) of leaders surveyed agreed they understood that the environmental, social, and economic conditions have an impact on health, only 74% (*n*=103) of participants believed they could explain these conditions to their co-workers.

Organizational Characteristics to Address Health Inequities

Organizational and departmental leadership were asked to share their perceptions of organizational culture to address health inequity generally and specifically, and the opportunities staff and senior level management to discuss the environmental, social, and economic conditions that impact health inequity.

While 47% of respondents said their organizations' strategic plan included a commitment to addressing the root causes of health inequity, over half of participants believe their organization can do more to have an impact in the community they serve (Figure 8).

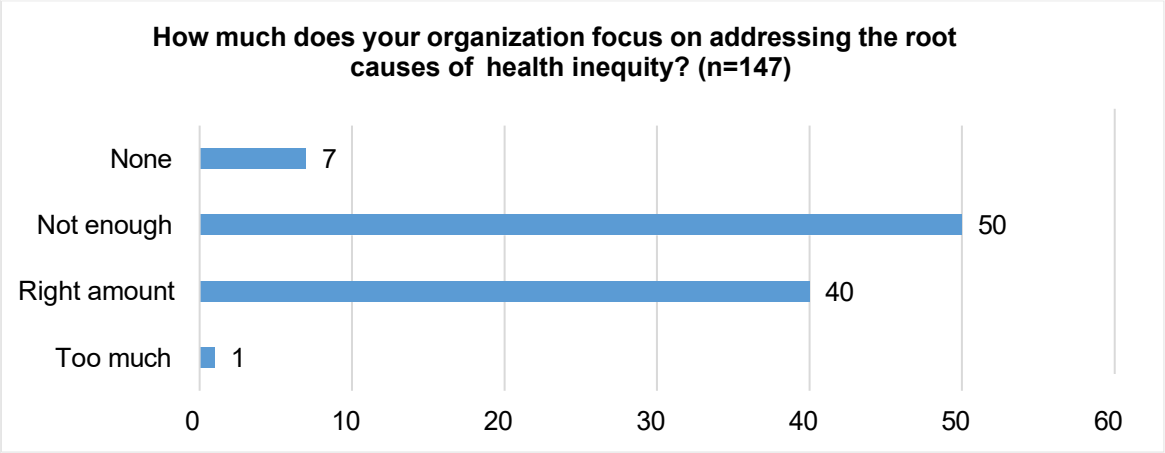


Figure 8. Organizational Focus on Root Causes of Health Inequity

Half of all participants reported receiving training on ways to address environmental, social, and economic conditions that impact the community they serve. Of those that received training, 93% (*n*=73) found it to be useful. Trainings were described as courses, day-sessions, seminars, and conferences. Two promising trainings mentioned by participants include the Systems Approaches for Healthy Communities, an online course offered through the University of Minnesota Extension and "Awake to Woke to Work: Building a Race Equity Culture," a report from Equity in the Center.

Participants also identified specific agencies in Arizona as having useful health and racial equity trainings:

- Arizona Local Public Health Emergency Response Association
- Arizona Local Health Officer's Association
- Arizona Housing Coalition
- Arizona Planning Association
- Arizona Council of Human Service Providers
- Northern Arizona Council of Governments

Generally, a little more than half of all leaders surveyed agreed their organization's programs are structured to address the environmental, social, and economic inequalities in their community (Figure 9). While 64% of leaders agreed their organization has created an opportunity to engage in group discussions about how their work could address these conditions, only half (53%, *n*=74) perceived that staff with whom they work have the opportunity to engage in conversations about the root causes of health inequities, namely race and racism. Find a complete alt description on page 44.

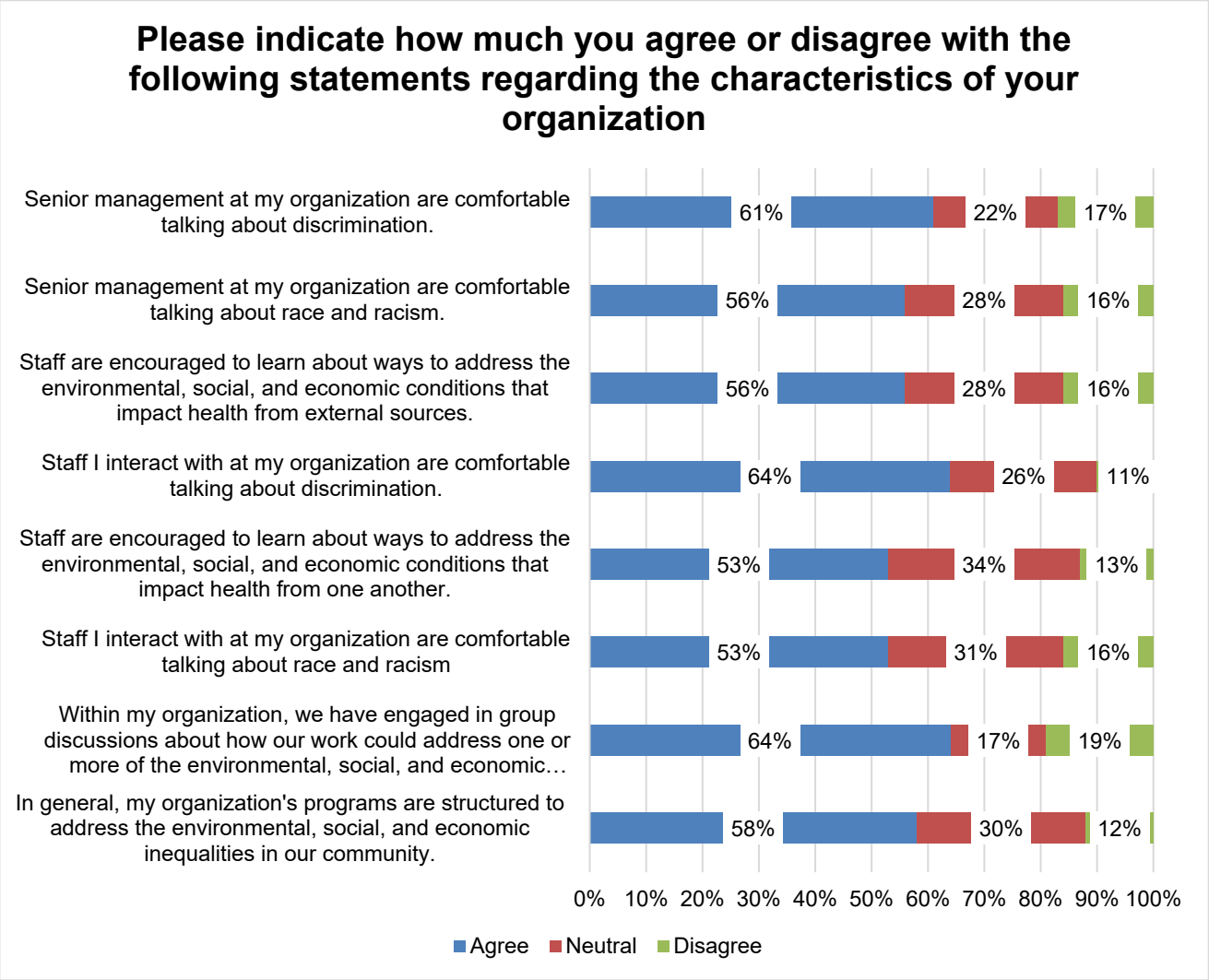


Figure 9. Organizational Characteristics

Similarly, half of leaders agreed that staff were encouraged to learn about ways to address the environmental, social, and economic conditions that impact health from one another and from external sources, (53%, *n*=73; 56%, *n*=77, respectively).

A majority of leaders reported that their organization demonstrated a commitment to addressing social, economic, and environmental conditions that impact health (88%, *n*=123) and close to 100% of leaders (96%, *n*=136),reported working with external partners, policy makers, and community members toward this mission (Figure 10).

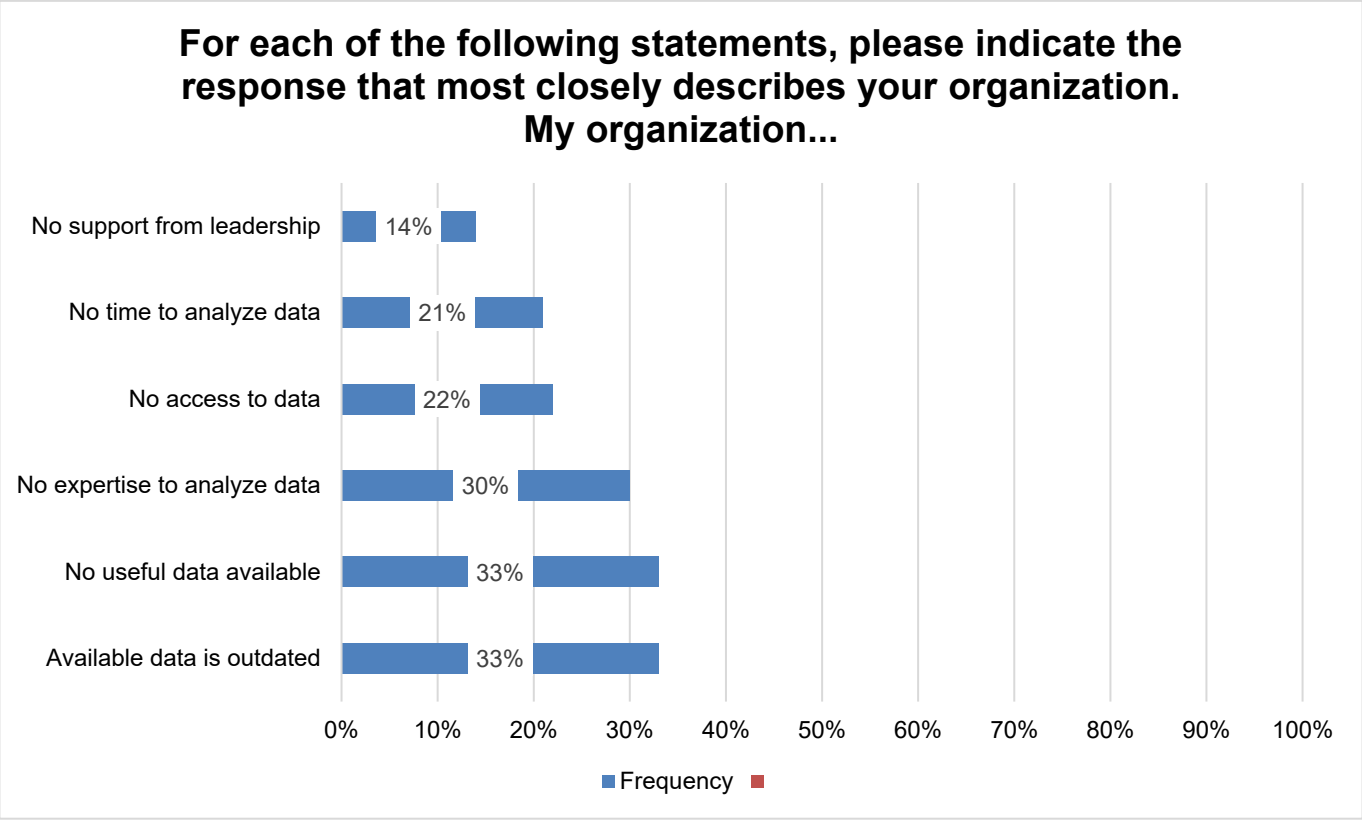


Figure 10. Organizational Capacity to Address Health Inequities. Note: "Yes" response category includes both "yes" and "moving in that direction"

However, approximately three-quarters of leaders suggested that their organizations had made deliberate efforts to build leadership capacity in the community (73%, *n*=106), or had strategies in place to minimize barriers to community participation (74%, *n*=102). Similarly, while most leaders reported using data to guide decisions about resource distribution in the community (88%, *n*=121), only 75% (*n*=102), had strategies in place to address the social, economic, and environmental conditions that impact health inequity in their community.

Multisectoral Partnerships

Since no single organization or sector has full control over the determinants of population health, effective solutions require inter-organizational coordination and collaboration.[21] By pooling resources, talents, and strategies from a broad range of actors, each of these sectors can more effectively carry out its responsibilities as they affect population health.[22] Based on responses from leadership, the most frequently cited characteristics for developing a successful multisectoral partnership were **communication, shared vision, and trust**.

As displayed in Figure 11, community safety and violence prevention, and early childhood development and education were the primary issues on which organizations most often collaborated with other sectors to address, while racial and environmental justice were the issues least likely to garner multisectoral attention. Find a complete alt description on page 44.

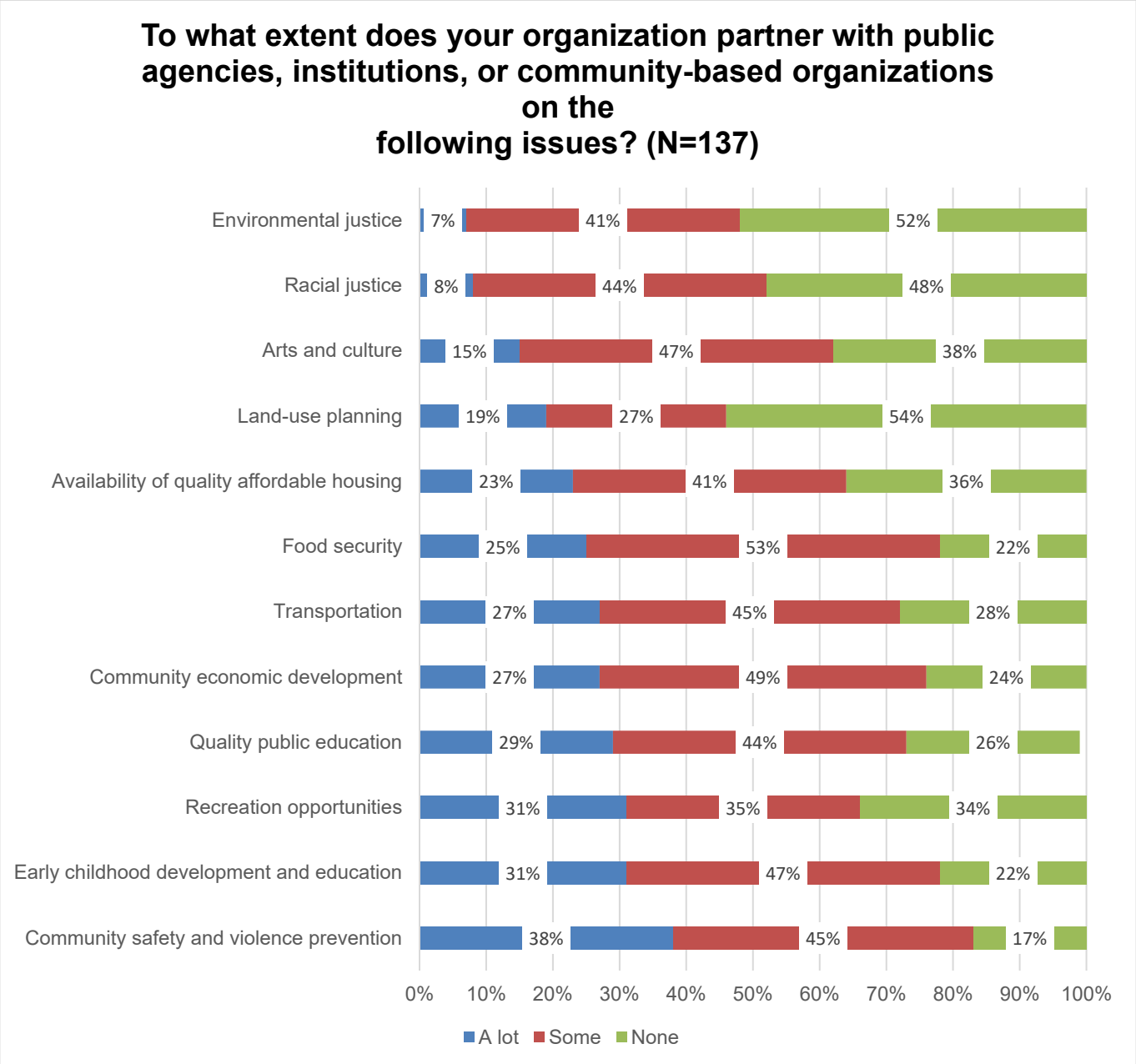


Figure 11. Focus of Cross-sectoral Partnerships

Leaders also desire new partnerships across sectors (Table 6). More than 41% (*n*=17) and 42% (*n*=42) of community and economic development and health and human services sectoral leaders respectively desire a partnership with the housing sector. Furthermore, 44% (*n*=16) of law, justice and public safety leaders want a future partnership with the health and human services sector. Education was identified as the primary valued future collaborator by leaders from five other sectors (parks and recreation=46%, policy=58%, early childhood development=42%, arts, music, and culture=57%, and cultural resource management=66%). Moreover, a reciprocal desire for future partnership exists between education and early childhood development. Leaders cited resource sharing, knowledge exchange, and diverse perspectives as reasons cross-sectoral partnerships could benefit the wellbeing of the communities they serve.

Most Frequently Mentioned Future Cross-sectoral Partnerships	
Sector	**Desired Future Partnership(s)**
Community and Economic Development	Housing
Health and Human Services	Housing
Law, Justice, and Public Safety	Health and Human Services
Parks and Recreation	Education
Policy	Community and Economic Development Education
Early Childhood Development	Education
Transportation	Policy Housing
Food Systems	Early Childhood Development Housing Cultural Resources Management
Housing	Policy
Education	Early Childhood Development
Arts, Music, and Culture	Education
Planning and Zoning	Policy Cultural Resources Management
Cultural Resources Management	Education

Table 6. Desired Future Cross-sectoral Partnerships

Evidence-based Decision-Making

Evidence-informed health promotion and public health is an emerging and ever-changing theme in research and practice, and a collaborative approach to gathering and applying evidence is crucial to implementing effective multisectoralhealth promotion and public health interventions for improved population outcomes.[23]

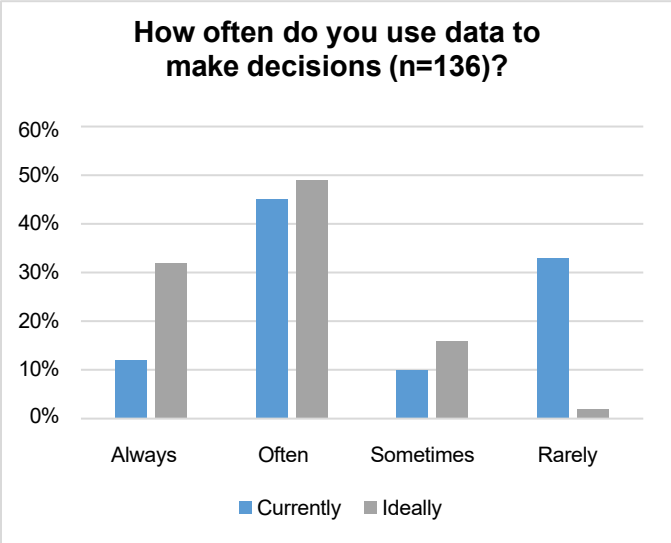


Figure 12. Use of Data in Decision Making

Across all leaders, 92% (*n*=126) reported having used data to make decisions; however, there exists a gap between how often data is currently used and how often leaders would ideally use it to guide their decision making (Figure 12).

While 81% (*n*=110) of sector leaders would prefer to "always" or "often" use data to make decisions, only 57% (*n*=78) currently do.

When asked to identify the biggest barriers to using data, leaders most often cited a lack of useful available data, followed by an absence of expertise needed to analyze the data (Figure 13).

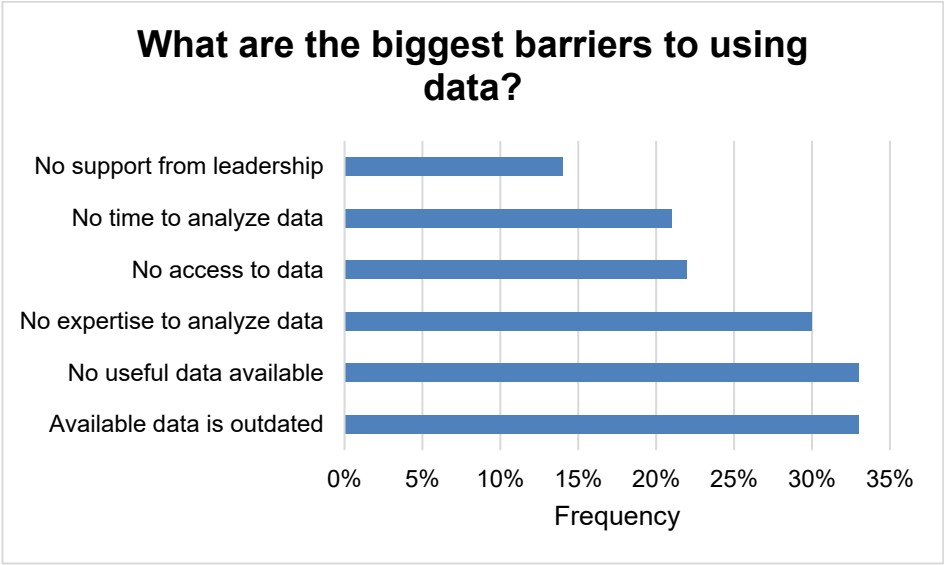


Figure 13. Barriers to Data Use

To better understand how leaders across sectors access and use data to guide their work, participants were asked to identify what types of data they used to make decisions (Table 7). One type of data cited widely by participants was demographic data for the population they serve. Other recurring data sources identified among participating leaders include the census, the American Community Survey, and vital statistics. Some participants discussed using data from one or multiple levels of local (e.g. city, county), state, and national organizations and government entities. Others further identified specific organizations or entities with useful data, for instance:

Types of Data Used for Decision Making Across Sectors
Access to Care
• Hospitalizations and ER visits • Electronic medical records: health outcomes, test results, primary diagnoses, psychological assessments, etc. • Reports on medication errors • Rates of patient visits and contacts • Prevalence and incidence data • Death and suicide rates • Medical Electronic Disease Surveillance Intelligence System (MEDSIS)
Affordable Quality Housing
• Housing licensing and permits • Rental housing rates • Homeless point in time surveys
Community Safety
• Crime trends • Uniform crime report
Economic Opportunity
• Economic trends • Tourism counts • State/Federal data about workforce demands • Wage and labor • Poverty rates and unemployment rates • Population growth and economic projections
Educational opportunity
• Student data: demographics, performance, attendance, health, and safety • School performance reports and State assessment data • Surveys and needs assessments from students, parents, and staff • Enrollment, persistence, and graduation rates
Environmental Quality
• Environmental impact studies • Air quality • Wildlife data • Weather data
Quality Affordable Food
• Food insecurity data • Nutrition data from state organizations
Community Design
• Landscape • Land use
Social/Cultural Cohesion
• Adverse Childhood Experiences (ACEs) • Resource and asset mapping • Resiliency
Social Justice
• Jail diversion data and recidivism rates • Police reports • Judicial determinations • Arizona Youth Survey • Criminal justice service and program outcomes • Probation efficacy
Transportation Options
• Traffic counts and traffic crashes • Transportation issues and safety statistics • Program costs and ridership

Table 7. Types of Data Used for Decision Making Across Sectors

"Data from ADHS, CDC, WHO, and SAMHSA Data surrounding effectiveness and impact of interventions (evidence-based programming) as well as racial inequity, disease transmission, and other social determinants of health across different groups including race and age."

Similarly, many leaders also described using data that arises from the community they serve and their input, such as community health surveys, community needs assessments, community health improvement plans, and client feedback. Furthermore, leaders talked about using data for program evaluation, where they described data related to services or programs provided, such as service utilization data and participant data. Finally, another type of data commonly cited across sectors was internal data, for example staffing and employee input, waitlists for services, benchmark, market share, financial data and budget performance, and strategic priorities.

Initiatives

Leaders were asked to provide examples of projects or initiatives in their filed that inspire them. Many leaders gave examples of broad, non-specific initiatives or practices within the different SDoH that their organization engages in or they have otherwise learned about (Table 8). Additionally, leaders shared links to websites with information about particular initiatives that inspire them (Appendix A).

When asked what made these initiatives successful, participants mentioned their collaborations across sectors, community involvement, and support from leadership and state agencies. Also, the fact that the outcomes were data-driven, evidence-based, and focused on the needs of the community (e.g., expanding services and informing communities).

One participant summarized the benefits of cross-sector and community collaborations eloquently:

"Initiatives that bring various sectors together to address a single or small group of health equity issues. The community selects the health equity issue(s) and then each agency develops and implements strategies to address them in their respective agency."

Inspiring Initiatives/Practices
Access to Care
• Using best practice quality metrics • Training in trauma-informed care
Behavioral Health Care
• Providing opioid overdose trainings • Providing free condoms, naloxone kits, and fentanyl strips • Critical incident stress management • Mental health first aid and crisis intervention services • Syringe clean-up events • Adding mental health services to free children's health care program
Affordable Quality Housing
• Housing-first and jobs-first approaches • Building homeless shelters
Economic Opportunity
• Employers providing paid student internship opportunities to high school students • Developing a freeway interchange to a second hospital facility and promoting retail business development around the health facility

• Planning and investing that captures and promotes a community's heritage
Educational Opportunity
• Special needs health fair • Schools using a trauma-informed approach • Creating crisis and response teams at the school and district level • Increasing anti-bullying services in schools • Restorative practices in school • Positive behavior intervention support • Increase parent engagement • International baccalaureate • Signs of suicide (SOS) • Securing federal grant projects for libraries • Summer reading programs to prevent the "summer slide" in reading abilities
Environmental Quality
• Community purchase of local water service • Wildfire risk reduction • Improved fire protection systems
Quality Affordable Food
• Programs to distribute food waste to food banks
Parks and Recreation
• Building dream court, swimming complexes, skate parks, and pickle ball courts
Social/Cultural Cohesion
• Tobacco education and youth action groups • Expand community presence with events and social activities • Using the arts as an intervention for social isolation and related negative health impacts
Social Justice
• Specialized courts: mental health, night, drug, veteran's, domestic violence • Fatality review boards: child and domestic violence
Transportation Options
• Transportation vouchers • Regional transit implementation plans
Technology
• Technology training classes: all ages and elderly • Bringing technology and reliable, high-speed internet services to rural areas • Bringing broadband to libraries • Using solar power in sparsely populated areas • Use of drone programs

Table 8. Inspiring Initiatives

Role of Research in Addressing Health Inequity

Approximately 62% (*n*=129) of multisectoral leaders responded to the question, "What role do you think research has in addressing the environmental, social, and economic conditions that impact health in the community you serve?" Leaders asserted that research plays a significant role in addressing the root causes of health inequity.

Conversely, very few participants felt the role of research was "little" or "none." Often, participants described the limitations of research, expressing that although research plays an important role in identifying, understanding, and addressing needs or problems in their communities, the right conditions must be met, including: conducting research responsibly and ethically, using scientifically sound methods, and yielding actionable results to directly and positively impact the community.

"It is important to know what is going on, but it is also important to make sure that the results of research are used for the benefit of the community."

"[Research has] a large role, research is needed but more importantly, the message must reach decision makers in a fashion that is actionable."

More specifically, research was believed by leaders to illuminate and understand the gaps and problems the community is experiencing and serves to validate the community's knowledge and lived experience of their own needs so that action can be taken based on that knowledge using evidence.

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More specifically, research was believed by leaders to illuminate and understand the gaps and problems the community is experiencing and serves to validate the community's knowledge and lived experience of their own needs so that action can be taken based on that knowledge using evidence.

"Nothing can be done without data and evidence. Research validates issues and lays the foundation for policy development, which then trickles down to programs that serve the community."

"Research gives us the ability to understand the problems. Without a clear understanding of the problem it is difficult to understand what problem actually needs to be solved and what the solutions may look like."

Furthermore, participants shared that research can be used to influence decision-makers, help leaders and organizations make informed decisions, and compare options to find the best solution based on evidence. Similarly, research serves to assess impact, measure success and effectiveness of initiatives, and allocate limited resources based on competing priorities. Leaders often described the multitude of the benefits of research together.

"A well-designed research project can offer credibility to a proposed improvement project. Using research to make an informed argument that something thought to be too hard has been successfully tried and proven to have benefits."

"Research validates the work we do. When approaching schools or communities with projects a lot of times we are turned away due to misinformation or lack of money. Research makes the work we do more valuable and schools are more willing to invest and they also help decision makers support our work."

Priority Areas for and Benefits of NAU Health Equity Focused Research

Approximately 61% (*n*=126) of participating multisectoral leaders responded to the question, “In what areas of research could NAU concentrate support in order to best improve health inequities in your community?” Table 9 outlines several research domains identified by participants accompanied by specific descriptions. Mental health, healthcare, and economic development were the top research priorities identified by leaders. Many participants discussed areas of research across sectors, wanting to learn more about the connection and synergy between two or more sectors and how these intersections impact health inequities.

Health Equity Priority Research Areas (n=110)	
Areas of Research	**Research Topics**
Economic Opportunities	Poverty, disparities in income, job opportunity and lack of higher wage jobs, workforce development, economic development, economic indicators
Healthcare	Access, affordability, and quality of health services and health plan coverage, long distances people have to travel to seek care, understaffing and difficulty attracting and retaining healthcare professionals, especially in rural areas
Mental Health	Access to mental health services, and substance use including drug addiction, rehabilitation, and stigma
Education	Educational opportunities from K-12 through higher education, affordability, and funding
Transportation	Access, affordability, and adequacy
Housing	Access, affordability, and homelessness
Food	Access, food security, quality (healthy foods)
Early Childhood	Early childhood education, youth development
Social Context	Social context around health inequities, understanding issues around culture, stigma related to health conditions, social activities
Social Justice	Effects of incarceration, historical trauma, social justice in relation to other social determinants of health
Environment	Climate change
Tribal Communities	Funding, focus, and effectiveness of Indian Health Services, healthcare options on the reservation, impact of Native American culture on health maintenance
Rural Communities	Access to services based on unique challenges experienced by rural communities (healthcare, mental health, transportation, food)
Aging and Elderly	Access to services

Table 9. Health Equity Priority Research Areas

"Relationships between lack of available, affordable, reliable, and appropriate modes of transportation to OUTCOMES based on lack of access to primary care, follow-up care, access to medication, access to specialized treatment. Demonstrate current base lines and project changes in outcomes with more transportation options. Lack of transportation to jobs and affordable housing to increase ability to reach care and afford treatment."

"Access to care, what those different areas of care look like, areas of different levels of poverty correlated with services (i.e. education, colleges, continuing education, mental health services, preventative care)"

Participants also identified specific research methods, tools, and support, such data collection, analysis, and interpretation and program evaluation, with which NAU could assist to improve inequities, especially research methods that are appropriate in rural and small communities.

"Rural areas need data specialist to help them gather, read, share with community and implement data."

Additionally, participants discussed ways in which NAU could help develop infrastructure in communities, particularly related to economic and workforce development, and training and generating revenue through grants.

"To be blunt... What would REALLY help our community, would be companies moving into our areas, needing employees. Providing jobs, and futures for our residents. Economic growth would be a HUGE game changer for us here in our county."

Leaders were asked how concentrating research in certain areas could impact health inequities in their communities. Many described how research concentrated in one area overtime could address the complexities of interlocking systems, locate those members of the community who are most vulnerable, and identify community driven solutions to local problems.

"You need transportation to look for and obtain a job with a higher living wage; you need affordable housing to have a place to reside so you can have a place to leave every morning to go to work and come home to after work; and you need higher paying jobs to allow people to purchase that affordable housing and pay for and use adequate transportation."

Additionally, participants recognized that by concentrating research support in particular areas, communities would receive the support, services, and resources needed to improve health inequities, including improved access to better conditions and equitable access. One participant explained how bridging the gaps in services creates opportunities for connection across services.

"It would identify high prone areas for infectious disease or mental illness as one example. What services are already being provided in these areas and are they working? How can we learn from the information collected in order to address ongoing and new challenges? We must regularly learn/discover information from the citizens we serve."

Importantly, participants discussed how concentrating research support in certain areas would allow them to seek and allocate financial resources, collaborate with others, and inform policy.

"Data could be used to support grant request to address the issues above and to communicate needs of rural Arizona to State and US Politicians."

“There are many local groups that operate independently throughout Yavapai County. Focusing on how collaborative efforts demonstrate impact can provide data to encourage additional collaborative efforts to more effectively coordinate efficient use of resources.”

IMPLICATIONS

The Southwest Health Equity Research Collaborative (SHERC) is a grant-funded initiative of the Center for Health Equity Research (CHER) at Northern Arizona University (NAU) with the goal of increasing basic biomedical, clinical, and behavioral research to address health disparities among diverse populations of the Southwestern United States.

The SHERC Community Engagement Core (CEC) in collaboration with our Community Advocacy Council (CAC) county and tribal leaders from across northern Arizona implemented the Regional Health Equity Survey (RHES) to identify workforce competencies, organizational characteristics, and research infrastructure, priority areas, and solutions for addressing health equity research, practice, and policy in our region.

Over 206 county-level leaders representing various sectors, beyond public health and health care, shared their knowledge, attitudes, and actions to address the social, environmental and economic conditions that impact health and wellbeing. Multisectoral leadership insights contribute to re-imagining a multisectoral approach to health equity for northern Arizonans. Through this initial and baseline assessment of organizational leaders, we can start a productive dialogue on the various and unique contributions each county-level sector – such as housing, transportation, justice, economic development, education, and arts and culture among many others – can activate to influence and strengthen opportunities to achieve health and wellbeing of residents of northern Arizona. Furthermore, to be a responsive and proactive partner in research and practice, RHES results can be used to guide research priority areas and practice and policy efforts of SHERC, CHER, and NAU as a whole.

Participating multisector leaders were aware of the drivers of health inequity and were especially cognizant of how their own beliefs, values, and privilege influence their worldviews, and actively engage in opportunities to learn across diverse backgrounds different from their own. Over half the participating leaders had received training to address the environmental, social, and economic conditions that impact the community they serve; more than 93% found training useful. While data-driven decisions are highly valued among participating leaders, most leaders found data to be outdated or unavailable or worked in an environment in which expertise to analyze data were lacking.

RHES demonstrates that organizational cultures across northern Arizona are primed for action on the social determinants of health through multisectoral strategies and innovations which leaders identified have worked in other parts of the US. Leaders are actively partnering to address root causes of health inequity, especially in the areas of community safety and violence prevention, early childhood development and education, recreation, quality public education, community economic development, transportation, and public safety.

Leaders also desire new partnerships across sectors. More than 41% (n=17) and 42% (n=42) of community and economic development and health and human services sectoral leaders, respectively, desire a partnership with the housing sector. Furthermore, 44% (n=16) of law, justice, and public safety leaders want a future partnership with the health and human services sector. These examples demonstrate sectors' vision for opportunities to leverage collective expertise, funding streams, and policy and processes to improve the lives of community residents. Yet, more community voices and members of affected communities are needed in these discussions to make meaningful impact on equity in the region.

LIMITATIONS

Purposive and convenience sampling methods were used to recruit participants for the RHES. Thus, our sample is highly vulnerable to selection bias and sampling error. Additionally, many of the questions comprising the RHES were sensitive in nature and thus prone to socially desirable responding.

In some of the less populated counties, individuals may be responsible for leading multiple departments, thus participants were allowed to identify with more than one sector. While there was representation from all 13 sectors, 95% of all participants identified with either health and human services (49%), education (26%), or community and economic development (20%) (Figure 6).

While response rates were lower than we had desired, recent research from survey scientists has sought to discourage a heavy reliance on response rates as indicators or data quality.[24] With a completion rate above 60% and participation across all sectors and counties of interest, we are confident that the outcomes of the RHES capture of the perspectives of multi-sectoral leadership in the northern Arizona region.

We acknowledge the lack of racial and ethnic diversity in our respondents but are uncertain if this is a limitation of our recruitment strategy or a true reflection of the lack of diversity of leadership in northern Arizona.

RECOMMENDATIONS

Based on analysis of the RHES and in consultation with our SHERC scientific advisory board, other SHEC cores, and our Community Advisory Council members, the CEC offers the following recommendations for NAU's research, practice, and policy efforts to promote high impact health equity initiatives in northern Arizona:

- Build research and evaluation capacity to address the social, economic, and environmental conditions of health inequity
- Design research to inform strategic planning, policy, and practice to address health inequity
- Strengthen research and training infrastructure to support community-engaged and participatory action-oriented research approaches
- Ensure that research is conducted responsibly, ethically, and in collaboration with the community and affected populations; Ensure results are returned to community for action
- Match and mentor community-engaged scholars to community identified research priorities
- Develop systems to support research faculty, students, and staff that represent and reflect the cultural diversity and backgrounds of our northern Arizona region
- Leverage institutional history and receptivity to multi-disciplinary teams and collaborative grant submissions to produce high impact team science

NEXT STEPS

This report reflects the results of the Regional Health Equity Survey conducted with County- level leaders. Next steps include:

- Engage our scientific and community advisory boards in the interpretation of results and recommendations for research, practice, and policy
- Share the final report with county, tribe, and university stakeholders through a written report, presentations, and strategic planning sessions
- Host a Northern Arizona Regional Health Equity Initiative Summit to disseminate results with county, tribe, and university stakeholders and strategize on regional priorities and steps forward

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APPENDIX

Participants were asked to identify valuable state, national, and international initiatives. Provided below is a comprehensive list of both the initiative descriptions and their associated websites.

Initiative Description	Initiative Website
Access to Care	
Navajo County Community Health Assessment and Community Health Improvement Plans and the associated public facing dashboard.	https://www.navajocountyaz.gov/Departments/Public-Health-Services/Community-Health- Status-Assessment https://www.navajocountyaz.gov/Departments/Public-Health-Services/Community-Health-%20Improvement-Plan https://dashboards.mysidewalk.com/navajocountychip
Cuyahoga County in Ohio, Department of Health and Human Services strategic plan 2018-2022.	http://cfs.cuyahogacounty.us/pdf_cfs/en- US/reports/DHHS-StrategicPlan.pdf
Colorado's Department of Public Health and Environment suicide prevention services, resources, and information.	https://www.colorado.gov/pacific/cdphe/cat egories/services-and- information/health/prevention-and- wellness/suicide-prevention
The Influence of Universal Health Coverage on Life Expectancy at Birth (LEAB) and Healthy Life Expectancy (HALE): A Multi-Country Cross-Sectional Study.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6153391/
Behavioral Health Care	
Sonoran Prevention Works is a grassroots group working to reduce vulnerabilities faced by individuals and communities impacted by drug use in Arizona.	https://spwaz.org/
The HepConnect Initiative lifts up what has already been started and doubles down with funding and added capacity from Harm Reduction Coalition to improve and expand existing syringe services programs and create fertile ground with supportive communities for new programs.	https://harmreduction.org/issues/hepatitis- c/hepconnect/
The mission of the National Institute on Drug Abuse (NIDA) is to advance science on the causes and consequences of drug use and addiction and to apply that knowledge to improve individual and public health.	https://www.nih.gov/about-nih/what-we-do/nih-almanac/national-institute-drug-abuse-nida
The Global Initiative was a joint project of the United Nations Office on Drugs and Crime (UNODC) and World Health Organization (WHO), implemented from 1998 to 2003 in 8 countries to support a number of local partners from Central and Eastern Europe, Southeast Asia and Southern Africa in reducing substance use and abuse among young people.	https://www.who.int/substance_abuse/activities/global_initiative/en/
PEERx is a free, online initiative designed to educate teens in grades 8-10 on the dangers of prescription drug abuse.	https://www.drugabuse.gov/news- events/public-education-projects/peerx
The DEA and Discovery Education have joined forces to combat a growing epidemic of prescription opioid misuse and heroin use nationwide. Operation Prevention's mission is to educate students about the true impacts of opioids and kick-start lifesaving conversations in the home and classroom.	https://www.operationprevention.com/

The overarching goal of the Nexus Coalition for Drug Prevention is to engage the community to respond to substance abuse issues by implementing strategies that transform community attitudes, perceptions and policies.	www.ncdp.rocks
Stronger As One is a values driven coalition based in Coconino County, committed to promoting a culture of knowledge, compassion, and action for mental health and wellbeing, and preventing suicide.	https://www.coconino.az.gov/2265/Stronger-As- One#:~:text=Stronger%20As%20One%20is%20a,preventing%20suicide%20in%20our%20community
Affordable Quality Housing	
The Veterans Association of Real Estate Professionals (VAREP), is a non- profit 501(c)(3) and HUD-approved housing counseling organization dedicated to increasing sustainable homeownership, financial-literacy education, VA loan awareness, and economic opportunity for the active-military and veteran communities.	https://www.varep.net/
The Partnering for Family Success Program, the first Pay for Success (PFS) project in the combined areas of homelessness and child welfare, delivered intensive 12-15 month treatment to 135 families over five years from 2015 through 2019 to reduce the length of stay in out-of-home foster care placement for children whose families are homeless.	https://www.thirdsectorcap.org/cuyahoga/
Economic Opportunity	
Tri-State Youth Internship and Leadership aims to match local youth with employers for the summer.	http://www.mohavedailynews.com/news/youth-leadership-program-now-taking-applications/article_3b50976a-5442-11e9-9c81-ff2bcdd344f0.html
Located in beautiful northern Arizona, the Verde Valley Wine Trail invites wine enthusiasts to experience a destination rich in history, beauty, and the production of exquisite Arizona wines.	https://vvwinetrail.com/
Initial findings of Finland's basic income experiment, where participants were given 560 euros per month, showed positive effects on health and stress, but no improvement in work status.	https://www.weforum.org/agenda/2019/02/the-results-finlands-universal-basic-income-experiment-are-in-is-it-working/
Universal basic income policies and their potential for addressing health inequities, from World Health Organization, Regional Office for Europe.	http://www.euro.who.int/__data/assets/pdf_file/0008/404387/20190606-h1015-ubi-policies-en.pdf
Educational Opportunity	
Educators in Yavapai County cobbled together state and federal funds to upgrade their broadband connection.	https://cronkitenews.azpbs.org/2018/05/16/government-funds-bring-high-speed-internet-to-rural-areas/
The universal service Schools and Libraries Program, commonly known as "E-rate," provides discounts of up to 90 percent to help eligible schools and libraries in the United States obtain affordable telecommunications and internet access.	https://www2.ed.gov/about/inits/ed/non-public-education/other-federal-programs/fcc.html
Founded in 1995, Healthy Schools Network is an award-winning 501(c)3 that has fostered the national healthy school environments movement.	http://healthyschools.org/
The PATHS program provides evidence-based social and emotional learning (SEL) programs that cultivate a safer and more positive learning environment, where both students and teachers can thrive.	https://pathsprogram.com/
Yavapai Healthy Schools empowers teachers, staff and students in making healthy choices.	http://yavapaihealthyschools.com/
Fall-Hamilton Elementary: transitioning to trauma-informed practices to support learning.	https://www.youtube.com/watch?v=iydalwamBtg
First Things First is Arizona's early childhood agency, committed to the healthy development and learning of young children from birth to age 5.	https://www.firstthingsfirst.org/

Quality First is Arizona's quality improvement and rating system for early learning programs.	https://qualityfirstaz.com/
The partners of LAUNCH Flagstaff have gathered since 2013 to find proven cross-sector strategies to provide equitable access to world-class education for every child, from cradle through career.	http://launchflagstaff.org/
iCREATE Innovative Collaborative Research Experience and TechnicalEducation tested a model of community engagement in STEM learning	http://www.flagstaffstemcity.com/icreate-bioscience-program.html
Youth need – and want – social, educational, and community support to succeed. Serving the Flagstaff community since 1967, United Way of Northern Arizona is more committed than ever to collaborate with our valued partners to coordinate efforts and leverage resources to invest in the power and potential of successful and resilient youth.	https://nazunitedway.org/
Environmental Quality	
The purpose of the Bill Williams Mountain Restoration Project is to improve the health and sustainability of forested conditions on and surrounding Bill Williams Mountain by reducing hazardous fuels and moving vegetative conditions in the project area towards the desired conditions.	https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5294599.pdf
Quality Affordable Food	
A coalition of over 100 organizations and stakeholders working to defeat older adult malnutrition.	https://www.defeatmalnutrition.today/
Cornucopia facilitates the transportation of food through linkages established between sources (i.e. farmers, grocery stores, etc.) and emergency food providers (i.e. food banks, Meals on Wheels, etc.) and preventing the 40% of wasted food by getting it to those who are food-insecure.	https://cornucopiaca.org/food-recovery- program-yavapai-county/
The Healthy Food Financing Initiative (HFFI) provides one-time grants and loans to projects like grocery stores, farmers markets, food hubs, co- ops and other food access businesses in urban or rural areas of need, many of which face barriers in accessing traditional loans and resources.	https://d3n8a8pro7vhmx.cloudfront.net/foodtrust/pages/357/attachments/original/1556139550/HFFI_Brochure_October2017_Update.pdf?1556139550
The State Farm to School Policy Handbook: 2002-2018 is a tool for those working to advance the farm to school movement, whose core elements include local food procurement, school gardens, and food and agriculture education.	https://uploads-ssl.webflow.com/5c469df2395cd53c3d913b2d/611055ea25a740645f082f18_State%20Farm%20to%20School%20Policy%20Handbook.pdf
The National Young Farmers Coalition is a national advocacy network of young farmers fighting for the future of agriculture.	https://www.youngfarmers.org/
The Edible Schoolyard Project is dedicated to transforming the health of children by designing hands-on educational experiences in the garden, kitchen, and cafeteria that connect children to food, nature, and to each other.	https://edibleschoolyard.org/
Wholesome Wave is the leading national organization addressing nutrition insecurity for low-income Americans since 2007, connecting over a million families to affordable fruits and vegetables over the last decade.	https://www.wholesomewave.org/
Mojave Desert Nutrition Initiative provides public education about the health benefits of a whole food, plant-based diet.	https://www.mojavedesertnutrition.org/
Caring Hearts Food Bank Ministry alleviates hunger and chronic diet-related disease in the Tristate area of Arizona, California and Nevada with a focus on community efforts to resolve food insecurity, provide nutritious food aid, and expand community lifestyle awareness.	https://www.caringheartsfoodministry.org/ab out-us
WOW Mobile Produce Pantry provides free, unrestricted access to healthy foods.	https://www.facebook.com/WOWproducePantry
The Food Coalition Project works to improve food access in the community - to network, collaborate, and discuss diving deeper into this county-wide issue.	

Meals on Wheels America is the leadership organization supporting the more than 5,000 community-based programs across the country that are dedicated to addressing senior isolation and hunger.	https://www.mealsonwheelsamerica.org/
Social/Cultural Cohesion	
National Night Out: A national community-building campaign that promotes police-community partnerships.	https://natw.org/
Kids at Hope inspires, empowers and transforms schools, organizations serving youth and entire communities to create an environment and culture where all children experience success.	https://kidsathope.org/
"Close to Home" is a juvenile justice reform initiative designed to keep youth close to their families and community.	https://ocfs.ny.gov/main/rehab/close_to_ho me/
Self-Healing Communities: A wide-scale prevention strategy	https://www.eventbrite.com/e/self-healing- communities-w-kevin-campbell-tickets- 69356092941
Toolkit discusses how to use a collective impact approach to address complex social problems.	https://ctb.ku.edu/en/table-of- contents/overview/models-for-community- health-and-development/collective- impact/main
The mission of The UBU Project is to end youth suicide, addiction and bullying through arts integration.	
Together Rising identifies what is breaking the hearts of our givers as they look around their world and their community, and then we connect our givers' generosity with the people and organizations who are effectively addressing that critical need.	https://togetherrising.org/
Informed and inspired by the world's longest-lived cultures, Blue Zones helps people live longer, better lives by improving their environment.	https://www.bluezones.com/
Social Justice	
A national initiative to reduce the number of people with mental illnesses In jails.	https://stepuptogether.org/
The Data-Driven Justice (DDJ) initiative brings communities together to disrupt the cycle of incarceration and crisis.	https://www.naco.org/resources/signature- projects/data-driven-justice
Drug decriminalization in Portugal: learning from a health and human-centered approach.	https://drugpolicy.org/
Working in collaboration with a diverse team of partners throughout the country, the ABA Center on Children and the Law, the Children's Law Center of California, the Center for Family Representation in New York, and Casey Family Programs, launched the Family Justice Initiative (FJI) with one unified goal: "To ensure every child and every parent has high-quality legal representation when child welfare courts make life-changing decisions about their families.	https://familyjusticeinitiative.org/about/
Still She Rises is the first holistic defense office in the country dedicated exclusively to the representation of mothers in both the criminal and civil legal systems.	https://www.stillsherises.org/
Good School, Rich School; Bad School, Poor School: The inequality at the heart of America's education system.	https://www.theatlantic.com/business/archive/2016/08/property-taxes-and-unequal-schools/497333/
The purpose of the Justice Reinvestment Initiative: Maximizing State Reforms Grant Program is to "cement or amplify the goals of states' justice reinvestment reform efforts, deepening their investment in and commitment to use data-driven decision making and evidence-based practices and programs."	https://csgjusticecenter.org/jri-maximizing- state-reforms-awards-announced-for-fy2017/

The purpose of the Justice Reinvestment Initiative: Maximizing State Reforms Grant Program is to "cement or amplify the goals of states' justice reinvestment reform efforts, deepening their investment in and commitment to use data-driven decision making and evidence-based practices and programs."	https://csgjusticecenter.org/jri-maximizing- state-reforms-awards-announced-for-fy2017/
Transportation Opportunities	
PILOT projects test new approaches to equitable transportation in greater Portland.	https://www.oregonmetro.gov/news/pilot- projects-test-new-approaches-equitable- transportation-greater-portland
Health Equity	
The goal of the Campaign Against Racism is to dismantle structural racism and its effects on health around the world by supporting local actions, efforts, and networks which aim to improve the health and lives of those most affected by racism, because racism kills.	https://www.socialmedicineconsortium.org/campaign-against-racism

Table 10. Successful Initiatives and Associated Webs

Long Alternate Descriptions

Figure 7. Workforce Competencies

Bar chart: Agree (A), neutral (N), or disagree (D) with the following statements. I subscribe to health inequity education resources on an ongoing basis: 40% A, 13% N, 47% D. I work with. culturally diverse staff: 62% A, 22% N, 16% D. I could explain the environmental, social, and economic conditions that impact health to my co-workers: 74% A, 24% N, 2% D. I understand the conditions that impact health: 86% A, 11% N, 3% D. I have taken steps to enhance my own cultural humility, competence, and/or understanding: 91% A, 8% N, 1% D. I regularly have meaningful interactions and have learned from people of different cultures and backgrounds from my own: 91% A, 8% N, 1% D. Being aware of my own beliefs, values, and privilege helps me understand others' perspectives: 95% A, 4% N, 1% D. It is important to understand the beliefs and values of the community I serve: 98% A, 1% N, 1% D.

Figure 9. Organizational Characteristics

Bar chart: Agree (A), neutral (N), or disagree (D) with these statements about your organization. Senior management are comfortable talking about discrimination: 61% A, 22% N, 17% D. Senior management are comfortable talking about race and racism: 56% A, 28% N, 16% D. Staff are encouraged to find external sources about addressing the conditions that impact health: 56% A, 28% N, 16% D. Staff at my organization are comfortable talking about discrimination: 64% A, 26% N, 11% D. Staff are encouraged to teach one another about ways to address the conditions that impact health: 53% A, 34% N, 13% D. Staff I interact with are comfortable talking about race and racism: 53% A, 31% N, 16% D. Within my organization, we have group discussions about how our work could address the conditions affecting health: 64% A, 17% N, 19% D. In general, my organization's programs are structured to address the inequalities in our community. 58% A, 30% N, 12% D.

Figure 11. Focus on Cross-sectoral Partnerships

Bar chart: To what extent does your agency partner with public agencies, institutions, or community-based organizations on the following issues? (n=137.) A lot (L), Some (S), or None (N). Environmental justice: 7% L, 41% S, 52% N. Racial justice: 8% L, 44% S, 48% N. Arts and culture: 15% L, 47% S, 38% N. Land-use planning: 19% L, 27% S, 54% N. Availability of quality affordable housing: 23% L, 41% S, 36% N. Food security: 25% L, 53% S, 22% N. Transportation: 27% L, 45% S, 28% N. Community economic development: 27% L, 49% S, 24% N. Quality public education: 29% L, 44% S, 26% N. Recreation opportunities: 31% L, 35% S, 34% N. Early childhood development and education: 31% L, 47% S, 22% N. Community safety and violence prevention: 38% L, 45% S, 17% N.