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## Abstract

Eliminating health disparities is a priority across national agenda and initiatives such as the National Partnership for Action to End Health Disparities (NPA), the National Prevention Strategy, and Healthy People 2020. To advance this priority under the NPA, the Federal Interagency Health Equity Team (FIHET), which is an NPA federal cross-sector and collaborative platform, initiated a voluntary pilot "health equity mapping" exercise in 2014. This exercise served as a strategy to clarify the strategic alignment between participant federal partner program missions, goals, and activities, and the goal to end health disparities and promote health equity. The mapping process included an examination of how participant programs applied the "equity lens" within the context of executing their missions. It also included identification of opportunities within participant programs to enhance the existing equity lens, or include one where it did not exist. In this paper, we exemplify this strategy and its outcomes using a case study approach conducted in collaboration with the "Children, Youth, and Families at Risk Sustainable Communities Program" (CYFAR SCP) in the Division for Youth and 4-H, at the National Institute of Food and Agriculture, within the US Department of Agriculture (USDA). Overall, we deduced that the CYFAR SCP program though not driven by an explicitly stated health equity mandate promotes health equity through existing programming. Specifically, we found evidence of the use of an equity lens in how the program targets resources and specific programs to benefit youth that are socially and economically disadvantaged. We also noted alignment between CYFAR SCP's mission and promoting health equity in the program's emphasis on improving the social determinants of health for its beneficiaries. Given these initial findings, we conclude that health equity mapping is a potentially insightful first line of inquiry into the tangible connections between a program's mission, functions and implementation, and the promotion of health equity.

## Keywords

health equity; health disparities; mission alignment; social determinants of health



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### **ABSTRACT**

Eliminating health disparities is a priority across national agenda and initiatives such as the National Partnership for Action to End Health Disparities (NPA), the National Prevention Strategy, and Healthy People 2020. To advance this priority under the NPA, the Federal Interagency Health Equity Team (FIHET), which is an NPA federal cross-sector and collaborative platform, initiated a voluntary pilot “health equity mapping” exercise in 2014. This exercise served as a strategy to clarify the strategic alignment between participant federal partner program missions, goals, and activities, and the goal to end health disparities and promote health equity. The mapping process included an examination of how participant programs applied the “equity lens” within the context of executing their missions. It also included identification of opportunities within participant programs to enhance the existing equity lens, or include one where it did not exist. In this paper, we exemplify this strategy and its outcomes using a case study approach conducted in collaboration with the “Children, Youth, and Families at Risk Sustainable Communities Program” (CYFAR SCP) in the Division for Youth and 4-H, at the National Institute of Food and Agriculture, within the US Department of Agriculture (USDA). Overall, we deduced that the CYFAR SCP program though not driven by an explicitly stated health equity mandate promotes health equity through existing programming. Specifically, we found evidence of the use of an equity lens in how the program targets resources and specific programs to benefit youth that are socially and economically disadvantaged. We also noted alignment between CYFAR SCP’s mission

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and promoting health equity in the program's emphasis on improving the social determinants of health for its beneficiaries. Given these initial findings, we conclude that health equity mapping is a potentially insightful first line of inquiry into the tangible connections between a program's mission, functions and implementation, and the promotion of health equity.

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## INTRODUCTION

Ending health disparities/inequities is an enduring priority across several national health agenda in the United States (National Prevention Council, 2011; OMH, 2011; US Department of Health and Human Services, 2010), and the premise is compelling – the opportunity for a health narrative in which everyone independent of social grouping enjoys the opportunity to live healthier and longer. While the US population has experienced overall improvements in population health, disparities in health also referred to as health differences that are closely linked to social, economic, and/or environmental disadvantage (OMH, 2011) continue to exist. For example, while life expectancy increased for the Black population between 1970 and 2010, it is still lower than the life expectancy for Whites (Kochanek, Arias, & Anderson, 2013). The disparity in life expectancy also occurs across the income gradient; individuals who earn higher incomes live longer than those who earn much less (Chetty et al., 2016; National Academies of Sciences, 2015). Examined through the lens of a causal framework, inequities extend beyond health outcomes and are mirrored in a characteristic and pervasive unevenness or non-randomness that exists in the distribution of social factors that shape health in the population. These factors also known as the “social causes of health” or the “Social Determinants of Health” (SDH), refer to the conditions in which people are born, live, grow, learn, work, and age (CSDH, 2008; Solar & Irwin, 2010; US Department of Health and Human Services, 2010). How the positive or negative aspects of these SDHs are distributed can be tracked to peoples' place in social hierarchies, which in turn is predicated on the social, economic, and political mechanisms that characterize their social contexts (Solar & Irwin, 2010). In the United States, disparities exist for several Social Determinants of Health and frequently across multiple dimensions such as race/ethnicity, income, and education. For example, disparities have been documented for unemployment rates (Mishel, Bivens, Gould, & Shierholz, 2012; PolicyLink & PERE, 2016), air pollution burden as an indicator of poor environmental quality (Miranda, Edwards, Keating, & Paul, 2011; PolicyLink & PERE, 2016), and educational attainment (PolicyLink & PERE, 2016; US Department of Education, 2016) to mention a few. Widening income inequalities have also been documented in several analyses (McNichol, Hall, Cooper, & Palacios, 2012; PolicyLink & PERE, 2016; Sommeiller, Price, & Wazeter, 2016). These findings indicate the scope of and levels at which interventions would be required. Effective strategies to end health disparities (and therefore, achieve health equity) must directly address poor health, mitigate and prevent immediate and distant causes of poor health (i.e., the SDHs), and address the factors that influence the distribution of the SDHs in society. Within the context of this paper we define health equity as the attainment of the highest level of health for all people (OMH, 2011).

Solar and Irwin (2010) identified four “entry points” for policy action to tackle inequities: address social stratification, reduce exposures to health-damaging factors, reduce vulnerabilities, and reduce the consequences of illness. In its design, this approach emphasizes interventions to

address individual factors, the social determinants of health, and macro-level contexts (Solar & Irwin, 2010). Leaning on this model is the recommended framework for action developed by the World Health Organization's (WHO) Commission on the Social Determinants of Health (CSDH), which emphasizes improvements in the Social Determinants of Health, and action to address the inequitable distribution of power, money, and resources. Furthermore, the CSDH framework advances a partnership model with explicit roles for all sectors, levels of government, and communities. The framework further offers a template for cohesiveness anchored on the recommendations that health equity should be embraced as a "shared value" across all sectors, and that health and health equity should be made corporate issues for all of government (CSDH, 2008). In the United States, the National Partnership for Action to End Health Disparities (NPA), a national initiative coordinated by the US Department of Health and Human Services, offers an analogous comprehensive strategy that tackles the SDHs, promotes multi-level and multi-sector engagement and collaboration as a base model for action, and is community-driven. To effectuate this plan, the NPA structure comprises: a Federal Interagency Health Equity Team (FIHET), 10 Regional Health Equity Councils (RHECs), national non-governmental partners, and State Offices of Minority Health (SOMHs). In addition to creating the necessary infrastructure to ensure implementation of the NPA, five priority areas have been defined, including a priority to promote health equity in all programs and policies. These priority areas are intended to concentrate efforts across all NPA partners and stakeholders in key areas of work. The FIHET is a forum for cross-sector interaction at the federal level of government, and health equity promotion through federal policy and programming. The FIHET's focus on the priority to promote health equity integration in policies and programs is the crux of this paper. The FIHET's investment in this priority area reflects an appreciation of the critical role of the federal sector in policy making and programming, as well as its widespread reach and impact across programs and fields of practice at all levels. This paper describes the FIHET's strategy for facilitating the strategic alignment between partner program missions, goals, and activities, and the goal to end health disparities and promote health equity. This strategy is herein referred to as a "health equity mapping" (HE mapping) process. We exemplify this strategy using a case study approach conducted in collaboration with the "Children, Youth, and Families at Risk" (CYFAR) program within the Division for Youth and 4-H, at the National Institute of Food and Agriculture (NIFA), which is part of the US Department of Agriculture (USDA) during the period October 2014 through September 2015. We highlight valuable insights into how the mapping process identifies ways in which a federal program's mission, priorities, and activities can be, and are supportive of achieving health equity, and discuss challenges, barriers, and opportunities presented by this approach. Our intent is to enrich the public health literature with emerging strategies for promoting institutional ownership of health equity through mission alignment.

#### Promoting health equity through the work of the Federal Interagency Health Equity Team

The health equity (HE) mapping project was created to assist the FIHET programs implement the FIHET's mission to convene federal leaders to end health disparities by building capacity for equitable policies and programs, cultivating strategic partnerships, and sharing relevant models for action. With representation from 11 federal agencies and 48 programs, the FIHET programs target a broad range of SDHs and health. The FIHET thus embodies significant potential for transformative programming and policy making across several fields of practice in

support of a health equity agenda. The HE mapping project derives from feedback curated from FIHET programs and their representatives through annual internal evaluations of the FIHET, as well as through a targeted focus group discussion conducted in August 2014. In summary, FIHET members determined that the formal establishment of alignment between the health equity agenda and the independent missions of FIHET agencies and their individual programs was essential for institutional-level investment in and support for health equity. They noted that such alignment was valuable for securing and sustaining senior leadership and staff commitments to promote health equity through the mission of each agency. Furthermore, creating “tangible” activity- and outcome-centered connections between promoting health equity and the mission of an agency was proposed as a necessary product of an alignment exercise. Mission alignment with health equity was perceived as particularly useful within the non-health sector programs where “health” is not an explicitly stated end or part of the business lexicon. In addition, FIHET members suggested identifying one or more specific actions an agency or program could undertake to promote health equity as an outcome of the mapping exercise. This process is expected to enable participant programs to substantively define their roles in promoting health equity, which is a prerequisite for institutional engagement, accountability, and sustainability. In implementing these recommended actions from the exercise, FIHET programs would explicitly invest in building blocks for successful organizational change in the public sector to promote health equity. The determinants of successful organizational change in the public sector include defining the need for change, offering a strategy for change, building support for change from the inside out and at the highest levels of management, and institutionalizing change (Fernandez & Rainey, 2006).

## **METHODS**

We recruited participant programs for the health equity mapping exercise by requesting volunteers among the programs represented on the FIHET. In total six FIHET programs volunteered to participate. For the HE mapping exercise, the FIHET’s “Equity in All Policies” work group defined health equity mapping as a process to consider the inputs and outputs of program design and implementation, within the context of how a program tackles poor health and the determinants of poor health, and also how a program prevents the accrual of negative impacts particularly to disadvantaged populations. The work group identified the following goals for the HE mapping process: 1) examine participant program missions, priorities, and activities through the lens of how they influence the SDHs and health; 2) examine ways in which participant programs currently apply the “equity lens” within the context of implementing their missions; and 3) identify opportunities to enhance the existing equity lens used by participant programs, or to introduce the equity lens within programs where it is not used. We defined the equity lens as the lens through which a program views conditions and circumstances to understand who experiences the benefits and burdens of policies, programs, practices, or procedures, and the basis for differential experiences. An equity lens demands explicit attention to how problems are distributed to different segments of society, and enables solutions to be matched to the level of need. It also allows for determination of upstream factors that shape the inequitable distribution of social determinants of health (MN Department of Health, 2013).

The equity lens is gaining popularity in the United States as a means to prevent the adoption of policies and programs that may create new disparities in health and the SDHs, and/or

perpetuate or overlook existing ones. Examples of the use of the equity lens in practice include: King County's (Washington State) use of the equity lens to consider the impact of budget decisions on equity; the Oregon Education Investment Board's use of the equity lens in resource allocation and for evaluating strategic investments; and the recent application of the equity lens to inform the development of teacher equity plans across all 50 states (King County Executive Office, 2014; Oregon Education Investment Board, 2013; US Department of Education, 2015). To examine the use of the equity lens by participant programs, we determined whether the program in its design or implementation identified and addressed specific economic, social and/or environmental disadvantages, and/or attended to the needs of populations considered economically, socially, or environmentally disadvantaged. We also examined programs in terms of their influence on the SDHs.

We conducted the HE mapping exercise in three-steps. First, we used structured dialogue with the participant program leads/representatives to outline program attributes such as mission, legislative authority, core functions, priorities, target populations, how needs are assessed for program implementation, existing operational frameworks that embrace health or health equity as ends, key strategies, program outcomes, and perceptions of the alignment of current mission and activities with health equity. In addition, we examined how each participant program applied the equity lens as a means to establish baseline practices related to promoting health equity. Collectively, we used the information extracted from this step to create a functional narrative of the program's existing investments in promoting health equity, and also to uncover building blocks and potential for additional health equity-related activities.

We further examined ways in which a participant program influences the SDHs and/or health. To achieve this, we first examined the participant program's outcomes identified in step 1 in terms of whether they were direct health or SDH endpoints, or indirectly linked to these endpoints. We standardized the process for making the linkages between program outcomes and the SDHs and/or health by adopting the Healthy People 2020 (HP2020) framework for SDHs. The HP2020 organizing framework identifies five key domains of the SDHs: economic stability, education, social and community context, neighborhood and built environment, and health and health care. The framework is further delineated into 19 issues of importance spread across all five domains (Figure 1) (US Department of Health and Human Services, 2016). By adopting this framework, we established a consistent approach for linking outcomes across programs. Our approach also served to link ongoing work and outcomes of participant federal programs to a framework informed by a national agenda for health. To link program outcomes to a domain and an issue within the framework, we extracted information on expected changes/outcomes related to the implementation of a program. For the last step in the process we leveraged information collated through the initial steps to discuss and identify a few examples of ways in which a program could expand its investments to support health equity.

We also supplemented information obtained from the structured dialogue process with web-based research on the official websites of participant programs. All data collected during the entire process was summarized in "health equity map" documents that explain the relationships between program activities and health equity promotion. We linked program outcomes to one or more SDH domains and issues, and subsequently to health. We developed concise narratives for the health equity maps that featured background information about the program and program outcomes.

Figure 1: Healthy People 2020 Social Determinants of Health Domains and Issue Areas

Education	Economic Stability	Health and Health Care	Neighborhood and Built Environment	Social and Community Context
<ul style="list-style-type: none"> <li>• High School Graduation</li> <li>• Enrollment in higher education</li> <li>• Language and Literacy</li> <li>• Early Childhood Education and Development</li> </ul>	<ul style="list-style-type: none"> <li>• Food Security</li> <li>• Employment</li> <li>• Poverty</li> <li>• Housing Stability</li> </ul>	<ul style="list-style-type: none"> <li>• Access to Health Care</li> <li>• Access to Primary Care</li> <li>• Health Literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Access to Healthy Foods</li> <li>• Quality of Housing</li> <li>• Crime and Violence</li> <li>• Environmental Conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Social Cohesion</li> <li>• Civic Participation</li> <li>• Discrimination</li> <li>• Incarceration</li> </ul>

Source: (US Department of Health and Human Services, 2016)

Additionally, we conducted a brief literature review on the linkages between each identified program outcome and one or more SDHs, health, and therefore health equity. We also discussed opportunities to enhance the equity lens and/or increase the program’s investment in promoting health equity. To identify potential investments to promote health equity, we considered internal approaches through which the program could achieve more given its resources and scope. We also considered approaches that would align complementary federal programs with the participant program through partnerships to maximize the reach and impact of the program.

Upon completion of the health equity map documents, participant programs were expected to maintain the maps as living documents for their programs, and more importantly, to use the maps internally to educate staff and leadership about the program’s current and potential roles in promoting health equity, and to foster internal discussions about ways to increase programmatic investments in promoting health equity. Given the potential for these maps to inform the implementation of a participant program’s mission, the FIHET yielded complete ownership of the process and maps to the programs, leaving decisions about dissemination and implementation of findings to the participant programs. To illustrate the output from the health equity mapping exercise, we present the outcomes of the health equity mapping process using the Children, Youth, and Families At-Risk Sustainable Community Projects (CYFAR) program within NIFA’s Division for Youth and 4-H as a case study.

## RESULTS

Through the HE mapping exercise, we examined the NIFA’s Division of Youth and 4-H program’s mission, and its institutional framework for executing its mission through the CYFAR Program. Overall, we deduced that the CYFAR Program, which focuses on achieving sustainable communities, promotes health equity through work that directly improves well-being and health

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outcomes for youth that are socially and economically disadvantaged such as youth living in poverty, racial and ethnic minority youth, and youth residing in rural communities. The program also applies the equity lens by targeting resources and specific programs to address the economic and social disadvantages experienced by this target population. CYFAR Programs influence multiple SDH domains such as economic stability at the individual and community levels, social and community context, health, and therefore health equity. We describe these findings in more detail below.

#### Institutional Framework for the CYFAR Program

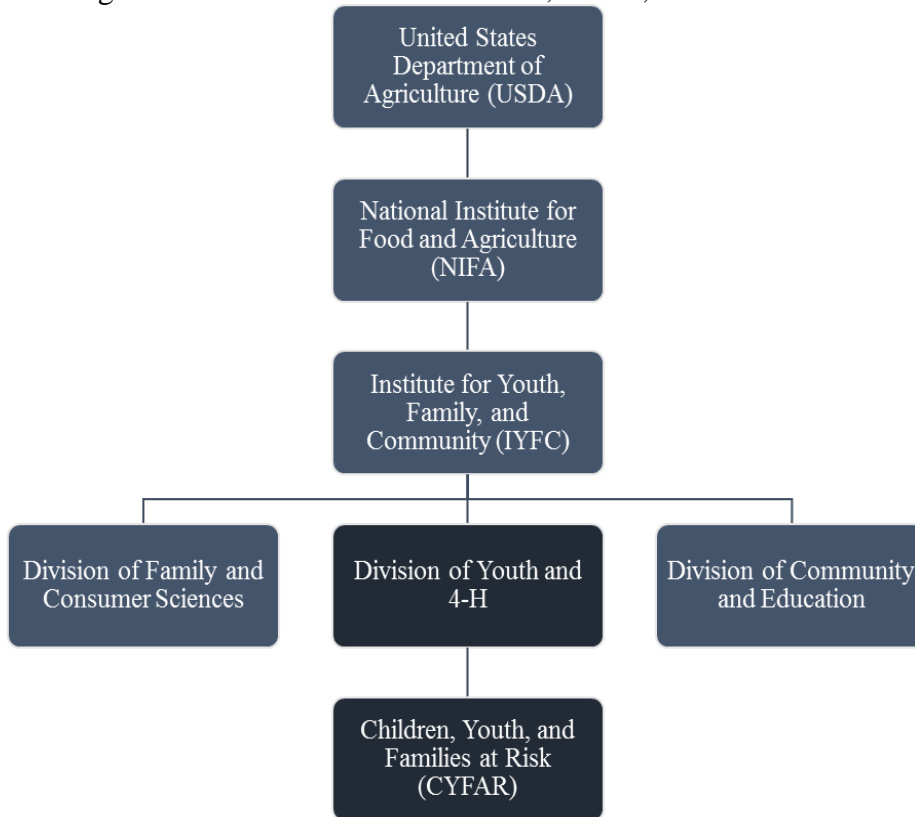
The CYFAR Program is a key program within the Division of Youth and 4-H (See figure 2). It is a grant-making program with the mission to marshal resources of the Land-Grant University and Cooperative Extension Systems to develop and deliver educational programs that equip limited resource families and youth who are at risk for not meeting basic human needs with the skills they need to lead positive, productive, and contributing lives (USDA, 2016). Nationally, the CYFAR Program funds and operates both the Sustainable Communities Projects (SCP) and a Professional Development and Technical Assistance (PDTA) Center (NIFA, 2015b). Funding for the CYFAR Program is authorized under section 3(d) of the Smith-Lever Act of May 8, 1914, as amended (7 U.S.C. 341, et seq.). Section 7403 of the Food, Conservation, and Energy Act (FCEA) of 2008 amends section 3(d) of the Smith-Lever Act of 1914 (7 U.S.C. 343(d)) with regards to eligibility. The CYFAR Program prioritizes connecting youth and adults to their communities through science, health and environmental education, military connectedness, civic engagement, workforce development, agricultural literacy, and research and evaluation. CYFAR Program supports the stability of youth, families, and communities by bringing research-based programs into communities, and engaging participants in a unique experience. Since 1991, CYFAR has supported programs in more than 2,300 communities in all states and territories (NIFA, 2016a).

CYFAR Program grantees create programs at local sites through afterschool programs, clubs, and workshops to engage children and families. The programs are designed to employ an active participation approach to help families meet the physical, social, emotional and intellectual needs of their children, and help children and youth build knowledge, skills, and positive attitudes and behaviors. In 2014, the CYFAR Program reached 8,266 participants (NIFA, 2015b).

#### The Equity Lens and SDH Investments of the CYFAR Program

We surmised from our HE mapping exercise that the Division of Youth and 4-H applies the equity lens to its CYFAR-related programming through its focus on socially and economically disadvantaged children, youth, and families.

Figure 2: Organizational Chart for the Children, Youth, and Families At Risk (CYFAR) Program



To achieve this focus in Fiscal Year 2016 for example, the CYFAR Program applied a formula to its grant-making process that required participant grantee sites to meet either of the following criteria:

- A minimum of 50 percent of the population in the targeted communities must be living at or below 185 percent the poverty level; or
- A minimum of 50 percent of participants at each site must meet one or more of the following characteristics: family qualifies for a public assistance program; family income falls below the federal poverty threshold; greater than 25 percent of the targeted CYFAR audience is uninsured; family income is less than 75 percent of the state or county median income; a parent did not complete high school; youth/family on record with community, juvenile justice and law enforcement, or social agencies for things such as foster care, child abuse or child neglect, substance abuse, eligibility for free or reduced school lunch, the Women Infants and Children program, Supplemental Nutrition Assistance Program or other clearly established risk indicators (NIFA, 2015a).

These criteria select for multiple individual or community characteristics associated with a range of social and economic disadvantages such as poor nutrition, juvenile justice issues, and multi-dimensional poverty.

Given that the Division of Youth and 4-H administers programs to address specific economic and social disadvantages through CYFAR programming, its guidance to grantees is

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instructive in this regard. Recent funding guidance for Fiscal Year 2016 required that anticipated grantee outcomes be informed by examining critical issues and demographic trends impacting children and families within a state such as: migrant workers' children; new immigrant children and families; children and youth facing issues of drugs, violence, crime, teen pregnancies, obesity, poverty; and poor school achievement (NIFA, 2015a). Another strategy in the funding guidance through which the CYFAR Program establishes a consistent focus on the SDHs in program implementation is through the "integrated program components" requirements of each grant application. One of the three integrated program components is an "ecological" approach, which ensures that the family and community remain strong contexts for program participants. This ecological approach is based on the Bronfenbrenner Model (Bronfenbrenner, 1979, 1989). The CYFAR Program recommends the selection of at least one of three strategy options based on the ecological approach, of which two are noteworthy because they embody key attributes of the widely accepted theory of change for achieving health equity through action on SDHs. One strategy option is "community collaboration," which is intended to foster the evolution and strengthening of the collaborative framework at the community level. A second strategy option available to grantees is "systems change," which recognizes interacting social, economic, and environmental factors that influence target populations of interest to the program (Andress & Fitch, 2016; Betts, Firth, Watters, & Shepherd, 1996), and seeks opportunities to engage CYFAR audiences in addressing these key drivers and creating the necessary change. A potential impact of this requirement of grantees is increased "rooting" of CYFAR programming in the SDH framework to address social and economic disadvantage in participant communities, as well as increased adoption of community-level problem solving techniques that directly address causes of social and economic disadvantage by CYFAR Program grantees. Further, the CYFAR Program incentivizes adherence to these criteria through a scoring system that specifically allocates points to these key strategies in the grants application review process (NIFA, 2015a).

The impact of the CYFAR Program requirements of grantees is evident in the types of activities undertaken by grantees. In 2014, CYFAR grantee projects addressed issues such as healthy food preparation and food insecurity, reading skills, parental involvement in childhood education and parenting skills, physical activity, self-efficacy, health literacy, physical environmental conditions, civic engagement, and college readiness via (STEM) academic programs, to mention a few (NIFA, 2015b). We found compelling evidence that CYFAR programming directly and indirectly tackles key issues within all five SDH domains identified in Healthy People 2020. Table 1 illustrates these linkages through specific examples drawn from the CYFAR Program 2014 report, the most recent report at the time of this research. For example, both Oklahoma State University and North Carolina State University grantees implemented programs to increase parental involvement in education (NIFA, 2016b). When parents are involved in education, children have been found to earn higher grades and test scores, earn extra credits, attend school regularly, demonstrate better social skills and behavior, graduate from high school, and continue on to post-secondary education (Henderson & Mapp, 2002). Education increases access to economic opportunity. Improved educational outcomes increase the odds that children will grow up to have greater financial and economic stability. Research shows that people with a high school diploma make an average weekly income of \$180 more than those who do not graduate, and that the higher the educational qualifications, the lower the unemployment rate (Bureau of Labor Statistics, 2016).

CYFAR Program grantees also implemented programs that directly tackled economic stability via activities in several issue areas including poverty, entrepreneurship, and employment (see Table 1). For example, West Virginia State University's Sustaining Community Revitalization in Appalachia Through Children's Hands (SCRATCH) program exposes children in kindergarten through eighth grade to entrepreneurship in sustainable agriculture, and fosters their active participation in the local economy in their community. Similarly, the University of Alaska, Fairbanks is invested in fostering economic stability by implementing a technology-focused "workforce preparation through skills development" initiative for teens aging out of state custody. Economic well-being influences access to resources to thrive. Data from the U.S. Department of Housing and Urban Development show that the homeownership rate for families with very low incomes is 44 percent lower than that of high income families (HUD, 2012). Housing security is linked to improved health outcomes and emotional wellbeing in children and adults (Bratt, 2002; Cutts et al., 2011). Also, impoverished families are more likely to be food insecure. A 2010 study found that among families that resided in high poverty neighborhoods, 22 percent had been severely food insecure in the past 30 days, which has implications for their nutritional intake and health (Dachner, Ricciuto, Kirkpatrick, & Tarasul, 2010).

CYFAR Program grantees' activities also aim to directly improve issues within the context of the neighborhood and built environment HP2020 SDH domains such as access to healthy foods, housing quality, and environmental conditions (see examples in Table 1). The University of Connecticut's "Tools for Healthy Living Project" offers weekly interactive lessons to children in grades four through six over an 11week period on healthy home topics such as mold, pests, smoking, lead, asthma, and food safety. The program has enabled participant youth to integrate concepts learned in their homes (NIFA, 2015b). The built environment and neighborhood conditions in which a child grows shape their physical, emotional, and intellectual wellbeing and development. A 2014 study conducted in a low-income housing community found more than 50 percent of the homes surveyed were exposed to three or more hazardous environmental pollutants such as mold, combustion by-products, and other harmful chemicals (Adamkiewicz et al., 2014). Other linkages between CYFAR programming and health and wellbeing outcomes are evident through investments in promoting health literacy such as through Oregon State University's Fabulous, Food, Fitness, and Fun Program. Health literacy is "the ability to access, understand, evaluate, and communicate information as a way to promote, maintain and improve health in a variety of settings across the life-course" (Rootman & Gordon-El-Bihbety, 2008). Therefore, CYFAR's health literacy investments likely mitigate the impacts of SDHs by influencing individual behavior, and offer a path to health and health equity by reducing vulnerabilities and exposure to health-damaging factors at the individual level.

Finally, the CYFAR Program values involvement of community partners in decision making. This is an important strategy for empowering communities and facilitating the adoption of remedial and preventive strategies that are rooted in community knowledge and experience. The CYFAR Program achieves this through established processes for incorporating stakeholder feedback from its numerous community partners in the design and implementation of CYFAR programming. The WHO's CSDH 2008 report recommends that governments ensure fair representation of all groups and communities in decision-making that affect health, in subsequent program and service delivery, and evaluation (CSDH, 2008). Existing mechanisms to engage community partners and other stakeholder in the CYFAR Program include, but are not limited to

CYFAR learning communities/networks, periodic webinars, and public comment periods for appropriate policy and guidance documents.

#### Opportunities for Greater Reach and Impact

In addition to unveiling a program design that supports health equity, we identified opportunities to magnify the impact of the CYFAR Program. One approach would be through increased collaboration across the federal sector agencies that work to improve health or SDHs in communities where grantees operate, or directly address youth well-being. Such collaboration can aim to harness other programs' resources and make these additional resources available to CYFAR beneficiary populations and communities in ways that align resources with the spectrum of needs experienced by socially and economically disadvantaged populations. We also suggest exploring potential alignment between CYFAR grantees and the grantees of other complementary federal programs as a useful next step. In summary, common purpose can be sought in target population groups and communities served, SDH domains and issue areas addressed, and within the context of causal and interactive pathways and shared program outcomes.

Given our findings that link key elements of the CYFAR Program to a health equity approach, it seems critical to increase the familiarity of CYFAR grantees with national health equity agenda and the equity lens. Such knowledge can enable grantees to further strengthen their current models for tackling social and economic disadvantage.

Finally, we recognize that other criteria for targeting socially and economically disadvantaged communities, such as poverty measures adjusted for cost of living variations across states, could help identify more beneficiary communities and populations of the CYFAR Program, and perhaps offer a premise for allocating additional resources. This has the potential to expand the program's reach and impact.

**Table 1:** Crosswalk Between Sample CYFAR Program Activities from 2014 and Healthy People 2020 Social Determinants of Health Domains and Issue Areas

Healthy People 2020 Social Determinant of Health Domain	Relevant Healthy People 2020 Issue Area*	Activity Highlights from CYFAR 2014 Annual Report
Education	High School Graduation Enrollment in Higher Education	The University of Minnesota’s “Minnesota Sustainable Community Project” for young teens living in the Minneapolis and St. Paul areas who experience educational barriers, provided curriculum exposure to STEM and preparation for higher education.
	Language and Literacy	The University of Nevada CYFAR grantees hosted a literacy initiative that increased percentage of participant parents reading to their children daily from 57% to 96%.
	Early Childhood Education and Development	The University of Arizona “Strengthening Families Program” for children ages 3-5 and parents offers a parent curriculum that teaches parents developmentally-appropriate behavior management strategies as well as the building blocks of positive parent-child relationships. Children also receive training about emotions and social skills.
Economic Stability	Employment	The University of Alaska Fairbanks’ “Fostering Youth Towards a Revolution of Responsibility” project offered workforce preparation through skill development.
	Poverty	West Virginia State University “Sustaining Community Revitalization in Appalachia Through Children’s Hands” combines sustainable gardening practices/techniques with business entrepreneurship and STEM to teach kids to become “agripreneurs” and take on careers in business.
	Food Security	The University of California Agriculture and Natural Resources’ K-8 Sustainable Community Project trained teens and community volunteers in nutrition and gardening to promote healthy living.

Health and Health Care	Health Literacy	Oregon State University’s “4-F Fabulous Food Fitness and Fun program” targets Latino youth in grades 6-8 with training on food, nutrition and physical activity to promote healthy living.
Neighborhood and Built Environment	Environmental Conditions	University of Connecticut “Tools for Healthy Living” project for youth in grades 4 through 6 provides training on healthy home topics such as mold, pests, smoking, lead, asthma, and food safety.
Social and Community Context	Civic Participation	University of Maine’s participant students developed and presented a research-based proposal to have cigarettes removed from one of their community stores, an action which resulted in a unanimous vote by the Cooperative’s Board of Directors to remove cigarettes from the store’s inventory.
<p>Footnotes: *The Healthy People 2020 issue areas highlighted are a sampling of Healthy People 2020 issue areas for which there was a linkage with the reported activities in the CYFAR 2014 Annual Report. The table is therefore not reflective of a comprehensive review of CYFAR grantee projects’ alignment with Healthy People 2020 SDH issue areas. This selection should not be interpreted to suggest that there were no CYFAR Programs in the reporting year or the prior years that addressed Healthy People 2020 issue areas not reflected in the table. Also, some of the projects address multiple issue areas but are only highlighted within the context of a specific issue area.</p>		

**Source: CYFAR 2014 Annual Report (NIFA, 2015b)**

## CONCLUSION

Our exploratory HE mapping exercise yielded ample evidence that CYFAR programming within the Division of Youth and 4-H promotes health equity. We found that the CYFAR Program promoted health equity through the use of an equity lens in setting its priorities and in program implementation. We also deduced from reviewing several aspects of the program that it is intentionally structured to tackle social and economic disadvantage through action on the SDHs. The CYFAR grantee projects at a minimum employ approaches that reduce vulnerability and reduce exposure to health-damaging conditions. This is an important finding that showcases how federal programs might be currently engaged in advancing health equity without explicit reconciliation between such mission-driven investments and the national health equity agenda. Also, given that different sectors operate with different business lexicons, it is more likely than not that promoting health equity is an unrecognized convergence point for several federal and non-federal programs. The explicit recognition of health equity as a rallying point for multiple programs is valuable for several reasons including the following. First, it can initiate much needed dialogue about ways in which existing programs are complementary, with respect to resolving the complex issues of social, economic and environmental disadvantage, and the distribution of these disadvantages in society. Second, convergence on the shared vision of health equity across programs and sectors creates the opportunity for federal programs to co-design comprehensive solutions to the complex problems experienced by disadvantaged populations and communities they serve. The opportunity to co-design solutions can in turn help identify and tackle critical needs that are currently unmet by existing programs and improve efficiency. Third, knowing how and which programs are complementary better positions federal program beneficiaries to locate and strategically access the types and range of federal resources currently available to solve the multiple aspects of their complex problems. Fourth, through unprecedented collaboration, convergence on a health equity vision may yield valuable insights into effective strategies for ending health inequities, and highlight opportunities to scale such strategies.

We initiated the HE mapping exercise as an important initial step to empower FIHET programs to understand their programs' contributions to promoting health equity, and therefore additional actions they can undertake to strengthen investments in health equity. In this paper, we have leveraged the example of the CYFAR Program to exemplify the health equity mapping process and its outcomes. Our findings underscore the need for systematic reviews of federal and non-federal programs to: identify programs that currently support health equity in their design; identify complementary programs that address aspects of economic, social, and/or environmental disadvantage; foster cross-program alignment; and, ultimately, facilitate an assessment of areas of need with respect to federal sector investments to promote health equity.

Our examination of the CYFAR Program has limitations that merit mention. It is not a comprehensive examination of the CYFAR Program. We did not review a representative sample of activities over the years that would yield a more robust picture of how the program has promoted health equity over time. In this regard, this study offers a snapshot of investments, procedures, and policies that could differ meaningfully from previous fiscal years. Also, we did not systematically examine individual grantee projects to ascertain their effectiveness with addressing various SDH issues. However, given that the CYFAR Program emphasizes research-



based approaches, we are reasonably confident in our conclusions that grantee projects contribute to improving the SDHs and ultimately, health equity.

Health equity promotion holds much promise as a function of all of government and even the non-governmental sector. However, programs (especially in the non-health sector) need to establish tangible connections between their work and the promotion of health equity to become champions with active roles in achieving the vision of health equity. We find that the HE mapping can help facilitate the process and is therefore, a valuable means to this end.

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## **DISCLAIMER**

The views expressed are those of the authors and do not reflect the views of the US Environmental Protection Agency.

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