Evaluation of ARC's Health Grants

Final Report

October 2025

Prepared for:

Appalachian Regional Commission

Appalachian Regional Commission
1666 Connecticut Avenue, NW
Suite 700
Washington, DC 20009-1068

Prepared by:

CENTER *for* RURAL HEALTH *and* RESEARCH
EAST TENNESSEE STATE UNIVERSITY

East Tennessee State University
Center for Rural Health and Research
P.O. Box 70704
Johnson City, TN 37614

Prepared under Contract: CO-21564

East Tennessee State University Center for Rural Health and Research

Housed in the East Tennessee State University (ETSU) College of Public Health, the Center for Rural Health and Research works to improve health and well-being at the community, state, regional, and national levels. Located in the heart of Appalachia, the Center fulfills its mission by engaging rural communities to advance health and improve quality of life through innovative solutions that contribute to the expanding evidence base of what works in rural America. The Center works to honor and preserve its rich Appalachian heritage and Tennessee ties through distinctive research, community engagement, training, and policy.

ETSU Center for Rural Health and Research
College of Public Health
PO Box 70704 Johnson City, TN 37614
https://www.etsu.edu/cph/rural-health-research/

Acknowledgements

Our team in the Center for Rural Health and Research at East Tennessee State University (ETSU) expresses our gratitude to the many grantees who participated in the evaluation of the health grants. We similarly extend our appreciation to the staff at the Appalachian Regional Commission for their input and support. Further, we thank additional staff at the Center for Rural Health and Research who contributed to various components of the evaluation, including Kathy Booher for her design support, Nancy Miller for her administrative support, and Christen Minnick for her data collection support.

Table of Contents

List of Exhibits

Executive Summary

Background

The Appalachian Regional Commission (ARC) contracted the East Tennessee State University (ETSU) Center for Rural Health and Research to evaluate a cohort of health grants that closed between fiscal years 2017 and 2021. Health grants aim to increase the availability, accessibility, and affordability of healthcare services in Appalachia, supporting workforce participation and economic growth. Guided by a set of evaluation questions, the evaluation examined grant performance, grantee implementation experiences, and grantee practices. Further, the findings supported the development of recommendations intended to strengthen health projects.

The evaluation used a mixed-methods design consisting of multiple strategies to address the evaluation questions and inform recommendations. A total of 96 health grants were considered eligible for inclusion. Primary strategies included: 1) conducting secondary analyses of grant portfolio data available through ARC and other publicly available data; 2) administering a web-based survey to grantees; 3) conducting in-person site visits with select grantees for the purpose of creating case studies; and 4) as part of site visits, conducting a series of interviews and/or focus groups with grant-related personnel, partner organizations, and beneficiaries. Additional details on the strategies and their limitations are available in the final report.

Key Findings

A summary of key findings is presented below, with more detail available in the final report. Ten case study briefs highlighting a purposeful selection of grantees and their projects are also available in a separate report.

Grantee Organizations and Goals

- Multiple types of organizations received the grants, with the most common types being non-profit organizations with 501(c)(3) status, public- or state-controlled institutions of higher education, and county governments.
- While various grant types and purposes were represented, over half of grants represented the type "healthcare access" and over half were intended to fund equipment.
- Grants were designed to align with goals and objectives identified in ARC Strategic Plans. A majority of grants specifically aligned with the 2016-2020 ARC Strategic Plan, with the most common goal related to having a ready workforce. The remaining grants aligned with the 2011-2016 ARC Strategic Plan.
- Consistent with the overarching aim of health grants, survey respondents described project goals concentrated on advancing health and healthcare through different mechanisms. Commonly reported goals reflected five categories: 1) improving health-related services; 2)

improving health-related infrastructure; 3) strengthening the health-related workforce; 4) advancing health through planning, education, or other promotion strategies; and 5) fostering or leveraging collaboration, often in combination with other goals.

- Grantees implemented various approaches to accomplish project goals. According to survey respondents, the most common approaches included: procurement or purchasing of clinical equipment, technology, and/or supplies; establishing, improving, or expanding clinical services; and constructing or renovating health-related facilities.

Project Beneficiaries (or Clients)

- Projects were designed to serve a variety of individual, organizational, and community beneficiaries.
- Nearly all survey respondents identified specific populations as intended beneficiaries. Commonly reported populations included: people who live in rural communities; people with lower incomes; people who are underserved by clinical services; people who are uninsured/underinsured; adults; and the general population without any specific groups.
- Approximately three-quarters of survey respondents reported health professionals as intended beneficiaries. The most commonly identified types included primary care and specialty care physicians, followed by nurses.
- Approximately three-quarters of survey respondents highlighted businesses or organizations as intended beneficiaries. The most commonly reported types included medical organizations such as clinics, centers, or offices, hospitals, and community-based organizations.
- Over half of survey respondents identified students as intended beneficiaries, ranging from K-12 students to clinical residents/fellows.
- Survey respondents identified a variety of positive changes that were experienced by beneficiaries. The most commonly reported improvement was in individual access to or receipt of affordable, quality healthcare services or programs, followed by improvements in health or health-related behaviors at the individual- and community-levels.
- Grantees leveraged funding to serve a total of 241 counties across Appalachia, representing 57% of Appalachian counties. Overall, counties with funding were characterized by significant health- and economic-related challenges. Over 90% of counties were designated as whole-county primary care Health Professional Shortage Areas (HPSAs), 94.2% of counties as whole-county mental health HPSAs, and 85.9% of counties as whole-county dental health HPSAs. Similarly, nearly one-third of counties were classified as economically distressed according to ARC.

Project Health and Economic Impacts

- Projects were designed to address more than 20 ARC-defined output and outcome performance measures. Cumulatively across grantees, performance goals for 79% of those measures were achieved based on the most recently reported data (i.e., at grant closeout or post-closeout depending on data availability).
- Of the 24 ARC-defined performance measures for which at least one grant provided projected estimates at the beginning of grant periods, 19 had a total count reported that met or exceeded the total count projected. Performance measures with the greatest total count reported achieved relative to projected across grantees included: communities served and improved; students served and improved; and jobs retained. The total count for each of these measures exceeded 200% of the total count projected across grantees.
- Illustrative examples of the outputs and outcomes achieved by projects according to ARC-defined performance measures include:
    - 515,369 patients served and 300,214 patients improved
    - 13,841 participants served and 11,531 participants improved
    - 8,317 students served and 3,973 students improved
    - 3,438 workers/trainees served and 2,628 workers/trainees improved
    - 369 organizations served and 313 organizations improved
    - 149 communities served and 149 communities improved
    - 656 jobs created
    - 765 jobs retained
- Most survey respondents indicated that their projects contributed to improved health in Appalachia by increasing the accessibility of healthcare services, increasing the quality of healthcare services, and improving health or health-related behaviors.
- At least half of survey respondents reported that their projects contributed to economic development in Appalachia through enhancing community resiliency by addressing urgent health needs, strengthening the local workforce with training or education for health professionals, and expanding the workforce by creating or retaining health-related jobs.

Project Implementation

- As part of the survey, grantees identified factors that may have impacted successful implementation of their projects. Factors that may have hindered implementation were referred to as challenges, whereas factors that may have helped implementation were referred to as facilitators.
- Survey respondents highlighted multiple facilitators to project implementation. Specific to grant administration, commonly reported facilitators included: ability to work with ARC; ability to work with state program managers; level of prior experience managing external

grants or contracts; and project goals or approaches. Within organizations, commonly reported facilitators included mission, vision, or practices and leadership or management. Conversely, outside organizations, commonly reported facilitators included the ability to identify or engage beneficiaries/clients or partners as well as the level of community support or buy-in.

- Compared to facilitators, survey respondents less frequently reported challenges to project implementation. The most commonly reported challenge was the COVID-19 pandemic.
- Survey respondents identified additional challenges specific to reaching and serving intended beneficiaries within the context of advancing health for all residents. Commonly reported challenges as they relate to beneficiaries included lack of transportation, competing demands or priorities, and lack of financial resources.
- Survey respondents reported using multiple strategies to address challenges to project implementation, with the most common being delivering training/education to project staff and identifying or engaging new partners.
- With some grants closing prior to the COVID-19 pandemic, the evaluation was designed to describe broader pandemic-related impacts on grantee services regardless of when grants may have closed. Most survey respondents reported that the pandemic had a "moderate" to "major" impact on their organization's ability to serve their communities or beneficiaries, with a variety of positive and negative impacts reported.
- Survey respondents identified multiple types of organizational changes that were made in response to evolving needs or opportunities from the pandemic. Commonly reported changes included: increasing the use of remote or virtual organizational operations; increasing delivery of telehealth or mobile services; and increasing investments in technology/software.

Project Sustainability

- For the purpose of the survey, sustainability was defined as the continuation of any project-related activities for any period of time after grant closure. Similar to implementation, survey respondents also identified factors that may have influenced successful sustainability of their projects. Factors that may have hindered sustainability were again referred to as challenges, whereas factors that may have helped sustainability were referred to as facilitators.
- The majority of survey respondents reported at least some continued implementation of project-related activities after grant closure, most of which was at "similar" or "expanded" scopes.
- Survey respondents identified multiple facilitators to project sustainability, with challenges less frequently reported. Within organizations, commonly reported facilitators included mission, vision, or practices and leadership or management, whereas facilitators outside

organizations commonly included the ability to identify or engage beneficiaries/clients or partners as well as the level of community support or buy-in.

- Survey respondents highlighted the use of various funding mechanisms to support project sustainability. Among those sustaining project-related activities after grant closure, the primary mechanisms that were most frequently reported included: state or local funding sources; foundation funding; and reimbursement from public or private insurers.

Recommendations

Guided by evaluation findings, 13 recommendations were formed with a goal of strengthening health projects. The recommendations are summarized below, with more detail available in the final report.

Strengthening the Administration of Health Projects

1. Continue to offer opportunities for health grant applicants and grantees to engage with ARC personnel for technical assistance.
2. Promote awareness among health grantees of resources available to support them in securing match funds.
3. Expand efforts to verify or update organizational contact information for health grants after grant closure.
4. Continue to offer opportunities to increase the visibility of health grantees and their projects.

Strengthening the Implementation and Sustainability of Health Projects

5. Continue to encourage health grantees to use health-related data as part of aligning projects with community needs.
6. Expand resources to support health grantees in overcoming transportation challenges to beneficiary engagement.
7. Consider leveraging existing ARC events as a platform for enhancing community and partner engagement among health grantees.
8. Consider expanding strategies to support health grantees in sustaining project-related activities when preparing applications and implementing projects.

Strengthening the Evaluation of Health Projects

9. Explore the potential feasibility and utility of applying a phased evaluation approach for health grants.
10. Explore opportunities to enhance the quality of health grant data available in ARC's grant reporting system.

11. Consider expanding strategies to document the potential economic impacts of health projects.
12. Consider incorporating technical assistance or other strategies to enhance the ability of health grantees to collect and report on ARC-defined performance measures, particularly after grant closure.
13. Account for potential differences in skills and abilities across health grantees when establishing reporting or evaluation expectations.

Evaluation Background

This section presents background information on the evaluation of the health grants.

The Appalachian Regional Commission (ARC) was formed in 1965 with a mission to "innovate, partner and invest to build community capacity and strengthen economic growth in Appalachia to help the region achieve socioeconomic parity with the nation."[1] Appalachia is comprised of 423 counties across 13 states from New York to Mississippi.[2] As an economic development agency, ARC advances its mission through a combination of financial investments, research, and learning opportunities,[3] with health grants representing one of its funding mechanisms. According to ARC, health grants seek to increase the availability, accessibility, and affordability of healthcare services across Appalachia. By improving healthcare, the resulting projects can advance health outcomes among workers and their families, with ultimate goals of increasing participation in the workforce and supporting economic growth in Appalachia.

In 2023, the East Tennessee State University (ETSU) Center for Rural Health and Research was contracted to conduct a comprehensive evaluation of the health grants on behalf of ARC. The evaluation was designed to examine grant performance, grantee implementation experiences, and grantee practices for a cohort of health grants that closed between fiscal years 2017 and 2021 (n=96). Key questions that guided evaluation activities are listed below by domain. The findings supported the development of a set of actionable recommendations focused on strengthening the administration, implementation, sustainability, and evaluation of health projects across Appalachia.

The evaluation used a mixed-methods design consisting of multiple strategies to address the evaluation questions and inform recommendations. Primary strategies included: 1) conducting secondary analyses of grant portfolio data available through ARC and other publicly available data; 2) administering a web-based survey to grantees; 3) conducting in-person site visits with select grantees for the purpose of creating case studies; and 4) as part of site visits, conducting a series of interviews and/or focus groups with grant-related personnel, partner organizations, and beneficiaries. Appendix A summarizes the evaluation strategies and their limitations.

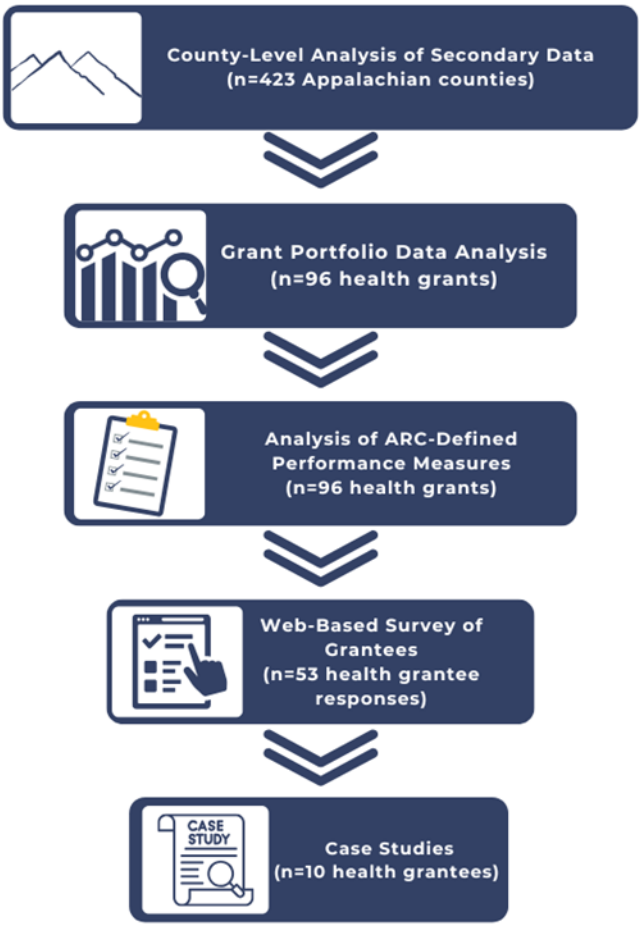
- Grantee Organizations and Goals
    - What types of organizations received the grants?
    - What were the goals of the projects?
    - What approaches did the projects use to meet these goals?
- Project Beneficiaries (or Clients)
    - What are the characteristics of the beneficiaries of the grants?
    - What changes did grant beneficiaries experience as a result of these projects?
- Project Health and Economic Impacts

  - What specific outputs and outcomes were projects designed to achieve, and to what extent did projects meet their performance goals?
  - What successes do grantees report in advancing health for all residents?
  - How and in what ways do grantees report prioritizing populations with the greatest needs?
  - How do ARC-funded health projects contribute to economic development in Appalachia?
- Project Implementation
  - What factors influenced projects' successful implementation?
  - What challenges/barriers to success did projects face and how were they addressed?
  - Are there common factors among grantees who met performance targets and those who did not?
  - What impacts has the pandemic had on health grantees' ability to serve their communities/beneficiaries?
  - What changes have health grantees already implemented in response to evolving needs/opportunities that emerged from the pandemic?
- Project Sustainability
  - To what extent were project-related activities sustained beyond the period covered by the ARC grant, and for what amount of time? How does this vary across types of grant activities?
  - What factors influenced projects' successful sustainability?

Evaluation Findings

This section presents key findings from the evaluation of the health grants, with the findings organized using the evaluation questions. The evaluation questions are grouped by domain, with each group of evaluation questions addressed by at least one evaluation strategy. While Appendix A offers additional information, Exhibit 1 provides an overview of the primary evaluation strategies that informed this report.

Exhibit 1. Overview of Primary Evaluation Strategies



Grantee Organizations and Goals

- What types of organizations received the grants?
- What were the goals of the projects?
- What approaches did the projects use to meet these goals?

The types of organizations that received health grants, and the goals and approaches of their resulting projects, were assessed using multiple evaluation strategies. Primary strategies included the analysis of grant portfolio data provided by ARC, the web-based survey of grantees, and for a purposeful selection of grantees, the case studies. Key findings from those strategies are presented hereafter.

A total of 96 health grants closed between fiscal years 2017 and 2021 and were considered eligible for inclusion in the evaluation. Multiple types of organizations received the grants (Exhibit 2). The most common types included non-profit organizations with 501(c)(3) status (other than institutions of higher education) (n=44, 45.8%), public- or state-controlled institutions of higher education (n=16, 16.7%), and county governments (n=10, 10.4%). For ease of interpretation in subsequent exhibits that present findings by grantee type (Exhibits 22 and 29), grantee organization types were collapsed into the following categories: government (state, county, city, or township), higher education (public or private), non-profit with 501(c)(3) status (not higher education), non-profit without 501(c)(3) status (not higher education), and other (including regional organizations, Local Development Districts [LDDs], and other).

Exhibit 2. Types of Health Grantee Organizations

Grantee Type	Count of Grants (n)	Percent of Grants (%) [a]
State government	4	4.2
County government	10	10.4
City or township government	1	1.0
Regional organization	1	1.0
Public/State controlled institution of higher education	16	16.7
Non-Profit with 501(c)(3) IRS Status (other than institution of higher ed)	44	45.8
Non-Profit without 501(c)(3) IRS Status (other than institution of higher ed)	7	7.3
Private institution of higher education	2	2.1
Local Development District	1	1.0
Other	10	10.4

Evaluation strategy: Grant portfolio data analysis

[a] Percentages provided are for the denominator of all grants (n=96).

Similar to grantee organization types, a wide array of health grants and resulting projects were included in the evaluation. Elements of project goals and purposes are reflected in select characteristics of the grants (Exhibit 3). Over half of grants (n=51, 53.1%) represented the grant type "healthcare access," including subtypes of primary care (n=9, 9.4%), technology (n=9, 9.4%), dental care (n=8, 8.3%), and health professionals (n=8, 8.3%). A total of 21 grants represented the type "health promotion/disease prevention" (21.9%) and 17 grants the type "clinical services" (17.7%), with a considerably smaller number of grants representing the remaining types. As for purpose, grants were considered to be focused on the non-mutually exclusive categories of "equipment," "operations," "construction," and "other" for analytic purposes. More than half of grants were intended to fund equipment (n=52, 54.2%), with a total of 34 grants (35.4%) funding operations, 8 (8.3%) funding construction, and 11 (11.5%) funding other purposes.

Exhibit 3. Select Characteristics of Health Grants

Grant Characteristic [a]	Count of Grants (n)	Percent of Grants (%) [b]
Grant Type & Subtype		
Healthcare access	51	53.1
Primary care	9	9.4
Technology	9	9.4
Dental care	8	8.3
Health professionals	8	8.3
Telemedicine	5	5.2
Mental health/rehab	3	3.1
Planning	1	1.0
Substance disorder response	1	1.0
Water & sewer system	1	1.0
Health promotion/disease prevention	21	21.9
Health education	8	8.3
Health planning	4	4.2
Mental health/rehab	2	2.1
Dental care	1	1.0
Health professionals	1	1.0
Planning	1	1.0
Primary care	1	1.0

Exhibit 3. Continued		
Grant Characteristic [a]	Count of Grants (n)	Percent of Grants (%) [b]
Clinical services	17	17.7
Primary care	4	4.2
Dental care	3	3.1
Mental health/rehab	3	3.1
Technology	3	3.1
Health professionals	2	2.1
Health education	1	1.0
Career & technical education	5	5.2
Dental care	2	2.1
Health education	2	2.1
Educational achievement/attainment	1	1.0
Dental care	1	1.0
Workforce training	1	1.0
Equity fund	1	1.0
Purpose [c]		
Equipment	52	54.2
Operations	34	35.4
Construction	8	8.3
Other (not equipment, operations, or construction)	11	11.5

Evaluation Strategy: Grant portfolio data analysis

[a] Those with blanks are excluded from the table.

[b] Percentages provided are for the denominator of all grants (n=96).

[c] Grants were considered as focused on the non-mutually exclusive "grant purpose" categories of "equipment," "operations," "construction," and "other." For example, the purpose of "Const+Equip" is considered as both a purpose of "construction" and "equipment." Other only includes grants that were not considered equipment, operations, or construction. As such, total counts do not sum to 96 grants or 100%.

Health grants were purposefully designed to align with goals and objectives within ARC Strategic Plans based on grant year(s), providing additional context for project goals and approaches (Exhibit 4). Overall, the grants collectively aligned with the 2011-2016 and 2016-2020 ARC Strategic Plans. The majority of grants specifically aligned with the 2016-2020 Strategic Plan, with the most common goal related to having a ready workforce (Goal 2, n=65, 67.7%), including objectives to "Improve access to affordable, high-quality health care for workers and their families" (Objective 5, n=37, 38.5%) and "Use proven public health practices and establish sustainable clinical services to address health conditions that affect the Region's economic competitiveness" (Objective 6, n=17, 17.7%).

Exhibit 4. Health Grants by ARC Strategic Plan Goals and Objectives		
Strategic Plan Goals & Objectives	Count of Grants (n)	Percent of Grants (%) [a]
2011-2016 Strategic Plan		
Goal 2, Strengthen the capacity of the people of Appalachia to compete in the global economy	22	22.9
Objective 3: Increase access to quality childcare and early childhood education	1	1.0
Objective 5: Expand community-based wellness and disease-prevention efforts	6	6.3
Objective 6: Increase the availability of affordable, high-quality health care	15	15.6
Goal 3, Develop and improve Appalachia's infrastructure to make the region economically competitive	1	1.0
Objective 2: Build and enhance basic infrastructure	1	1.0
2016-2020 Strategic Plan		
Goal 1, Economic Opportunities: Invest in entrepreneurial and business development strategies that strengthen Appalachia's economy	3	3.1
Objective 1: Strengthen entrepreneurial ecosystems and support for existing businesses	1	1.0
Objective 2: Support the startup and growth of businesses, particularly in targeted sectors	1	1.0
Objective 3: Enhance the competitiveness of the Region's manufacturers	1	1.0
Goal 2, Ready Workforce: Increase the education, knowledge, skills, and health of residents to work and succeed in Appalachia	65	67.7
Objective 2: Support programs that provide basic and soft-skills training to prepare workers for employment	2	2.1
Objective 3: Develop and support career-specific education and skills training for students and workers, especially in sectors that are experiencing growth locally and regionally and that provide opportunities for advancement	7	7.3
Objective 5: Improve access to affordable, high-quality health care for workers and their families	37	38.5
Objective 6: Use proven public health practices and establish sustainable clinical services to address health conditions that affect the Region's economic competitiveness	17	17.7

Exhibit 4. Continued		
Strategic Plan Goals & Objectives	Count of Grants (n)	Percent of Grants (%) [a]
Objective 7: Develop and support sustainable programs that remove barriers to participating in the workforce	2	2.1
Goal 3, Critical Infrastructure: Invest in critical infrastructure – especially broadband, transportation, including the Appalachian Development Highway System, and water/wastewater systems	1	1.0
Objective 3: Support the construction and adaptive reuse of business-development sites and public facilities to generate economic growth and revitalize local economies	1	1.0
Goal 5, Leadership & Community Capacity: Build the capacity and skills of current and next generation leaders and organizations to innovate, collaborate, and advance community and economic development	4	4.2
Objective 1: Develop and support robust, inclusive leadership that can champion and mobilize forward-thinking community improvement	1	1.0
Objective 3: Strengthen the capacity of community organizations and institutions to articulate and implement a vision for sustainable, transformative community change	2	2.1
Objective 4: Support visioning, strategic planning and implementation, and resident engagement approaches to foster increased community resilience and generate positive economic impacts	1	1.0

Evaluation strategy: Grant portfolio data analysis

[a] Percentages provided are for the denominator of all grants (n=96).

Health grantees elaborated on the specific goal(s) of their projects through the survey (n=50). Survey respondents frequently identified multiple, often interrelated goals. Broadly, project goals concentrated on advancing health and healthcare through various mechanisms, with commonly reported goals reflecting five categories. First, and most commonly, projects sought to improve health-related services, with an emphasis on improving healthcare availability or accessibility through service provision or expansion. Second, multiple projects aimed to improve health-related infrastructure. Some projects focused on purchasing health-related supplies or equipment to address infrastructure needs or gaps, with materials purchased ranging from laboratory equipment to medical imaging equipment. Similarly, some projects focused on improving health-related facilities, often by constructing new facilities, renovating existing facilities, or supporting mobile units. Third, multiple projects were designed to

strengthen the health-related workforce, with various types of health professionals considered across projects. Such projects focused not only on expanding the workforce, but also on training or educating the workforce. Fourth, some projects sought to advance health through planning, education, or other promotion strategies. Projects often addressed individual, organizational, or community-level factors that may influence health outcomes. Lastly, some projects aimed to foster or leverage collaboration, including with partner organizations and the broader community. Such projects generally did not focus on partner or community engagement solely, but rather in combination with other goals.

"It started as a radiology project, which is why it has that name, but it was really just a technology project, in general, to bring that part of our infrastructure up to date so that we could provide greater patient safety and see a greater amount of clients." (Allegany County Health Department Case Study, Personnel)

Exhibit 5. Allegany County Health Department Case Study: Dental Equipment (Photo/ETSU)

"We began developing Wild, Wonderful and Healthy West Virginia because we noticed a ticker on MarketWatch with the headline that West Virginia is the most unhealthy state in the nation. We see similar headlines in the medical and public health literature frequently, but the compelling part of that was it was coming up on a business news site, so we knew that employers were looking at this and that it was influencing their decisions as to whether to start or locate businesses in West Virginia." (Center for Rural Health Development Case Study, Personnel)

Exhibit 6. Center for Rural Health Development Case Study: Project Logo (Image/Center for Rural Health Development)

Health grantees implemented a variety of approaches to accomplish project goals over grant periods of differing lengths. Most grants were longer than one year in duration according to the grant portfolio data, including 40 grants (41.2%) between one year and up to 24 months and 39 grants (40.6%) over 24 months. The remaining 17 grants (17.7%) were less than one year in

duration. Importantly, there is some overlap in the estimated duration for grants that have continuations based on funding cycles and fiscal years. According to survey respondents, the most common approaches that were used to accomplish project goals included: procurement or purchasing of clinical equipment, technology, and/or supplies (n=31 of 53); establishing, improving, or expanding clinical services (n=21 of 53); and constructing or renovating health-related facilities (n=12 of 53) (Exhibit 7). Procurement and/or purchasing focused on various types of materials, including medical (n=9) and dental (n=8) equipment, technology or software (n=6), education and training equipment (n=5), medical supplies (n=5), education and training supplies (n=5), and dental supplies (n=3). For projects that involved establishing, improving, or expanding clinical services, the most commonly reported services focused on oral health (improving and expanding services [n=8] and/or establishing new services [n=6]). When reflecting on the basis of the approaches that were primarily used, most survey respondents reported adapting (n=26 of 51) or using (n=17 of 51) existing approaches for their projects, with only eight indicating that they designed new approaches.

Exhibit 7. Approaches Primarily Used to Accomplish Health Project Goals

Approach Type [a]	Total (n = 53)
Procurement or purchase of clinical equipment, technology, or supplies	31
Establish, improve, or expand clinical services	21
Construct or renovate a health-related facility	12
Implement activities to recruit, train, or retain health professionals	10
Complete a health-related planning, research, or evaluation activity(ies)	7
Provide technical assistance or other support	7
Establish, improve, or expand a health program(s) for residents	6
Other type(s)	3

Evaluation strategy: Web-based survey of grantees

[a] Grantees could select up to three primary approaches.

The 10 case studies were designed to further explore areas of innovation within featured health projects, regardless of primary approaches. Accordingly, grantees and, when applicable, their partner organizations were encouraged to share any aspects of their projects that they considered innovative or promising. Specific guidance or criteria were not provided. A variety of innovative or promising practices were reported across projects. Some projects, for example, featured innovative designs. Structuring a Federally Qualified Health Center (FQHC) dental practice similar to a private practice model, establishing a comprehensive medical home that provides training for medical and social work students, creating a pipeline approach to develop the rural healthcare workforce, and leveraging mobile services were among those described, with additional areas of innovation also reported. One project, for example, allowed

participating communities to define their geographic boundaries (e.g., city or neighborhood), helping to ensure alignment with local needs and priorities, while another paired community outreach with grant activities to inform the media and general public about available healthcare resources and services, thereby expanding reach. Ultimately, the case study briefs (available in a separate case study report) offered illustrations of how and why grantees may be incorporating innovative or promising practices into their projects.

"We emphasize more of the education, the training, the cleanings, and things like that to get people into the dental clinic, that help to get them acclimated to the dental environment, and get them familiar with the dental staff, and promote that dental home that we're trying to live... [A]t the time, FQHCs were really concentrating on getting in dentists, and then they were using them to clean teeth and stuff like that. I said, 'That's just so highly inefficient.' We started looking at it differently, and by differently, we started looking at it as, how does a private practice do it? ... We started mimicking more of that model in terms of how they went about seeing patients. It was really using the hygienist and the expanded function dental assistants." (Mountain People's Health Councils Case Study, Personnel)

Exhibit 8. Mountain People's Health Councils Case Study: Decal for Dental Services (Image/Mountain People's Health Councils)

"We should define as an innovation the program's investment in rural identity and in developing and maintaining relationships across the whole pipeline for a whole variety of reasons that ends up being a really important support and resource network for folks later. Also, it can help counter that hidden curriculum that they encounter in medical school that pushes folks towards specialty fields and urban areas. The work that we do to really highlight the importance of the rural identity, celebrate that, and connect them with each other is actually an important innovation in helping them maintain that throughout medical school and beyond." (University of Alabama College of Community Health Sciences Case Study, Personnel)

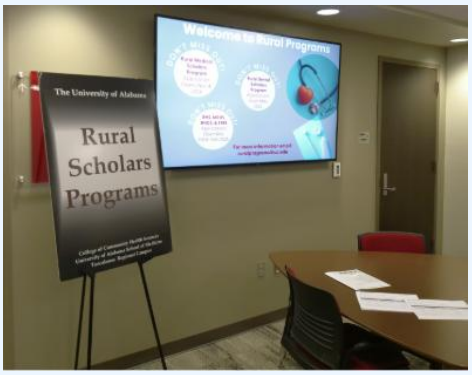


Exhibit 9. University of Alabama College of Community Health Sciences Case Study: Rural Scholars Program Sign (Photo/ETSU)

Project Beneficiaries (or Clients)

- What are the characteristics of the beneficiaries of the grants?
- What changes did grant beneficiaries experience as a result of these projects?

The characteristics of the beneficiaries (or clients) of health grants and the changes that they experienced as a result of the associated projects were assessed using several evaluation strategies. Primary strategies included the analysis of characteristics of counties with and without health grant funding, the web-based survey of grantees, and for a purposeful selection of grantees, the case studies. Key findings from those strategies are presented hereafter.

Similar to the documented variation in project goals and approaches, health projects were designed to serve a variety of individual, organizational, and community beneficiaries. As part of the survey, grantees identified any types of primary intended beneficiaries within each of the following categories: populations, students, health professionals, and businesses/organizations. Nearly all survey respondents identified specific populations as primary intended beneficiaries of their projects (n=52 of 53). Over half of survey respondents reported that primary intended beneficiaries of their projects included people who live in rural communities (n=34) and people with lower incomes (n=27). Additional intended beneficiaries that were commonly reported included: general population without any specific groups (n=25); adults (n=24); people who are underserved by clinical (i.e., medical, dental, or other) services (n=24); and people who are uninsured/underinsured (n=22). While less common, a variety of other populations were also identified as intended beneficiaries. Examples included children/youth, families, people who are beneficiaries of Medicare and/or Medicaid, and people with or at risk of specific diseases or health conditions.

Approximately three-quarters of survey respondents (n=36 of 51) reported a focus on health professionals as primary intended beneficiaries for their projects (Exhibit 10). Primary care and specialty care physicians (n=16), followed by nurses (n=14) were the most commonly identified types of health professionals.

Similarly, approximately three-quarters of survey respondents (n=37 of 52) highlighted a focus on businesses or organizations as primary intended beneficiaries. The most commonly reported types included medical organizations such as clinics, centers, or offices (n=13), hospitals (n=12), and community-based organizations (n=10). A variety of other types of businesses and organizations were also identified by a smaller number of survey respondents, such as K-12 schools or school districts, community coalitions or networks, and small businesses.

Exhibit 10. Types of Health Professionals as Intended Beneficiaries	
Health Professional Type	Total (n = 51)
Physicians (primary care or specialty care)	16
Nurses	14
Community health workers	9
Behavioral or mental health counselors	8
Social workers or social counselors	8
Dental hygienists or dentists	7
Health educators	6
Peer support specialists	6
Patient or peer navigators	5
Billing or other administrative staff	4
Other type(s)	4
Pharmacists	3
Optometrists	1
Physical, occupational, or speech therapists	1
Project did not include health professionals as beneficiaries	15

Evaluation strategy: Web-based survey of grantees

Although somewhat less common relative to the other categories of beneficiaries, over half of survey respondents (n=26 of 47) identified students as primary intended beneficiaries. Specific types of student beneficiaries included: K-12 students (n=13); clinical (i.e., medical, nursing, pharmacy, dental, or other) graduate students (n=10) and residents/fellows (n=8); and undergraduate students (n=7). For projects that were intended to benefit students who may not have chosen a career path (i.e., K-12, undergraduate, or other students) (n=21), slightly over one-third specifically focused on encouraging or preparing them for health-related careers (n=8). For projects that were intended to benefit graduate level or above students or were focused on health-related career pursuits (n=15), common career paths of interest included physicians, nurses, dental hygienists, dentists, and optometrists.

Consistent with multiple types of beneficiaries, survey respondents reported a range of positive changes that were experienced by beneficiaries as a result of their projects. The most commonly reported improvement was in individual access to or receipt of affordable, quality healthcare services or programs (n=36 of 53), followed closely by improvements in individual (n=27 of 53) or community (n=24 of 53) health or health-related behaviors (Exhibit 11).

Exhibit 11. Changes Experienced by Health Project Beneficiaries	
Change Type	Total (n = 53)
Improvements in individual access to or receipt of affordable, quality healthcare services or programs	36
Improvements in individual health or health-related behaviors	27
Improvements in community health or health-related behaviors	24
Improvements in community partnerships	17
Improvements in community capacity	15
Improvements in individual knowledge, skills, or credentials for a health-related career	14
Improvements in organizational capacity	13
Improvements in organizational partnerships	13
Improvements in individual career or employment outcomes	10
Improvements in community economy	8
Other change(s)	4

Evaluation strategy: Web-based survey of grantees

The 10 case studies provided a deeper understanding of potential changes experienced by beneficiaries of featured health projects, including insights gathered directly from project-related beneficiaries when feasible. A range of positive changes were reported across projects. Increases in the accessibility, convenience, affordability, and/or quality of healthcare services, including more accurate and timely diagnoses and connection to additional services (e.g., food vouchers), were commonly described. In some cases, the services supported by projects were the only ones available to meet the needs of local patients. Similarly, improvements in patient safety were reported for some projects, with one reducing radiation exposure by upgrading out-of-date dental equipment. Improvements in health and health-related behaviors were among other positive changes frequently identified. Examples of specific outcomes included improved glucose and blood pressure levels, early cancer detection, increased weekly physical activity, preserving teeth, and eliminating oral pain. Overall, the case study briefs (available in a separate case study report) underscored the potential for projects to contribute to positive changes among beneficiaries.

> *"Rural Health Scholars program, it was really a catalyst for my career, if I'm being completely honest. I probably wouldn't have done as much as I have without this program. . . . I really fell in love with rural health through the Rural Health Scholars program and decided to come back to Alabama. Now, I'm in the graduate program at the [university], working on my DNP as well, with a focus on family nurse practitioner with hopes to go back into a rural community." (University of Alabama College of Community Health Sciences Case Study, Student Beneficiary)*

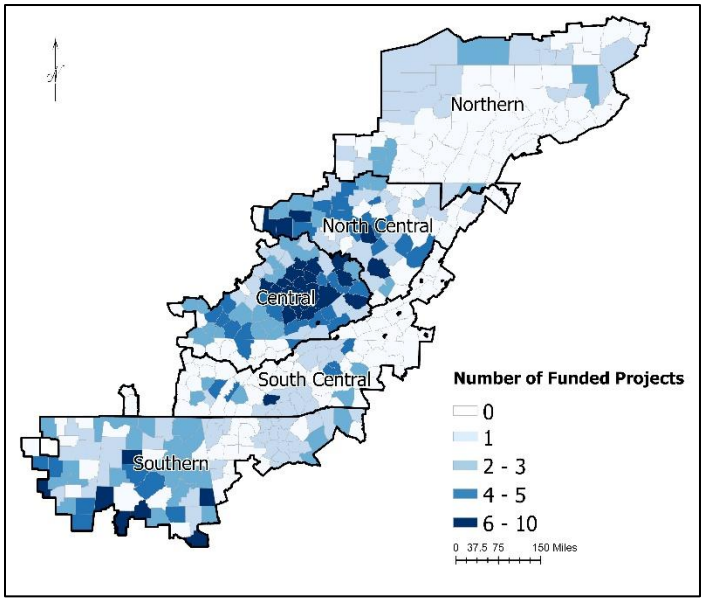
Collectively, health grantees leveraged health grant funding to serve 241 counties across Appalachia, representing 57.0% of Appalachian counties. Nearly one-third (n=29, 30.2%) of grants served a single county, while the remainder served two or more counties. Among counties with funding, the number of grants awarded per county varied between 1 and 10 (Exhibit 12). Geographically, counties with funding were more likely to be located in the Northern Central, Central, and Southern Appalachian subregions, while counties in the Northern and South Central subregions were less frequently represented among funded areas. A higher proportion of counties with funding were also classified as rural or nonmetro areas adjacent to a small metro area, while a smaller proportion were classified as large or nonmetro areas adjacent to large metro areas.

"Greatest success was the commitment to the ones that actually attended the class, the commitment and the changes. Any little change to me is a good change... I think they enjoyed the lifestyle changes, being introduced to different foods, how to cook your foods differently. I think that was a success story, and not only that, they went out and they incorporated their family. When you're in a household, a family who has health issues, then you're able to gradually change the way that they see health and take care of themselves." (Mississippi State Department of Health Case Study, Partner)

• • • • • •

". . . [W]e had in a school district that a student was pretty much mute. She was not talking. She wouldn't smile. Then she came out and had her front teeth taken out... Then a couple of weeks later, the school is like, 'She's smiling.' It was a whole new child." (Tioga County Public Health Case Study, Personnel)

Exhibit 12. Number of Health Grants Per Appalachian County

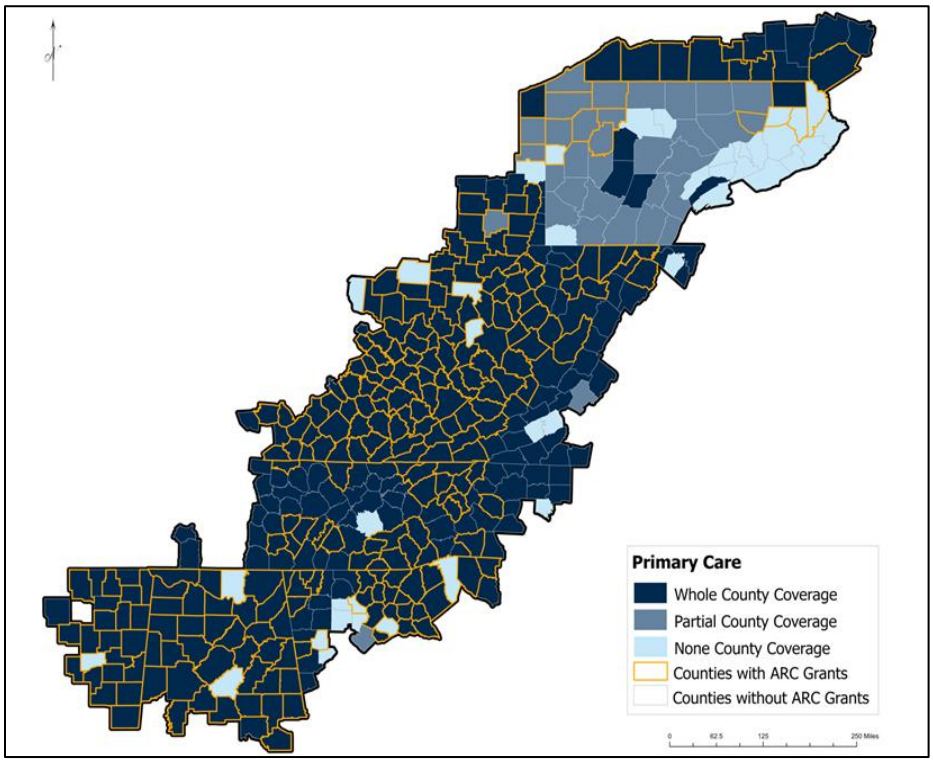


Evaluation strategy: County-level analysis of secondary data

Key characteristics of Appalachian counties with (and without) health grant funding offered further insights into the potential characteristics and health-related needs of populations served by grantees and their projects. Specific to healthcare access, counties with funding were more likely to be designated Health Professional Shortage Areas (HPSAs) compared to counties without funding (Exhibits 13-15). Among counties with funding, over 90% were designated whole-county primary care HPSAs. Similar trends were observed with dental and mental health HPSA designations, with 85.9% of counties with funding being designated whole-county dental health HPSAs and 94.2% designated whole-county mental health HPSAs. In addition to lower healthcare access, counties with funding exhibited consistently higher burdens of morbidity and mortality across multiple indicators. Compared to those without funding, counties with funding, for example, had higher rates of all-cause mortality (Exhibit 16) and cause-specific mortality, including mortality due to Alzheimer's disease, cancer, drug overdose, heart disease, respiratory disease, and stroke. Beyond mortality, counties with funding had higher levels of diabetes and obesity among adults, frequent mental distress, physical inactivity, and low birth weight, among other indicators.

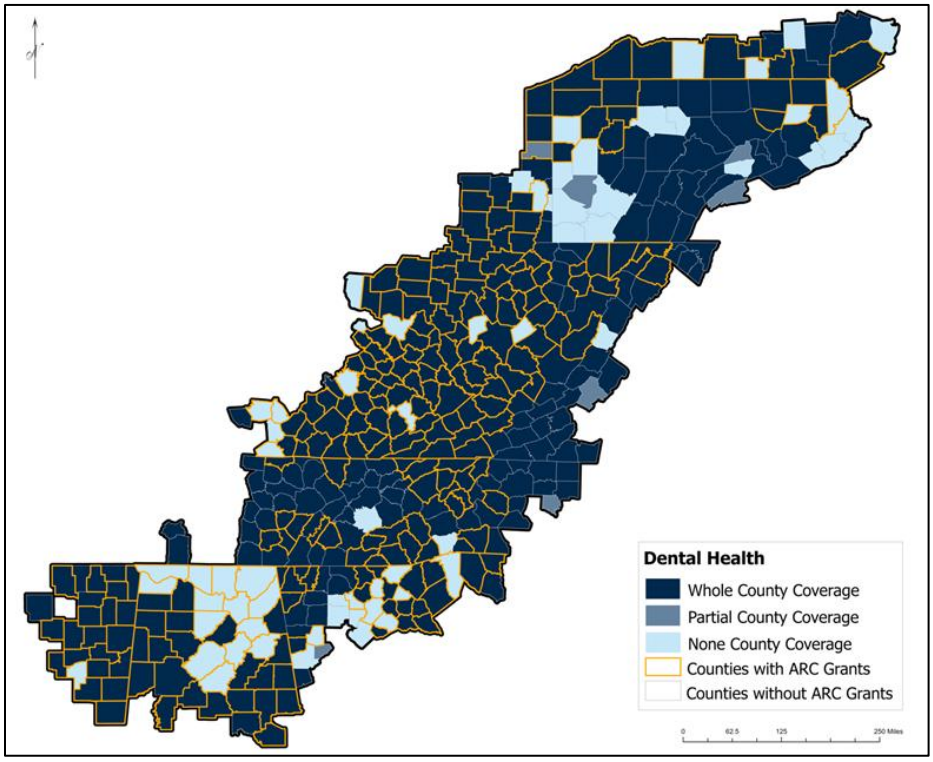
Similarly, Appalachian counties with health grant funding generally demonstrated greater economic disadvantage relative to counties without funding across multiple indicators. Using ARC's levels of economic distress,[4] nearly one-third (30.7%) of counties with funding were classified as economically distressed compared to only 4.4% of counties without funding (Exhibit 17). Additionally, counties with and without funding exhibited some differences in primary industry dependency. Counties with funding were more likely to be mining-dependent compared to those without funding, and less likely to be classified as nonspecialized. Compared to counties without funding, counties with funding also had lower labor force participation rates, slightly higher unemployment rates, lower levels of educational attainment, and lower median household incomes. Similarly, the proportion of counties classified as persistent poverty was considerably higher among counties with funding compared to those without funding. Additional indicators further highlighted regional challenges. Compared to counties without funding, counties with funding, for example, had a higher proportion of households receiving cash assistance or SNAP benefits, lower broadband access, and lower vehicle access. In combination with the health characteristics of counties, findings suggest that grantees focused on counties characterized by significant health- and economic-related challenges.

Exhibit 13. Health Professional Shortage Areas in Appalachia: Primary Care



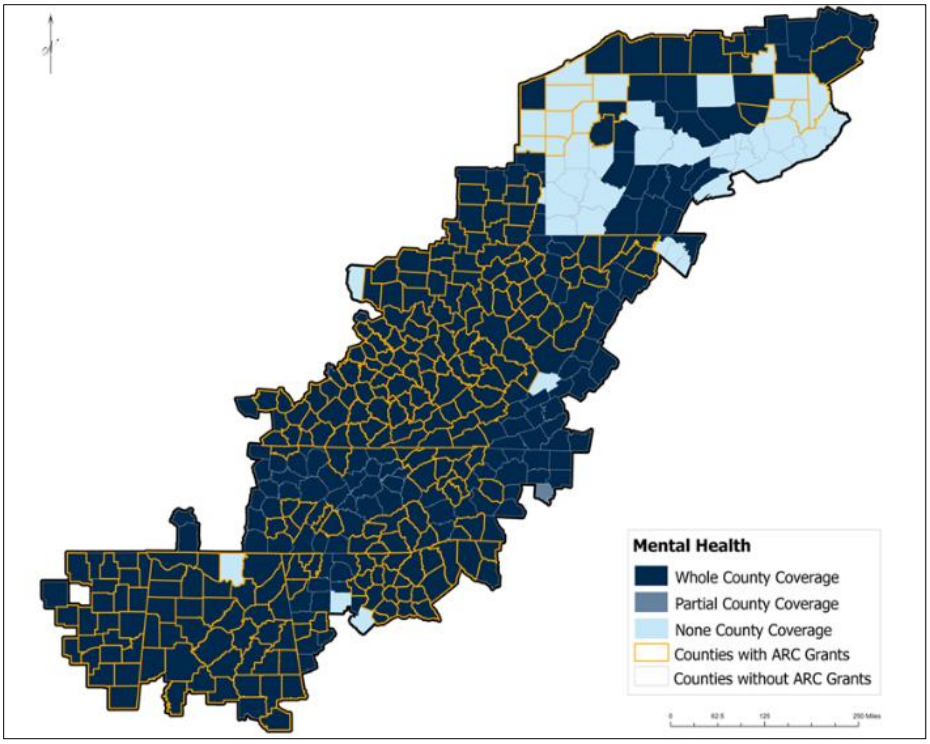
Evaluation strategy: County-level analysis of secondary data

Exhibit 14. Health Professional Shortage Areas in Appalachia: Dental Health



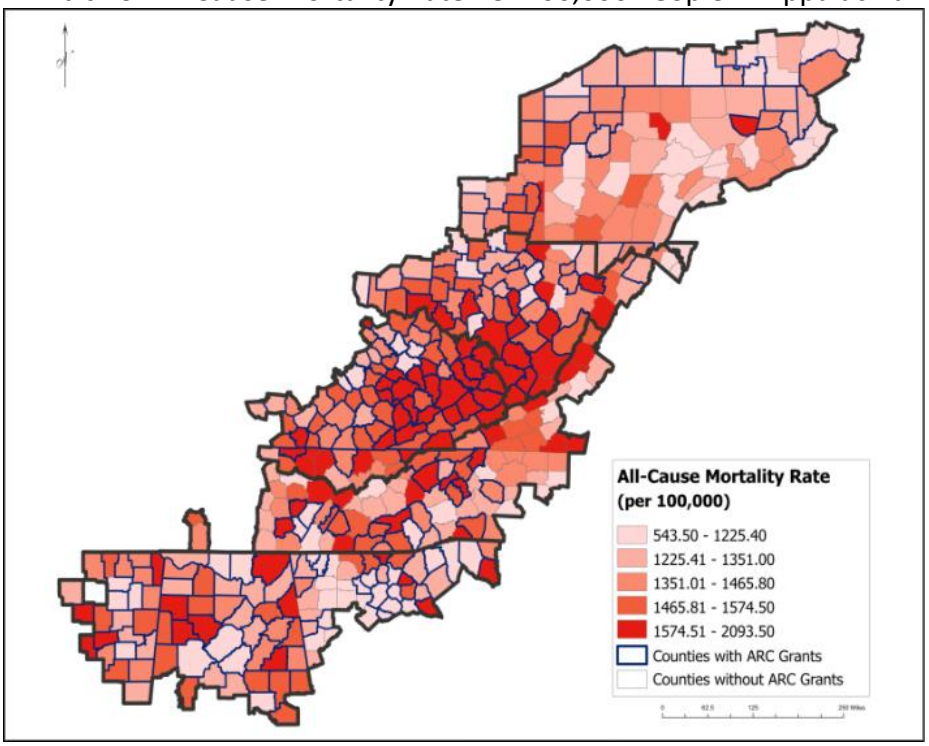
Evaluation strategy: County-level analysis of secondary data

Exhibit 15. Health Professional Shortage Areas in Appalachia: Mental Health



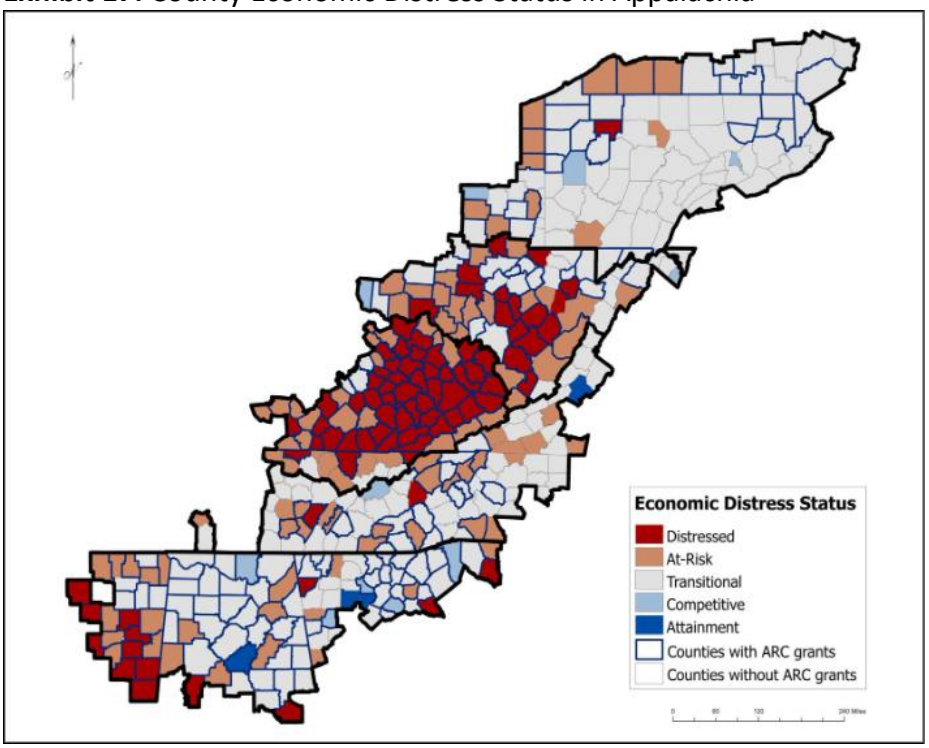
Evaluation strategy: County-level analysis of secondary data

Exhibit 16. All-Cause Mortality Rate Per 100,000 People in Appalachia



Evaluation strategy: County-level analysis of secondary data

Exhibit 17. County Economic Distress Status in Appalachia



Evaluation strategy: County-level analysis of secondary data

Project Health and Economic Impacts

- What specific outputs and outcomes were projects designed to achieve, and to what extent did projects meet their performance goals?
- What successes do grantees report in advancing health for all residents?
- How and in what ways do grantees report prioritizing populations with the greatest needs?
- How do ARC-funded health projects contribute to economic development in Appalachia?

The outputs, outcomes, and successes of health projects in advancing health outcomes and economic development were assessed through multiple strategies. Primary strategies included the analysis of ARC-defined performance measures, the web-based survey of grantees, and for a purposeful selection of grantees, the case studies. Key findings from those strategies are presented hereafter.

ARC provides a comprehensive set of performance measures that include defined outputs and outcomes.[5] According to ARC, outputs generally represent "products of project activities," while outcomes represent "benefits or changes for individuals, communities, organizations, businesses, or other entities during or after the project's grant period."[5] In some cases, output and outcome measures are paired to document improvements among any individuals, organizations, or others served by a project (e.g., patients served and improved, respectively).[5] At the beginning of the grant period, health grantees selected and developed goals towards one or more ARC-defined performance measures for their projects (referred to herein as "projected" measures). They reported on progress towards these performance goals at the closure of the grant (referred to herein as "closeout" measures) and potentially at a later date, whether through a follow-up contact by ARC or through the web-based survey for this evaluation (referred to herein collectively as "post-closeout" measures). Importantly, it is generally expected that a project will achieve projected performance measures by three years after closeout. For evaluation purposes, the data sources for ARC-defined performance measures varied across time points and, to some extent, grantees. Projected and closeout performance measures were extracted from the grant portfolio data. Post-closeout performance measures, if available, were extracted from the grant portfolio data or collected through the survey. Only grants without post-closeout performance measures in the grant portfolio data from a prior follow-up contact by ARC were invited to report post-closeout performance measures through the survey.

Each of the 96 health grants had projected and closeout performance measures; however, post-closeout performance measures were not available for all grantees for various reasons (e.g., grantees not participating in the follow-up contact by ARC or the survey). Each grantee

completing the survey without post-closeout performance measures available in the grant portfolio data was asked about their organization's ongoing collection of data for each of their projected performance measures. For a majority of performance measures of these grants (n=91, 56.9%), grantees reported that the data submitted on the performance measures at closeout were final (Exhibit 18). For an additional 18.1% (n=29) of performance measures, grantees reported that data submitted at closeout were not final, but their organization did not continue to collect data. The remaining 25% (n=40) of performance measures were reported to have updated performance measure data collected, with updated data submitted via the survey for all but two of these performance measures. Ultimately, a total of 24 (25.0%) grants had post-closeout performance measures that were collected through follow-up contact by ARC, while 15 grants (15.6%) had information regarding the collection of performance measure data reported through the web-based survey.

Exhibit 18. Status of Continued Data Collection for ARC-Defined Performance Measures after Health Grant Completion

Status Type [a]	Sum
No, the data submitted for this performance measure at closeout were final.	91
No, the data submitted for this performance measure at closeout were not final, but my organization did not continue to collect data.	29
Yes, my organization has continued to collect data for this performance measure.	40

Evaluation strategy: Web-based survey of grantees

[a] Grantees responded to the following survey item: "Since the completion of your health grant, has your organization continued to collect data on the following performance measure: [ARC-defined performance measure]?" They were asked this question for each performance measure for that grant and only if they did not have a prior follow-up contact by ARC.

Overall, health projects were designed to address more than 20 ARC-defined output and outcome performance measures, with projects generally achieving a majority of the performance goals. Exhibit 19 presents means, medians, and sums of each performance measure, both when projected at the beginning of grant periods and at the most recently reported data (i.e., at closeout or post-closeout depending on data availability). Of the 24 performance measures for which at least one grant provided projected estimates, 19 had a total count reported that met or exceeded the total count projected. Performance measures with the greatest total count reported achieved relative to projected across grantees included communities served and improved, students served and improved, and jobs retained; the total count of each exceeded 200% of the total count projected. Similarly, the most commonly reported performance measures included patients served and improved (each with n=69 grants), jobs created (n=33 grants), and organizations served and improved (each with n=18 grants). All of these exceeded the projected estimate except for organizations improved, for which 97.8% of the total projected amount was achieved. In total, grants reported serving 515,369 patients and 369 organizations, in addition to creating 656 jobs. Additional areas of

success based on performance measures included serving over 8,000 students, nearly 3,500 workers or trainees, nearly 14,000 participants, and 149 communities.

Exhibit 19. Achievement of Projected ARC-Defined Performance Measures for Health Projects

	Projected				Total with Most Recently Reported Data [a]	
Outputs/ Outcomes	Grants with 1+ Projected	Mean	Median	Sum	Total Sum of Most Recently Reported Data	Total % of Projected Achieved
Businesses Served	5	21.8	20	109	149	136.7%
Businesses Improved	5	17.8	20	89	99	111.2%
Communities Served	7	8.7	3	61	149	244.3%
Communities Improved	7	4.4	3	31	149	480.6%
Households Served	1	120.0	120	120	150	125.0%
Households Improved	1	120.0	120	120	150	125.0%
Jobs Created	33	11.1	5	365.5	656	179.5%
Jobs Retained	9	37.9	21	341	765	224.3%
Leveraged Private Investment	1	160,000.0	160,000	160,000	0	0.0%
Linear Feet	1	10,243.0	10,243	10,243	7,102	69.3%
Organizations Served	18	20.5	8	369	369	100.0%
Organizations Improved	18	17.8	8	320	313	97.8%
Participants Served	12	988.6	575	11,863	13,841	116.7%
Participants Improved	11	759.2	550	8,351	11,531	138.1%
Patients Served	69	3,867.9	1,500	266,883	515,369	193.1%
Patients Improved	69	3,606.8	1,350	248,872	300,214	120.6%
Plans/ Reports Developed	6	2.0	1.5	12	14	116.7%
Programs Implemented	8	7.8	3.5	62	88	141.9%
Square Feet	7	12,184.6	9,600	85,292	78,632	92.2%
Students Served	8	270.0	80	2,160	8,317	385.0%
Students Improved	8	230.1	80	1,841	3,973	215.8%
Telecom Sites	7	7.0	4	49	40	81.6%
Workers/ Trainees Served	12	232.3	110	2,788	3,438	123.3%
Workers/ Trainees Improved	11	234.3	65	2,577	2,628	102.0%

Evaluation strategies: Grant portfolio data analysis, web-based survey of grantees, and analysis of ARC-defined performance measures

[a] Estimates of achieved performance measures were collected using two different approaches at varying time points. Follow-up contacts were completed by ARC between July 2019 and August 2023, while the web-based survey was administered during June-September 2024 using a staggered recruitment approach. As such, post-closeout performance measures collected through the survey reflect a longer follow-up time as compared to those obtained through follow-up contact by ARC.

Consistent with the achievement of most performance goals as assessed by ARC-defined performance measures, nearly all survey respondents reported that their organizations "mostly" met the goals of their health projects (n=49 of 52). When reporting on contributions to improved health in Appalachia, most respondents likewise affirmed that their projects increased the accessibility of healthcare services (n=37 of 51), improved health or health-related behaviors (n=32 of 51), and increased the quality of healthcare services (n=29 of 51). Commonly reported strategies that were aligned with advancing health for all residents included: promoting community engagement (n=33 of 51); using data to prioritize specific health-related needs or outcomes (n=27 of 51) or populations (n=27 of 51); and using evidence- or research-based approaches to address health-related needs or outcomes (n=22 of 51). Additionally, multiple survey respondents (n=19 of 51) reported leveraging multi-sector or non-traditional partnerships as a means of advancing health for all residents. Importantly, all survey respondents (n=48) indicated that their projects contributed at least "some" to the ability of residents to live their healthiest life, and a large majority (n=38 of 47) likewise indicated that their projects contributed at least "some" to accessing opportunities that promote health, such as healthcare and fair employment.

Within the context of advancing health for all residents, health grantees highlighted successes and considerations in serving populations with the greatest needs through their projects. The vast majority of survey respondents reported being "mostly" (n=35 of 50) or "somewhat" (n=13 of 50) successful in serving populations who were prioritized. Additionally, they reported using various approaches to identify any prioritized populations. Commonly identified approaches included: gathering input from community leaders or partners (n=31 of 50); examining existing data from their organizations' services or programs (n=29 of 50); and analyzing existing data from national, state, or local sources (n=27 of 50). Although less common, examples of other reported approaches included completing a community health needs assessment (n=18 of 50) and gathering input from organizational members and leadership (n=18 of 50). Similarly, a range of factors were considered when identifying any prioritized populations for projects, with survey respondents most frequently reporting consideration of various social and economic (n=30 of 49) as well as geographic (n=27 of 49) characteristics. Specific to geography, survey respondents reported multiple considerations (Exhibit 20), with rurality being the most common (n=37 of 47).

Exhibit 20. Geographic Considerations in Prioritizing Populations for Health Projects	
Geographic designation type	Total (n=47)
Rural status	37
Economic status designation (e.g., distressed, at-risk, or transitional)	24
Geographic Health Professional Shortage Area (HPSA): Any type	13
Geographic Health Professional Shortage Area (HPSA): Dental Health	13
Geographic Health Professional Shortage Area (HPSA): Primary Care	11
Medically Underserved Area (MUA)	9
Geographic Health Professional Shortage Area (HPSA): Mental Health	7
Other geographic designation(s)	2
Maternity Care Target Area (MCTA)	1
Organization did not consider any geographic designations	4

Evaluation strategy: Web-based survey of grantees

Additional insights on how featured projects may have served populations with the greatest needs were gleaned through the 10 case studies. A variety of approaches were identified, with projects frequently reflecting a focus on specific populations with health-related needs and/or using strategies to reach populations in need. Examples of populations included people living in rural, economically distressed, or other communities with limited or no access to services, people with lower incomes, people who are uninsured, and people who are beneficiaries of Medicaid, among others. Similarly, examples of strategies focused on reaching populations in need included: offering services at no cost or using sliding scales to help reduce financial and related barriers; using mobile services to help reduce transportation barriers; and providing educational opportunities to help increase the number of healthcare providers practicing in communities with limited or no access to services. More comprehensive accounts on how featured projects may have prioritized and reached populations with the greatest needs can be found in the case study briefs (available in a separate case study report).

"It's a free service. It's available. I know a lot of parents who take advantage of that because they don't have to take their kids and pay. A lot of people don't have dental insurance and even people that have dental insurance." (Tioga County Public Health Case Study, Patient Beneficiary)

Exhibit 21. Tioga County Public Health Case Study: Mobile Dental Unit (Photo/ETSU)

Additionally, the 10 case studies highlighted successes and challenges as they related to efforts to advance health for all residents. Key successes varied widely, often reflecting underlying project goals and approaches. Examples of identified successes included improving patient services, modifying workplace programming for improved fit, and advancing health and economic development in communities. While a range of successes and other positive impacts were reported, projects were not without challenges, including programmatic and structural challenges, among others. Examples included limited transportation or broadband, difficulty recruiting and retaining staff, and difficulty engaging partners. Despite such challenges, the case study briefs underscored the potential for projects to advance health for all residents, including those who may experience the greatest needs.

Importantly, health projects were designed to advance health and healthcare as a means for supporting workforce participation and economic growth in Appalachia. Accordingly, primary or substantial benefits to distressed counties/areas were estimated for three-quarters of all grants (n=73, 76.0%), with the most common estimate being primary (n=46, 47.9%). Only six grants (6.3%) were estimated to have no benefit to distressed counties/areas. The majority of grants by grantee organization type, grant type, and grant purpose were likewise estimated to have primary or substantial benefits to distressed counties/areas (Exhibit 22).

"By implementing a free clinic in a rural and underserved area, we are now able to provide care to those who otherwise were not able to see a doctor. In addition to primary care services, we provide mental health, nutrition and exercise, along with social work assistance. This became a comprehensive medical home for those in need to access wrap-around health services." (Edward Via College of Osteopathic Medicine Case Study, Personnel)

• • • • • •

"Transportation becomes a huge barrier for our population. Of course, the CT scanner has really helped with being able to get more patients scanned right here." (Pikeville Medical Center Case Study, Personnel)

• • • • • •

"A lot of patients like the location because where we are, we're a rural community. If you have a doctor or dentist appointment in [city], you either have to take a half a day off work, a whole day off work, child has to miss school, so they do like the opportunity because it's accessible to them. They do like having this here. Then, they're not having to travel long ways. We see that a lot, either the patients that their parents can't miss work or they don't have transportation, or they can't afford gas money to go and things like that." (Mountain People's Health Councils Case Study, Personnel)

Exhibit 22. Benefit to Distressed County & Area by Health Grantee and Grant Characteristics				
	Benefit to Distressed County & Area			
	None N(%)	Limited N(%)	Substantial N(%)	Primary N(%)
Grantee Type [a]				
State, County, City, or Township Government	3 (20.0)	1 (6.7)	3 (20.0)	8 (53.3)
Higher Education (public or private)	0 (0.0)	3 (16.7)	4 (22.2)	11 (61.1)
Non-Profit with 501(c)(3) Status (not higher ed)	1 (2.3)	10 (22.7)	14 (31.8)	19 (43.2)
Non-Profit without 501(c)(3) Status (not higher ed)	0 (0.0)	1 (14.3)	1 (14.3)	5 (71.4)
Other	2 (16.7)	2 (16.7)	5 (41.7)	3 (25.0)
Grant Type				
Career & technical education	0 (0.0)	2 (40.0)	0 (0.0)	3 (60.0)
Clinical services	2 (11.8)	2 (11.8)	4 (23.5)	9 (52.9)
Educational achievement/ attainment	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)
Health promotion/ disease prevention	0 (0.0)	3 (14.3)	7 (33.3)	11 (52.4)
Healthcare access	3 (5.9)	10 (19.6)	16 (31.4)	22 (43.1)
Workforce training	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
Grant Purpose [b]				
Equipment	5 (9.6)	10 (19.2)	12 (23.1)	25 (48.1)
Operations	2 (5.9)	5 (14.7)	10 (29.4)	17 (50.0)
Construction	1 (12.5)	2 (25.0)	1 (12.5)	4 (50.0)
Other	0 (0.0)	1 (9.1)	6 (54.6)	4 (36.4)

Evaluation strategy: Grant portfolio data analysis

[a] Grantee organization types were collapsed into five categories: government (state, county, city, or township), higher education (public or private), non-profit with 501(c)(3) status (not higher education), non-profit without 501(c)(3) status (not higher education), and other (including regional organizations, Local Development Districts [LDDs], and other).

[b] Grants were considered as focused on the non-mutually exclusive "grant purpose" categories of "equipment," "operations," "construction," and "other." For example, the purpose of "Const+Equip" is considered as both a purpose of "construction" and "equipment." Other only includes grants that were not considered equipment, operations, or construction. As such, total counts to do not sum to 96 grants or 100%.

Consistent with the estimated benefits, health grantees frequently described contributions to economic development in Appalachia. Specifically, at least half of survey respondents indicated that their projects contributed to economic development through enhancing community resiliency by addressing urgent health needs (n=28 of 51); strengthening the local workforce with training or education for health professionals (n=24 of 51); and expanding the workforce

by creating or retaining health-related jobs (n=24 of 51). Additional mechanisms through which projects contributed to the Appalachian economy are presented in Exhibit 23.

Exhibit 23. Health Project Contributions to Economic Development	
Contribution Type	Total (n=51)
Enhanced community resiliency by addressing urgent health needs	28
Strengthened the local workforce by training or educating health professionals	24
Expanded the workforce by creating or retaining health-related jobs	24
Strengthened the local economy by supporting a sustainable healthcare enterprise	17
Enhanced community resiliency by addressing other social determinants of health	15
Increased workforce productivity by improving health status/healthcare access	14
Expanded the workforce by attracting new health professionals	13
Fostered a more attractive work environment for workers	13
Attracted new funding or investments	11
Reduced healthcare costs for employers or workers	11
Enhanced community resiliency by increasing employment opportunities	9
Increased workforce productivity by improving the capacity or efficiency	8
Fostered a more attractive business environment for employers	8
Other contribution(s)	2
Project did not contribute to economic development	3

Evaluation strategy: Web-based survey of grantees

Health projects featured in the 10 case studies offered more in-depth perspectives on potential economic impacts. Consistent with differing goals and approaches across projects, a variety of positive impacts for workers, organizations, and communities were highlighted. Examples of workforce-level benefits included reduced healthcare costs and improved health, along with improvements in key outcomes such as skills, productivity, recruitment, and retention. Specific to healthcare facilities, examples of organization-level benefits included reduced costs and the creation of new revenue streams. As for communities as a whole, examples of benefits included the creation of new jobs and expanded employment opportunities overall. With more detail in the case study briefs (available in a separate case study report), these findings yielded additional evidence on how projects may contribute to economic development in Appalachian communities through a variety of pathways.

"Having access to good medical care might change somebody's mind about whether or not they're willing to live in that community and whether they're willing to invest in that community. It'll be exciting to see the changes that happen over the next five, 10 years." (Adena Health System Case Study, Personnel)

Exhibit 24. Adena Health System Case Study: Examination Room at Wellston Clinic (Photo/ETSU)

"With workplace wellness, that is a significant tool in retention for employees at the businesses participating and can also be leveraged for attraction . . . While we don't have a dollar amount on that, that's part of helping to impact the health of the workforce." (Active Southern West Virginia Case Study, Personnel)

Exhibit 25. Active Southern West Virginia Case Study: Health Promotion Material (Photo/Active Southern West Virginia)

Project Implementation

- What factors influenced projects' successful implementation?
- What challenges/barriers to success did projects face and how were they addressed?
- Are there common factors among grantees who met performance targets and those who did not?
- What impacts has the pandemic had on health grantees' ability to serve their communities/beneficiaries?
- What changes have health grantees already implemented in response to evolving needs/opportunities that emerged from the pandemic?

Potential factors that facilitated or hindered successful implementation of health projects and the achievement of performance targets were primarily assessed through the web-based survey of grantees and the analysis of ARC-defined performance measures, with key findings presented hereafter.

As part of the survey, health grantees identified factors that may have impacted successful implementation of their projects across three domains: grant administration, within their organizations, and outside their organizations. Factors that may have hindered implementation were referred to as challenges, whereas factors that may have helped implementation were referred to as facilitators. For each factor applicable to their organizations, grantees were asked to characterize the factor as "primarily a challenge," "neither a challenge nor a facilitator," or "primarily a facilitator."

Overall, survey respondents highlighted multiple facilitators to project implementation within each of the three domains (Exhibit 26). Specific to grant administration, commonly reported facilitators included: ability to work with ARC (n=25 of 48); ability to work with state program managers (n=20 of 46); level of prior experience managing external grants or contracts (n=20 of 48); and project goals or approaches (n=19 of 48). Additionally, commonly reported facilitators within their organizations included organizational mission, vision, or practices (n=32 of 50) and organizational leadership or management (n=27 of 50), while facilitators outside their organizations included ability to identify or engage beneficiaries/clients (n=29 of 50) or partners (n=26 of 50) as well as the level of community support or buy-in (n=25 of 49).

Exhibit 26. Facilitators of Health Project Implementation by Domain	
Facilitator Type	
Grant Administration	Total (n=48)
Ability to work with ARC	25
Ability to work with state program manager(s)	20 [a]
Level of prior experience	20
Project goals or approaches	19
Application process	14
Understand/meet reporting requirements	13
Budget or timeline	11
Understand/comply with federal regulations	11
Understand/meet grant match requirements	11
Contracting or procurement processes	10
Construction processes	6
Within Organizations	Total (n=50)
Mission, vision, or practices	32
Leadership or management	27
Communication or coordination	23
Policy or procedures	23
Staffing	20
Financial resources	20 [b]
Infrastructure	16
Outside Organizations	Total (n=50)
Ability to identify/engage beneficiaries/clients	29
Ability to identify/engage partners	26
Community support or buy-in	25 [b]
Access to health-related data	18 [b]
Access to technical assistance	14
Community stigma	7 [b]
Local, state, or federal policy	6
Local or national economy	5
COVID-19 pandemic	2

Evaluation strategy: Web-based survey of grantees; [a] of n=46; [b] of n=49

Compared to facilitators, survey respondents less frequently reported challenges to project implementation. Nevertheless, challenges within each of the three domains were identified. Specific to grant administration, the most commonly reported challenges focused on project contracting or procurement processes (n=6 of 48), project budgets or timelines (n=6 of 48), and the grant application process (n=4 of 48). Commonly reported challenges within their

organizations were related to staffing (n=8 of 50), financial resources (n=8 of 49), and infrastructure (n=6 of 50), while the most commonly reported challenge outside their organizations was the COVID-19 pandemic (n=17 of 50).

In addition to broader challenges to project implementation, survey respondents identified challenges specific to reaching and serving intended beneficiaries within the context of advancing health for all residents (Exhibit 27). While grantees could characterize any challenges that their organizations experienced as "major" or "minor" challenges, they were combined for ease of interpretation. Commonly reported challenges as they relate to beneficiaries included lack of transportation (n=32 of 45), competing demands or priorities (n=30 of 45), and lack of financial resources (n=29 of 45).

Exhibit 27. Challenges in Reaching or Serving Health Project Beneficiaries

Challenge type	Total (n=45)
Lack of transportation	32
Competing demands or priorities	30
Lack of financial resources	29
Lack of time	24
Lack of social support	23
Lack of health insurance	22
Lack of childcare	22
Lack of internet access	21
Lack of awareness of activities	19
Lack of interest/motivation to participate	18
Language or cultural differences	16 [a]
Other challenge(s)	3 [b]
Stigma	2

Evaluation strategy: Web-based survey of grantees; [a] of n=46; [b] of n=25

Importantly, survey respondents reported using strategies to address challenges that their organizations faced when implementing health projects. Delivering training/education to project staff (n=14 of 31) and identifying or engaging new partners (n=13 of 31) were most commonly reported (Exhibit 28). Examples of other reported strategies included: expanding community engagement/outreach efforts (n=11); developing strategies for improved communication/coordination (n=11) or grant data collection/reporting (n=11); and obtaining additional financial resources (n=11).

Exhibit 28. Strategies for Addressing Challenges to Health Project Implementation	
Strategy Type	Total (n=31)
Delivered training or education to project staff	14
Identified or engaged new partners	13
Developed strategies to improve communication or coordination	11
Developed strategies to improve grant data collection or reporting	11
Expanded community engagement or outreach efforts	11
Obtained additional financial resources	11
Delivered training or education to leadership or management	10
Obtained technical assistance or guidance from ARC	10
Hired new project staff	9
Changed project budget or timeline	8
Expanded partner recruitment and/or retention efforts	8
Expanded beneficiary/client recruitment and/or retention efforts	5
Obtained additional infrastructure	4
Obtained technical assistance or guidance from sources other than ARC	4
Changed, or tried to change, local, state, or federal policy	3
Changed project goals or activities	3
Changed, or tried to change, organizational policy or procedures	2
Other approach(es)	1
Organization did not address the challenge(s)	1

Evaluation strategy: Web-based survey of grantees

Building on project-related facilitators and challenges, select characteristics of health grantees and grants were analyzed to explore common factors among grantees that did and did not meet their goals as assessed by ARC-defined performance measures. When considering the most recent data available for each performance measure for each grant (i.e., at closeout or post-closeout based on data availability), a total of 47 (49%) projects met all of their ARC-defined performance measures (Exhibit 29). At least half of relevant grants met all of their projected performance measures with the following characteristics: grantee types of "other" (n=9, 75.0%), higher education (n=9, 50%), or non-profit with 501(c)(3) status (not higher education) (n=22, 50%); grant type of "educational achievement/attainment" (n=1, 100%), "clinical services" (n=10, 58.8%), or "health promotion/disease prevention" (n=12, 57.1%); and purposes of other (n=6, 54.5%) or operations (n=18, 52.9%). When considering the service area, at least half of the grants that served multiple counties (n=34, 50.7%) met all of their projected performance measures. Similarly, more than half of the grants that projected no (n=5, 83.3%), substantial (n=16, 59.3%), or limited (n=9, 52.9%) benefits to distressed counties or areas met all of their projected performance measures.

Exhibit 29. Characteristics of Health Grants Meeting Projected ARC-Defined Performance Measures at Closeout or Post-Closeout				
	Did Not Meet All ARC Projected Performance Measures		Met All Projected ARC Performance Measures	
	n	%	n	%
Total	49	51.0%	47	49.0%
Grantee Type [a]				
State, County, City, or Township Government	11	73.3%	4	26.7%
Higher Education (public or private)	9	50.0%	9	50.0%
Non-Profit with 501(c)(3) Status (not higher ed)	22	50.0%	22	50.0%
Non-Profit without 501(c)(3) Status (not higher ed)	4	57.1%	3	42.9%
Other	3	25.0%	9	75.0%
Grant Type				
Career & Technical Education	4	80.0%	1	20.0%
Clinical Services	7	41.2%	10	58.8%
Educational Achievement/Attainment	0	0.0%	1	100.0%
Health Promotion/Disease Prevention	9	42.9%	12	57.1%
Healthcare Access	28	54.9%	23	45.1%
Workforce Training	1	100.0%	0	0.0%
Purpose [b]				
Equipment	28	53.8%	24	46.2%
Operations	16	47.1%	18	52.9%
Construction	6	75.0%	2	25.0%
Other	5	45.5%	6	54.5%
Service Area				
Single County	16	55.2%	13	44.8%
Multiple Counties	33	49.3%	34	50.7%
Benefit to Distressed County & Area				
None	1	16.7%	5	83.3%
Limited	8	47.1%	9	52.9%
Primary	29	63.0%	17	37.0%
Substantial	11	40.7%	16	59.3%

Evaluation strategies: Grant portfolio data analysis, web-based survey of grantees, and analysis of ARC-defined performance measures

[a] Grantee organization types were collapsed into five categories: government (state, county, city, or township), higher education (public or private), non-profit with 501(c)(3) status (not higher education), non-profit without

501(c)(3) status (not higher education), and other (including regional organizations, Local Development Districts [LDDs], and other).

[b] Grants were considered as focused on the non-mutually exclusive "grant purpose" categories of "equipment," "operations," "construction," and "other." For example, the purpose of "Const+Equip" is considered as both a purpose of "construction" and "equipment." Other only includes grants that were not considered equipment, operations, or construction. As such, total counts to do not sum to 96 grants or 100%.

With a portion of health grants closing prior to the emergence of the COVID-19 pandemic in 2020, the evaluation focused on describing broader pandemic-related impacts on the overall reach and delivery of services by grantees regardless of when their health grants closed. Most survey respondents reported that the pandemic had a "moderate" to "major" impact on their organization's ability to serve their communities or beneficiaries (n=37 of 48). Notably, they identified both negative and positive impacts on their abilities to serve. Commonly reported negative impacts centered on difficulty with recruitment, engagement, and/or retention (n=33 of 46) and delays or other difficulty related to construction and/or materials (n=18 of 46). Conversely, commonly reported positive impacts reflected increases in: organizational ability to adapt (n=26 of 46); organizational ability to deliver telehealth or mobile services (n=19 of 46); and community awareness of services/activities offered (n=19 of 46).

In addition to negative and positive impacts, survey respondents noted organizational changes that were made in response to evolving needs or opportunities from the pandemic (Exhibit 30). Commonly reported changes included: increasing the use of remote or virtual organizational operations (n=32 of 47); increasing delivery of telehealth or mobile services (n=21 of 47); and increasing investments in technology/software (n=19 of 47). Additionally, the majority of survey respondents (n=43 of 49) indicated that their organization has "moderate" to "high" capacity to respond to evolving needs or opportunities stemming from the pandemic.

Exhibit 30. Health Grantee Changes in Response to the COVID-19 Pandemic	
Change type	Total (n=47)
Increase in the use of remote or virtual organizational operations	32
Increase in the delivery of telehealth or mobile services	21
Increase in investments in technology or software	19
Increase in the use of data to inform decision-making or service delivery	15
Changes in approaches to recruit, engage, or retain health professionals	11
Changes in organizational budget or funding sources	11
Changes in approaches to recruit, engage, or retain participants/patients/clients	10
Changes in organizational staffing or capacity	10
Changes in the provision or use of technical assistance	7
Changes in approaches to recruit, engage, or retain partners	6
Changes in processes for assessing community needs	4
Changes in priority populations for activities/services	4
Other change(s)	1
Organization did not make any changes in response	3

Evaluation strategy: Web-based survey of grantees

Project Sustainability

- To what extent were project-related activities sustained beyond the period covered by the ARC grant, and for what amount of time? How does this vary across types of grant activities?
- What factors influenced projects' successful sustainability?

The sustainability of health project-related activities, including factors that influenced successful sustainability, was primarily assessed through the web-based survey of grantees, with key findings presented hereafter.

As part of the survey, health grantees reported on the sustainability of project-related activities after grant closure. Importantly, for the purpose of the survey, sustainability was defined as the continuation of any project-related activities for any period of time after grant closure. Project-related activities could be considered sustained even if there were changes in their scope or other characteristics. The majority of survey respondents reported at least some continued implementation of project-related activities after grant closure (n=35 of 51), most of which was at "similar" or "expanded" scopes (Exhibit 31). Most survey respondents indicating at least some continued implementation of project-related activities reported currently implementing those activities at the time of the survey (n=26 of 34). For those not currently implementing any project-related activities, most reported continuing to implement activities for 1-2 years after grant closure (n=7 of 8).

Exhibit 31. Sustainability of Health Project-Related Activities

Sustainability level [a]	Total (n=51)
Yes, continued to implement project-related activities and at a similar scope	21
Yes, continued to implement project-related activities, at expanded scope	11
Yes, continued to implement project-related activities, at a reduced scope	3
No, did not continue to implement any project-related activities	16

Evaluation strategy: Web-based survey of grantees

[a] Grantees responded to the following item: "Your organization's health grant closed in [month year]. Did your organization continue to implement ANY project-related activities after grant closure for ANY period of time?"

With most survey respondents reporting at least some continued implementation of project-related activities after grant closure, variation in the overall sustainability of activities by grant type was minimal. Most "healthcare access" grants (n=19 of 27), for example, reported continued implementation, whether at "similar," "expanded," or "reduced" scopes. Similarly, most "clinical service grants" (n=7 of 10) reported continued implementation at "similar" or "expanded" scopes. Further, most "health promotion/disease prevention" grants (n=6 of 9) reported continued implementation, often at an "expanded" scope. Additionally, variation in

the overall sustainability of activities by grant purpose was limited. Using the non-mutually exclusive categories for purpose noted previously (Exhibit 3), slightly over half (n=7 of 13) of operations grants and half (n=3 of 6) of construction grants reported continued implementation; however, most equipment grants (n=23 of 30) reported continued implementation.

Similar to project implementation, survey respondents identified factors within and outside their organizations that may have influenced successful sustainability of their projects. Factors that may have hindered sustainability were again referred to as challenges, whereas factors that may have helped sustainability were referred to as facilitators. For each factor applicable to their organizations, grantees were asked to characterize the factor as "primarily a challenge," "neither a challenge nor a facilitator," or "primarily a facilitator."

Survey respondents identified multiple facilitators to project sustainability both within and outside their organizations (Exhibit 32). Within their organizations, commonly reported facilitators included organizational mission, vision, or practices (n=27 of 49) and organizational leadership or management (n=25 of 49), while facilitators outside their organizations included ability to identify or engage beneficiaries/clients (n=23 of 49) or partners (n=24 of 49) and the level of community support or buy-in (n=23 of 47).

> *"Once [the hospital] became accredited and recognized, then they were able to bill for that service. If you've got 10 people seen by one diabetes educator… that's $1,000 that's coming directly to the hospital. That speaks to revenue for the hospital, but it also speaks to program sustainability after the actual grant is gone." (Mississippi State Department of Health Case Study, Personnel)*

Several notable trends in reported facilitators to project sustainability were observed by grant type and purpose. Across most grant types, the most commonly reported facilitators to project sustainability within organizations were similar; however, policy and procedures emerged as a key facilitator for "clinical services" grants in particular. Commonly reported facilitators outside of organizations were similar across all grant types. As for grant purpose, construction grants most commonly featured organizational mission, vision, or practices as an internal facilitator, but also reflected a variety of other facilitators, such as policy or procedures and infrastructure. Further, for equipment grants, community support or buy-in emerged as a frequently reported facilitator outside of their organizations.

Exhibit 32. Facilitators of Health Project Sustainability by Domain	
Facilitator Type	
Within Organizations	Total (n=50)
Mission, vision, or practices	27 [a]
Leadership or management	25 [a]
Communication or coordination	20 [b]
Infrastructure	18 [a]
Policy or procedures	18
Staffing	18 [a]
Financial resources	16 [b]
Other factor(s)	3 [c]
Outside Organizations	Total (n=49)
Ability to identify/engage partners	24
Ability to identify/engage beneficiaries/clients	23
Community support or buy-in	23 [d]
Access to health-related data	15 [b]
Secure additional financial resources	14 [b]
Access to technical assistance	14 [b]
Community stigma	4 [b]
Local, state, or federal policy	8 [b]
Local or national economy	5 [e]
COVID-19 pandemic	3

Evaluation strategy: Web-based survey of grantees; [a] of n=49; [b] of n=48; [c] of n=35; [d] of n=47; [e] of n=46

Similar to project implementation, survey respondents less frequently reported challenges to project sustainability relative to facilitators. The most commonly reported challenges within grantee organizations focused on financial resources (n=12 of 48) and staffing (n=10 of 49). Challenges reported outside of grantee organizations primarily included the COVID-19 pandemic (n=18 of 49) and the ability to secure additional financial resources (n=14 of 48). In contrast to facilitators, few notable differences in challenges to project sustainability were observed by grant type and purpose.

> *"We've raised other funding through foundations and also through the State Office of Rural Health, that has been a big proponent of this. It allows us to do the long-term work to build healthy communities." (Center for Rural Health Development Case Study, Personnel)*

Lastly, survey respondents highlighted successes in using various funding mechanisms to support project sustainability. Among those sustaining project-related activities after grant closure, the primary mechanisms that were most frequently reported included: state or local funding sources (n=20 of 35), foundation funding (n=18 of

35), and reimbursement from public or private insurers (n=15 of 35) (Exhibit 33). Identified mechanisms appeared to align to some degree with specific grant types, though small counts limited the ability to draw conclusions.

Exhibit 33. Funding Mechanisms Primarily Used to Sustain Health Project-Related Activities	
	Total (n=35)
Grant or other funding from a state or local source	20
Grant or other funding from a foundation	18
Reimbursement from public or private insurers	15
Revenue	13
Grant or other funding from a federal source other than ARC	13
Funding from donors	5
Funding from partners	4
Grant or other funding from ARC	3
Organization did not use any funding mechanisms	2

Evaluation strategy: Web-based survey of grantees

Conclusions

The Appalachian Regional Commission (ARC) aims to strengthen economic development in Appalachia, with health projects as a critical component of workforce, economic development, and employment supports. Health grants are designed to strengthen the availability, accessibility, and affordability of healthcare services across the region. The East Tennessee State University (ETSU) Center for Rural Health and Research evaluated a cohort of 96 health grants on behalf of ARC, with a focus on understanding grant performance, grantee implementation experiences, and grantee practices.

While health grants were collectively concentrated on advancing health and healthcare services across Appalachia, variation in specific grant types, goals, and approaches was documented. Multiple grant types were represented, with most grants designated as "healthcare access," "health promotion/disease prevention," or "clinical services." A variety of project goals were described through the survey, such as improving health-related services, improving health-related infrastructure, and strengthening the health-related workforce. Consistent with such goals, examples of approaches commonly used to accomplish project goals included: purchasing equipment, technology, or supplies; establishing, improving, or expanding services; and constructing or renovating facilities. Importantly, the variation observed across grants may highlight a strength of health grants. They may offer flexibility that ultimately supports grantees in implementing projects aligned with the unique needs, and perhaps assets, of their communities.

Grantees leveraged health grants to serve 241 counties, representing 57.0% of Appalachian counties. Key characteristics of these counties, including in comparison to counties without funding, suggested that grantees focused on counties characterized by significant health- and economic-related challenges. Specific to healthcare access, over 90% of counties with funding were designated as whole-county primary care Health Professional Shortage Areas (HPSAs), 94.2% of counties as whole-county mental health HPSAs, and 85.9% of counties as whole-county dental health HPSAs. Similarly, counties with funding tended to experience greater economic disadvantage relative to those without funding, with nearly one-third of counties served classified as economically distressed. While projects were designed to serve various beneficiaries, specific populations identified as intended beneficiaries through the survey further reflected consideration of populations who may experience the greatest needs, such as people living in rural communities, people with lower incomes, and people who are underserved by clinical services.

Health grants addressed more than 20 ARC-defined output and outcome performance measures, with projects generally achieving, and often exceeding, a majority of the performance goals for those measures. While not exhaustive of all measures, grantees in total

reported serving over 515,000 patients, over 13,500 participants, over 8,000 students, over 3,000 workers or trainees, nearly 370 organizations, and nearly 150 communities, in addition to creating more than 650 jobs. These achievements were complemented by grantees describing multiple contributions to both improved health and economic development through the survey. Taken together, these findings support the success of grantees and their projects in advancing health and economic outcomes across Appalachia.

With the evaluation limited to health grants that closed between fiscal years 2017 and 2021, grantees reported on key aspects of project sustainability through the survey. Most grantees reported at least some continued implementation of project-related activities after grant closure, with many further indicating that they were currently implementing activities at the time of the survey. Multiple facilitators of project sustainability, along with funding mechanisms used to sustain project-related activities, were likewise reported. Ultimately, these findings underscore the potential for investments in health projects to contribute to sustained benefits on health and economic development across Appalachia.

Recommendations

This section presents a total of 13 recommendations aimed at strengthening the administration, implementation, sustainability, and evaluation of health projects.

Strengthening the Administration of Health Projects

1. Continue to offer opportunities for health grant applicants and grantees to engage with ARC personnel for technical assistance.

   As part of the survey, health grantees identified resources that were helpful during the application process, and factors specific to grant administration that facilitated the implementation of their projects. *Findings underscored the value of grantee engagement with ARC staff and state program managers.* For example, communication with staff from ARC and communication with state program managers were among the resources most often cited as helpful during the application process. *ARC should continue to offer opportunities for organizations to engage with ARC staff and state program managers when preparing their applications and implementing their projects.* Additionally, this evaluation included a focus on describing the use of promising and/or innovative practices as part of projects. Given that guidance or criteria on what constituted innovative or promising practices was not outlined, health grantees self-reported any practices that they considered promising and/or innovative through the survey and case studies. While insightful, it was often unclear how grantees determined whether their practices were innovative or promising. *ARC could consider expanding technical assistance opportunities to include support for identifying and incorporating "innovative" or "promising" practices in health grant applications when relevant.* This could include guidance or criteria that help applicants operationalize what constitutes innovative or promising practices within the context of health grants. The Rural Community Health Toolkit from the Rural Health Information Hub (RHIhub), for example, offers a potential framework for differentiating among emerging, promising, effective, and evidence-based programs.[6] They could likewise be encouraged to describe how a given practice was selected and determined to be innovative or promising as part of their applications. While all proposed projects may not include innovative or promising practices, providing technical assistance may help ensure applicants are appropriately characterizing any practices as such when they are included.

2. Promote awareness among health grantees of resources available to support them in securing match funds.

   Health grantees are expected to seek, secure, and document match funds for their projects, with findings suggesting that *some grantees encountered challenges when satisfying their match requirements*. ARC's website offers a variety of resources to support grantees in

successfully managing match funds, including highlighting ARC staff and state program managers as potential contacts. While these resources may not have been available at the time this cohort of grantees was designing and implementing their projects, *ARC could continue to promote awareness among grantees of the resources available to support them in navigating and satisfying their match requirements.*

3. Expand efforts to verify or update organizational contact information for health grants after grant closure.

   This evaluation included a cohort of health grants that closed between fiscal years 2017 and 2021. The original contact person (and/or their contact information) listed in ARC's grants management system was frequently no longer valid. Although multiple strategies were used, it also remained challenging to identify and engage a current contact person for some grants. At the conclusion of survey administration, nearly 70% of the original contact persons (and/or their contact information) had been deemed invalid and/or updated by the evaluation team as part of efforts to maximize participation. *ARC could consider expanding efforts to verify or update organizational contact information for grants where feasible.* ARC's grant documentation allows for the identification of multiple contact types for each grant (e.g., primary contact, alternate contact, and authorized representative). *ARC could encourage grantees to identify a unique person per contact type whenever possible, thereby increasing the number of available contact persons for future outreach.* Further, ARC could explore the feasibility of implementing standardized procedures to request that grantees review and, when possible, update their contact information at regular timepoints, particularly after grant closure (e.g., annually). Mechanisms to expedite such procedures (e.g., automated, web-based surveys) may exist, helping to reduce the administrative burden on ARC staff. Notably, ARC is transitioning to a new grants management system. This system is expected to have greater capacity for automated procedures, including the potential for procedures specific to updating contact information after grant closure.

4. Continue to offer opportunities to increase the visibility of health grantees and their projects.

   As part of each case study, a brief highlighting the featured health grantee and their project was developed. Each featured grantee received a standalone brief for their own use, with grantees often expressing interest in disseminating the brief. *ARC should continue to provide opportunities to increase the visibility of grantees and their projects, including utilizing platforms such as ARC's website and In The Region newsletter*. This visibility may provide valuable opportunities for grantees to share their stories and successes.

Strengthening the Implementation and Sustainability of Health Projects

5. Continue to encourage health grantees to use health-related data as part of aligning projects with community needs.

   Findings from the survey and case studies indicated that many health grantees used data to help prioritize health-related needs and target populations to address through their projects. Consistent with current application guidance, *ARC could continue to encourage grantees to use health-related data to help ensure that projects align with current community health needs.* Specific to data on geographic designations, survey findings suggested that rurality and economic status (e.g., distressed) were commonly used when prioritizing populations. Although findings from the county-level analysis of secondary data suggested that most Appalachian counties with health grant funding were designated as Health Professional Shortage Areas (HPSAs), a sizable number of grantees did not report considering HPSA designations through the survey. *ARC could encourage grantees to consider additional health-specific geographic designations when documenting community health needs.*

6. Expand resources to support health grantees in overcoming transportation challenges to beneficiary engagement.

   Findings from the survey and case studies documented challenges that health grantees encountered when serving project beneficiaries, with *transportation being a primary challenge*. Transportation challenges may be particularly acute when serving populations with the greatest health needs. *ARC could consider expanding resources to support grantees in implementing strategies to overcome transportation challenges among beneficiaries.* These resources could include ARC sharing best practices, toolkits, and other materials with grantees, along with fostering opportunities for peer learning and resource sharing among grantees. RHIhub, for example, may offer relevant resources, such as the Rural Transportation Toolkit[7] and content specific to transportation to support rural healthcare.[8] Further, to promote proactive consideration of strategies, ARC could encourage grantees to describe anticipated challenges to beneficiary engagement and identify potential solutions for overcoming those as part of the application process.

7. Consider leveraging existing ARC events as a platform for enhancing community and partner engagement among health grantees.

   As part of the current application guidance, health grant applications are expected to describe "collaborative partnerships." Findings from the survey and case studies likewise highlighted the *importance of partner and broader community engagement to the implementation and success of health projects*. While grantees may often be well-

positioned to engage partners and the broader community, opportunities may exist to expand or enhance the strategies that are used for such engagement. *ARC could consider incorporating training or other resources on effective strategies for partner and community engagement into existing ARC events for applicants and/or grantees.*

8. Consider expanding strategies to support health grantees in sustaining project-related activities when preparing applications and implementing projects.

   Findings from the survey indicated that *most grantees continued to implement project-related activities after grant closure*, whether at a reduced, similar, or expanded scope. Despite overall success, securing additional financial support remained a commonly identified challenge to sustainability. Consistent with current application guidance, *ARC could continue to encourage grantees to account for sustainability when proposing projects.* Given the overall variation in project goals and approaches (e.g., renovating a facility versus expanding services), this could include operationally defining sustainability for their projects, providing context for understanding the potential utility of any proposed sustainability plans. *ARC could also explore opportunities to expand technical assistance or other strategies to support grantees in refining or implementing sustainability plans as they near grant closure.* Information on potential mechanisms for securing financial support may be particularly useful.

Strengthening the Evaluation of Health Projects

9. Explore the potential feasibility and utility of applying a phased evaluation approach for health grants.

   As noted previously, this evaluation included a cohort of health grants that closed between fiscal years 2017 and 2021. While the survey achieved an overall response rate of approximately 60% with extensive recruitment strategies, some grantees could not be reached, declined to participate, or expressed hesitancy to complete the survey. These challenges could in part be a function of the amount of time that has passed since grant closure and associated factors (e.g., staff turnover or projects evolving over time). *ARC could explore the potential feasibility and utility of applying a phased evaluation approach for health grants, particularly for evaluation questions that require or benefit from primary data collection involving grantees.* ARC could review the evaluation questions that guided this work, considering at what time points relative to the project period they should be addressed to help maximize data completeness and quality. For example, evaluation domains such as project implementation may be more suited to data collection at grant closure rather than several years after grant closure. *ARC could consider integrating a brief, web-based survey or exit interview into grant closeout activities as a mechanism for*

gathering data on relevant domains, such as implementation experiences. It may be feasible to identify a set of core questions with response options that can be applicable or adaptable across grant programs, helping to maximize the utility of such efforts. Similar to other grant portfolio data provided by ARC, such data could be incorporated into future evaluations that are completed after grant closure where appropriate.

10. Explore opportunities to enhance the quality of health grant data available in ARC's grant reporting system.

    Grant portfolio data available through ARC were analyzed using both quantitative and qualitative techniques, with the *analyses highlighting potential opportunities to enhance the quality of available data*. *ARC could consider reviewing any structured fields with pre-determined options.* Where appropriate, options could be streamlined, adjusted to be mutually exclusive or meaningfully different, and/or operationally defined. For example, the data included fields for both grant type and subtype, though distinctions within and across fields were not always clear. Similarly, *ARC could consider reviewing any unstructured fields intended for narrative responses developed by ARC project coordinators.* Given variation across grants in the availability and content of such fields, guidance could be developed to support consistent and comprehensive documentation where possible. For example, the data included fields for various project-related notes (e.g., notes on performance measures), but those were found to be limited at times. Actions taken to enhance the quality of data in ARC's grant reporting system could ultimately strengthen their utility for future evaluations.

11. Consider expanding strategies to document the potential economic impacts of health projects.

    While ARC-defined performance measures provide valuable insights into the economic impacts of health projects, findings from the survey and case studies suggested that *projects can generate economic impacts that may not be fully captured by these performance measures. ARC could consider expanding strategies to document any anticipated or achieved economic impacts of health projects, particularly at grant closure.* Where possible, standardizing the use of any strategies across projects could support efforts to identify and aggregate findings on potential economic impacts. For example, this could involve incorporating a structured list of potential economic impacts from which grantees or ARC project coordinators can select, a narrative option with clear guidance for grantees or ARC project coordinators to describe potential economic impacts, or a combination of both. Any information gathered through such strategies could ultimately complement grantee reporting on ARC-defined performance measures.

12. Consider incorporating technical assistance or other strategies to enhance the ability of health grantees to collect and report on ARC-defined performance measures, particularly after grant closure.

    ARC generally expects that health projects will achieve any projected goals for their ARC-defined performance measures by three years after grant closure. This evaluation combined grant portfolio data and survey data to examine the achievement of performance measures after grant closure, with any grantees that did not have "post-closeout" performance measure data available through ARC asked to report on the status of continued data collection for their performance measures through the survey. Survey findings suggested that *while many health grantees continued to implement project-related activities after grant closure, grantees often did not continue to collect performance measure data.* This may contribute to underestimating the outputs and outcomes achieved by projects. *ARC could consider incorporating technical assistance or other strategies to enhance the ability of grantees to collect and report on ARC-defined performance measures, particularly after grant closure.* Such strategies could support grantees in designing and implementing data collection procedures during the project period that can be successfully sustained after grant closure.

13. Account for potential differences in skills and abilities across health grantees when establishing reporting or evaluation expectations.

    This evaluation incorporated a survey intended for all health grantees and site visits intended for a subset of those grantees. While both components were successfully completed, experiences with recruitment indirectly highlighted the potential for considerable variation across grantees in their overall ability to participate in evaluation activities. *ARC should continue to account for potential differences in skills and abilities across grantees when establishing reporting or evaluation expectations.* This may be particularly relevant to activities that are completed after grant closure.

Appendices

- Appendix A. Evaluation Strategies and Limitations
- Appendix B. Data Sources, Indicators, and Descriptions for County-Level Analysis of Secondary Data
- Appendix C. Comparisons for County-Level Analysis of Secondary Data
- Appendix D. Response Rate for Web-Based Survey of Grantees
- Appendix E. Example Data Collection Instrument

Appendix A. Evaluation Strategies and Limitations

The methods used to evaluate the health grants on behalf of the Appalachian Regional Commission (ARC) are summarized below, with a focus on those that contributed to key findings and/or recommendations as described in this report. The methods, and their primary limitations, are organized by evaluation strategy. The Institutional Review Board at East Tennessee State University (ETSU) deemed that the evaluation did not constitute human subjects research and therefore was not subject to approval processes.

Health Grant Identification, Classification, and Eligibility across Strategies

A total of 96 health grants closed between fiscal years 2017 and 2021 and were considered eligible for inclusion in the evaluation. Various grant classifications were represented, including initial, final, revision, and continuation grants. In some instances, the evaluation did not include all related grants. For example, the evaluation may have included a continuation grant, but the initial grant that preceded may not have been included. Only grants within the eligible evaluation period as defined by ARC were considered. In consultation with ARC, plans were developed to account for any variation in grant types by evaluation strategy as appropriate. While revision grants were generally combined with initial grants, continuation grants were often handled differently across strategies. Specific to the grant portfolio data analysis, each continuation grant was treated as a separate grant. As for the administration of the web-based survey, grantees received one or more survey instruments depending on the number and type of grants that they received during the eligible evaluation period. For example, grantees with both initial and continuation grants received a single instrument that addressed all of those grants. When instruments addressed multiple, related grants, most survey items were likewise designed to refer to those grants collectively as a "project." Specific to survey items on ARC-defined performance measures,[5] however, grantees were asked to report any updated performance measure data separately for each initial and/or continuation grant.

Potential Conflict of Interest Management

The evaluation included a health grant that was awarded to ETSU. In consultation with ARC, steps were proactively taken to manage any potential conflict of interest. The grant contact person was not involved in the evaluation. Any communication regarding the evaluation with the grant contact person likewise adhered to the same protocols as for contact persons of other included grants.

County-Level Analysis of Secondary Data

Purpose. The purpose of the county-level analysis of secondary data was to: 1) describe characteristics of counties with health grant funding in Appalachia; 2) compare characteristics

of counties with and without health grant funding within Appalachia; and 3) compare characteristics of all Appalachian counties and all U.S. counties. The county-level analysis was complemented by static maps designed to visualize select characteristics.

Data sources. A set of county-level characteristics was identified by the evaluation team and ARC staff. Characteristics were categorized into the following areas: geographic; demographic; social determinants of health; mortality; morbidity; child health; behavioral health; and healthcare access. Grant portfolio data provided by ARC was used to distinguish between counties that did or did not have health grant funding within Appalachia. A master data file containing all county-level indicators for all counties in the U.S. and Appalachia was developed by pulling, cleaning, and merging secondary data for each indicator. Details on the secondary data sources, indicators, and other information are presented in Appendix B.

Data analyses. Descriptive statistics were used to describe each indicator for counties with health grant funding, counties without health grant funding, all Appalachian counties, and all U.S. counties. Bivariate analyses were subsequently used to identify potential differences in characteristics between counties with and without health grant funding and between Appalachian and all U.S. counties. Depending on the type of variable, Chi-square tests or t-tests were applied. Notably, health grants designed to benefit all counties within Appalachia or all Appalachian counties within a given state were excluded from the descriptive analyses. All statistical analyses were conducted using Stata 18.[9] As a complement to the descriptive analyses, county-level static maps were developed using graduated colors for a selection of indicators, categorized by quantiles, and unique colors for categorical variables based on the values of interest. All visualizations were created using ArcGIS Pro 3.3.[10]

Limitations. Some limitations should be considered when interpreting the results of the county-level analysis of secondary data. First, some mortality data were suppressed or considered unreliable. State averages were substituted for specific county values where needed, which could compromise data quality. Second, the master dataset spans from 2017 to 2023. There is variability in the timeframe across variables and not all datasets align with the years that health grants were awarded or implemented. Third, this analysis was both descriptive and cross-sectional, limiting the conclusions that can be drawn. Fourth, descriptive analyses do not consider the scale and intensity of health grants in a given county, which could have implications for projected and realized impacts. Likewise, they only consider the health grants included in the evaluation.

Grant Portfolio Data Analysis

Purpose. The purpose of the grant portfolio data analysis was to describe the characteristics of health grantee organizations and projects.

Data Sources. Grant portfolio data encompassed various data sources available through ARC. A primary source was an Excel file dataset that included quantitative and qualitative data on the characteristics of health grantees and their projects.

Data Analyses. A combination of quantitative and qualitative techniques were applied as appropriate. For the quantitative data, descriptive analyses of characteristics of grantees and their projects were conducted. Examples of characteristics included grantee type, grant type, purpose, and strategic plan goals and objectives. Quantitative analyses were conducted using Excel and Stata Version 18.[9] As for qualitative data, a data visualization technique was used to generate a preliminary, high-level of understanding of the projects, followed by a multi-step coding process using qualitative data analysis software (NVivo[11]) to deepen that understanding and support the identification of key themes.

Limitations. Some limitations should be considered when interpreting the results of the grant portfolio data analysis. This analysis only considers the health grants included in the evaluation (n=96) and may not reflect trends in health grants awarded during other time periods. Specific to the quantitative analyses, analyses are descriptive in nature and cannot be used to infer causality. Small numbers limit the ability to conduct robust statistical analyses and results drawing on few observations should be interpreted with caution. Additionally, there were possible data entry errors in the grant portfolio data, though efforts were made to clarify or confirm entries when possible. As for the qualitative analyses, the narrative fields used were drafted by ARC staff and may differ from the perspectives of health grantees. While all grants were included in the analysis, some health grants were missing one or more narrative fields. Further, there was some variation in the structure and amount of detail provided for narrative fields across grants.

Web-Based Survey of Grantees

Purpose. The purpose of the web-based survey was to collect data from health grantees on grant performance, project characteristics, project implementation and sustainability (including factors helping or hindering those processes), and broader project health and economic impacts.

Data collection. The evaluation team, in collaboration with ARC staff, designed a web-based, cross-sectional survey instrument based on the evaluation questions. It incorporated both structured and unstructured survey items. Where appropriate, items varied based on grantee or grant characteristics. It was also structured to account for specific features of the grant portfolio, including the presence of health grantees with more than one grant. Hence, while the evaluation includes 96 individual grants, a total of 88 unique survey instruments were designed and administered to grantees.

The survey was electronically administered through REDCap (Research Electronic Data Capture)[12-13] tools maintained at ETSU using a staggered recruitment strategy. Specifically, it was administered in a series of waves based on the availability of current grantee contact information. The survey was open to grantees for approximately eight weeks per wave, with the first wave launching in June 2024 and the final wave closing in September 2024. Due to the time that had passed since grant closure and other factors, the primary contact person and/or the contact information for that person was no longer valid for many grantees. A multi-pronged approach was applied to identify current contact information for grantees whenever possible. It involved ARCnet (ARC's grants management database) and web searches, telephone outreach, and email outreach, both by ARC and the evaluation team. For each grantee with current contact information, recruitment to participate in the survey generally consisted of an initial email notification sent by ARC and an email invitation sent by the evaluation team, followed by a series of email and telephone reminders until a survey response was received or the associated wave was closed. Grantees also received access to a brief, web-based document that provided an overview of the survey and how responses would be used. Participation in the survey was voluntary. When considering fully and partially complete responses, an overall survey response rate of 60.2% was obtained.

Data analyses. A combination of quantitative and qualitative techniques were applied as appropriate. First, descriptive statistics of survey response rates by various health grant and grantee characteristics were conducted. All 88 tailored versions of the survey instrument were considered, with surveys categorized as complete (fully or partially) or incomplete. Where appropriate, select indicators from the grant portfolio data were merged with survey data to support analyses. Second, structured survey items were analyzed for completed and partial survey responses. Descriptive statistics for individual item responses were conducted utilizing SAS software, Version 9.4 of the SAS System for Windows.[14] For many survey items, a "select all that apply" option was available, yielding counts that may exceed the total number of responses for a given item. The number of responses to an individual survey item are noted in the findings where appropriate. In consultation with ARC staff, select survey items were also identified for descriptive bivariate analyses. Where appropriate, select indicators from the grant portfolio data were merged with survey data to support analyses. Third, unstructured survey items with a sufficient number of usable responses were analyzed using a multi-step coding process in Excel. Survey responses were inductively coded by one team member in Excel, with the coding further refined through a verification review by a second member. Thematic summaries of responses were generated.

Limitations. Some limitations should be considered when interpreting findings from the web-based survey of grantees. The evaluation focuses on health grants that closed between fiscal years 2017 and 2021. While extensive recruitment strategies were implemented, it was

challenging to identify or engage current contact persons for some grants. A portion of grantees could not be reached, declined to complete the survey, or expressed hesitancy to complete the survey. These recruitment challenges could in part be a function of the amount of time that has passed since grant closure and related factors. Notably, current contact persons were not always involved in the original grant application and/or implementation processes, impacting their ability to respond. Additionally, this cross-sectional survey was completed by grantees, introducing the potential for recall and other forms of bias. Further, cell sizes for some survey items or response options were small, limiting the ability to report select results without identifying grantees and to conduct statistical comparisons.

Analysis of ARC-Defined Performance Measures

Purpose. Building on the grant portfolio and survey data, the purpose of the analysis of ARC-defined performance measures[5] was to describe the performance of grantees and their projects at multiple timepoints.

Data Sources. A combination of grant portfolio data and survey data on ARC-defined performance measures were used. Grantees selected and developed goals towards select performance measures at the beginning of the grant period (referred to as "projected" measures). They reported on progress towards these performance goals at the closure of the grant (referred to as "closeout" measures) and potentially at a later date if applicable, whether through a follow-up contact by ARC or through the web-based survey (referred to collectively as "post-closeout" measures). Specifically, at the time of the survey, grantees without post-closeout performance measures from ARC were asked to report on the status of continued data collection for their performance measure(s). Projected and closeout performance measure data were analyzed for all 96 health grants, regardless of the availability of post-closeout measures. Post-closeout performance measure data were only included when reported by the grantee through follow-up contact by ARC or through survey response.

Data Analyses. Descriptive statistics for each ARC-defined performance measure were calculated, including the number of grants that worked towards a given measure; the total projected amount for that measure among grantees; the total amount and percent achieved at closeout among grantees; and the total amount and percent achieved at most recent data reporting among grantees, including post-closeout for grants and performance measures for which those data were available. Additionally, descriptive statistics were used to analyze the proportions of health grants that did and did not achieve all projected performance measures. This included using a dichotomous indicator of grant achievement of all performance measures based on the most recent data available for each performance measure for each grant (i.e., at closeout or post-closeout). Importantly, post-closeout measures were not available for all grantees for various reasons, such as grantees not continuing to collect those data after grant

closure, grantees not having a current contact person for the survey, and grantees not participating in the survey or follow-up contact by ARC. Results may underestimate the achievement of projected performance measures. Analyses were conducted using Excel and Stata Version 18.[9]

Limitations. Some limitations should be considered when interpreting the results of the analysis of ARC-defined performance measures. This descriptive analysis used grant portfolio data and survey data. Limitations inherent in the broader analyses of these data thus generally apply. Additionally, ARC-defined performance measures at post-closeout were collected using two different approaches at varying time points. Specific to the web-based survey, it was challenging to identify or engage current contact persons for all grants despite extensive efforts. In many instances, the expectation is that projects will achieve projected performance measures by three years after closeout. This time frame is not consistently captured for all grantees. Lastly, there were possible errors in both the grant portfolio and survey data; however, efforts were made to clarify or confirm data entries with ARC and grantees when possible.

Case Studies with Select Grantees

Purpose. The purpose of the case studies was to highlight a selection of health grantees and their projects, with a focus on the use of promising practice(s) and/or innovative approach(es) for addressing challenges or advancing health for all residents. In-person site visits with selected grantees underpinned the case studies.

Grantee selection. Grantees expressed interest in being featured in a case study brief and participating in a site visit through the web-based survey of grantees that was administered as part of the overall evaluation. Multiple criteria guided the selection of interested grantees, with a goal of including an array of projects implemented across Appalachia. As part of this process, two team members independently evaluated interested grantees on relevant project and service area characteristics. Projects that were designed to serve rural, economically distressed, or otherwise underserved communities (e.g., Health Professional Shortage Area [HPSA] designation) were of particular interest when feasible. In collaboration with ARC, interested grantees were purposively selected and invited via email to participate. As part of the invitation, grantees received an overview document outlining the purpose, main activities, products, and next steps for site visits. Recruitment continued until site visits were scheduled with a total of 10 grantees. Grantee participation was voluntary.

Data sources. Case studies leveraged multiple data sources, with the in-person site visits being a primary source. Grantees participated in a virtual, pre-site visit meeting with team members to help develop an agenda for the site visit. Two team members traveled to each grantee to

complete the site visit. While each site visit was tailored to grantee preferences and their projects as appropriate, interviews and/or focus groups with key audiences to learn more about projects were a priority and conducted across all 10 site visits. The discussions primarily involved grant-related personnel, partner organizations, and/or beneficiaries over the age of 18 (e.g., participants or patients). The discussions were voluntary and conducted in-person or virtually during the site visit using semi-structured guides, though some were conducted virtually after the site visit when needed. They were audio-recorded with permission when possible, and field notes were taken for additional context. Across 10 site visits, team members completed over 40 discussions and engaged with over 110 personnel, partners, beneficiaries, and other individuals. The discussions were supplemented by site tours and/or document reviews where applicable.

In addition to site visits, case studies drew from information on grantees and their projects available in other data sources used in the evaluation. These included grant portfolio data, data from the web-based survey of grantees, and publicly available, secondary data on the characteristics of the Appalachian county(ies) served by projects.

Data analyses. All data associated with each case study were reviewed, combined, and analyzed as appropriate. Specific to each site visit, interviews and/or focus groups were transcribed for qualitative analysis. In some instances, discussions were not recorded, in which case, field notes were used for analysis purposes. A rapid coding approach using Excel was applied to code and synthesize findings by site visit,[15-17] with discussions for three site visits double-coded to promote consistency in coding across team members.

Brief development. With input from ARC, a template was crafted to guide each case study brief. It offered a general format, while allowing flexibility to accommodate the unique elements of each grantee and their project. A multi-step process was used to draft and refine each brief, integrating information from various data sources as applicable. As part of this process, each brief was initially reviewed by team members who completed the site visit. Each brief was reviewed by the respective grantee and then ARC, with requested revisions made to ensure accuracy and clarity. Grantees approved their brief for release to ARC and as a public-facing document.

Limitations. Some limitations should be considered when interpreting findings from the case studies. The case studies reflect a purposeful selection of health grantees included in the evaluation. Their projects and experiences may not reflect those of other health grantees. Grantees that did not respond to the web-based survey and express interest in participating would likewise not have been considered. Additionally, the case studies leveraged self-reported data, including discussions with individuals who were selected by grantees for potential participation. This introduces possible bias. With the evaluation focused on health grants that

closed between fiscal years 2017 and 2021, factors such as staff turnover at times limited the perspectives that could be represented as well. Further, some site visit elements, such as specific interviews or focus groups, were cancelled and could not be rescheduled.

Appendix B. Data Sources, Indicators, and Descriptions for County-Level Analysis of Secondary Data

A set of indicators were identified in collaboration with ARC staff to describe the characteristics of counties with and without health grant funding in Appalachia. Characteristics were categorized into the following areas: geographic; demographic; social determinants of health; mortality; morbidity; child health; behavioral health; and healthcare access. Grant portfolio data provided by ARC was used to distinguish between counties that did or did not have health grant funding within Appalachia. A master data file containing all county-level indicators for all counties in the U.S. and Appalachia was developed by pulling, cleaning, and merging secondary data for each indicator. Details on the secondary data sources, indicators, and other information are presented in Exhibit 34.

Exhibit 34. Data and Indicator Descriptions for County-Level Analysis

Data Source and Year	Indicator	Description/Categories
American Community Survey (ACS) 5-year estimates, 2017-2021[18]	Education	• % Population 25 years and over who completed high school • % Population 25 years and over who completed college (Bachelor's degree or graduate or professional degree) • % Children age 3 and 4 that are enrolled in school
	Labor force participation rate	Among the civilian non-institutionalized population aged 25 to 54, the % that is working or actively looking for work
	No health insurance coverage	% People who have no health insurance coverage, public or private
	Median household income	Median household income in the past 12 months (in 2018 inflation-adjusted dollars)
	Poverty rate	Among the population for whom poverty status is determined, the % of the population that has an income in the past 12 months below the poverty level
	Disability status	% Civilian non-institutionalized population ages 18-64 with disability
	Households with cash assistance and SNAP	% Households with cash assistance, food stamps/SNAP
	Households with broadband access	% Households with broadband (25 Mbps download, 3 Mbps upload)
	Households with a vehicle	% Households with access to at least 1 vehicle per household
	Households with severe housing cost burden	% Households that spend 50% or more of their household income on housing

	Total population	Population density per sq mile
	Sex	• % Female • % Male
	Age	• % Population <15 • % Population 15-64 • % Population 64+
	Race and ethnicity	• % White non-Hispanic • % Black non-Hispanic • % Hispanic or Latino • % Asian non-Hispanic • % Native Hawaiian/Pacific Islander non-Hispanic • % American Indian/Alaska Native non-Hispanic
	Birth rate	% Women between the ages of 15-50 who gave birth in the past 12 months
Centers for Disease Control and Prevention (CDC) WONDER, 2018-2021[19]	Heart disease mortality	Crude mortality rate per 100,000 population; 91 US counties had suppressed or unreliable data and the state average was used
	Cancer mortality	Crude mortality rate per 100,000 population; 111 US counties had suppressed or unreliable data and the state average was used
	Stroke mortality	Crude mortality rate per 100,000 population; 596 US counties had suppressed or unreliable data and the state average was used
	Respiratory disease mortality	Crude mortality rate per 100,000 population; 483 US counties had suppressed or unreliable data and the state average was used
	Alzheimer's disease mortality	Crude mortality rate per 100,000 population; 815 US counties had suppressed or unreliable data and the state average was used
	Infant death rate	Crude mortality rate per 1,000 live births; 1889 US counties had suppressed or unreliable data and the state average was used
	Drug overdose mortality	Crude mortality rate per 100,000 population; 1149 US counties had suppressed or unreliable data and the state average was used. Underlying cause-of-death codes: X40-X44, X60-X64, X85, and Y10-Y14

	Opioid overdose mortality per 100,000	Crude mortality rate per 100,000 population; 1515 US counties had suppressed or unreliable data and the state average was used. Underlying cause-of-death codes: X40-X44, X60-X64, X85, and Y10-Y14. Multiple cause-of-death codes: T40.0, T40.1, T40.2, T40.3, T40.4, T40.6
	All-cause mortality per 100,000	Crude mortality rate per 100,000 population
	Suicide mortality per 100,000	Crude mortality rate per 100,000 population; 1578 US counties had suppressed or unreliable data and the state average was used
	Poisoning mortality per 100,000	Crude mortality rate per 100,000 population; 972 US counties had suppressed or unreliable data and the state average was used. Underlying cause-of-death codes: X40-X49, X60-X85, Y10-Y19
U.S. Department of Agriculture (USDA) Economic Research Service (ERS)[20]	Persistent poverty	Poverty rate was greater than or equal to 20% in 1990, 2000, 2007–11, and 2017–21
	Urban Influence Codes	Twelve urban-rural county classifications were condensed into five categories consistent with ARC's scheme: 1. Large Metro: Counties in large metropolitan areas with populations of 1 million or more (USDA ERS code 1). 2. Small Metro: Counties in metropolitan areas with populations less than 1 million (USDA ERS code 2). 3. Nonmetro, Adjacent to Large Metro: Micropolitan or noncore counties adjacent to a large metro (USDA ERS codes 3–4). 4. Nonmetro, Adjacent to Small Metro: Micropolitan or noncore counties adjacent to a small metro (USDA ERS codes 5–7). 5. Rural: Nonmetro counties not adjacent to a metro area (USDA ERS codes 8–12).

	Primary industry dependency	• Farming - Farm-dependent county indicator. 0=no 1=yes. • Mining - Mining-dependent county indicator. 0=no 1=yes. • Manufacturing - Manufacturing-dependent county indicator. 0=no 1=yes. • Federal/state government - Federal/state government-dependent county indicator. 0=no 1=yes. • Recreation - Recreation county indicator 0=no 1=yes. • Nonspecialized - Nonspecialized indicator 0=no 1=yes.
CDC COVID Data Tracker[21]	COVID mortality rate per 100,000	COVID-19 mortality rate for deaths since January 2020; 56 US counties had suppressed or unreliable data and the state average was used as of May 10, 2023
CDC, 2019[22]	Opioid dispensing rate	Per 100 persons; 86 US counties had suppressed or unreliable data and the state average was used
Appalachian Regional Commission (ARC), 2024[4,23]	Economic distress status	• Distressed • At-Risk • Transitional • Competitive • Attainment
	Appalachian subregion	Contiguous regions of relatively similar characteristics within Appalachia: Central, North Central, Northern, South Central, Southern
American Board of Pediatrics, 2023[24]	General pediatricians	General pediatricians per 100,000 children
Area Health Resource File, 2021[25]	Hospitals with telehealth consultation office visits	Hospitals with telehealth consultation office visits per 100,000 population
	Hospital beds	Hospital beds per 100,000 population
County Health Rankings[26]	Adults who are physically inactive	% Adults who are physically inactive
	Poor mental health days	Average poor mental health days within the past 30 days
	HIV cases	Per 100,000 population; 752 US counties had suppressed or unreliable data and the state average was used
	Adults with diabetes	% Population with diabetes
	Obese adults	% Population; BMI greater than or equal to 30

	Primary care physicians	Primary care physicians per 100,000 population
	Mental health providers	Mental health providers per 100,000 population
	Dentists	Dentists per 100,000 population
	Low birth weight	Low birth weight % of live births
	Frequent mental distress	% Population have frequent mental distress
	Excessive drinking	% Population have excessive drinking behaviors
Health Resources & Services Administration, 2024[25]	Primary care	Primary Care Health Professional Shortage Areas
	Dental health	Dental Health Health Professional Shortage Areas
	Mental health	Mental Health Health Professional Shortage Areas

Appendix C. Comparisons for County-Level Analysis of Secondary Data

Key characteristics of all Appalachian counties, including comparisons between those with and without health grant funding, are detailed in Exhibits 35-43. Additionally, key characteristics of all U.S. counties for comparison are detailed in Exhibits 36-43. Descriptive statistics (i.e., mean [standard deviation (SD)] or number [percentage]) were used to describe each indicator for counties with health grant funding, counties without health grant funding, all Appalachian counties, and all U.S. counties. Bivariate analyses were subsequently used to identify potential differences in the characteristics between counties with and without health grant funding and between Appalachian and all U.S. counties. Depending on the type of variable (e.g., categorical or continuous), Chi-square tests or t-tests were applied. Table cells generally represent either the mean (SD) or number (percentage). Those populated with the latter are denoted by a percentage sign (%). Characteristics that are significantly different between counties with and without health grant funding are denoted by one of the following: [a] ($p<0.05$); [b] ($p<0.01$); or [c] ($p<0.001$). Likewise, significant differences between Appalachian counties and all U.S. counties are denoted by one of the following: [1] ($p<0.05$); [2] ($p<0.01$); or [3] ($p<0.001$).

Exhibit 35. Comparison of Geographic Indicators for Appalachian Counties with and without ARC Health Grant Funding

	Counties with ARC funding (N=241)	Counties without ARC funding (N=182)	All Appalachian counties (N=423)
Appalachian subregion [c]			
Central	67 (27.8%)	15 (8.2%)	82 (19.4%)
North Central	41 (17.0%)	22 (12.1%)	63 (14.9%)
Northern	31 (12.9%)	55 (30.2%)	86 (20.3%)
South Central	25 (10.4%)	62 (34.1%)	87 (20.6%)
Southern	77 (32.0%)	28 (15.4%)	105 (24.8%)
Rurality (ARC Categories from Urban Influence Codes) [c, i]			
Large Metro	13 (5.4%)	24 (13.2%)	37 (8.7%)
Small metro	54 (22.4%)	63 (34.6%)	117 (27.7%)
Nonmetro, adjacent to large metro	24 (10.0%)	21 (11.5%)	45 (10.6%)
Nonmetro, adjacent to small metro	70 (29.0%)	47 (25.8%)	117 (27.7%)
Rural	80 (33.2%)	27 (14.8%)	107 (25.3%)

Note: Statistically significant between Appalachian counties with and without funding: [a]: $p<0.05$, [b]: $p<0.01$, [c]: $p<0.001$;

[i] Urban influence code key: ARC's condensed categories include 1: large metros (pop. 1 million + including USDA ERS code 1), 2: Small metros (pop. <1 million, including USDA ERS code 2), 3: Nonmetro, adjacent to large metros

(including USDA ERS codes 3-4), 4: Nonmetro, adjacent to small metros (including USDA ERS codes 5-7), and 5: rural (nonmetro, nonadjacent to a metro including USDA ERS codes 8-12). USDA ERS 2013 codes are as follows: 1: In large metro area of 1+ million residents. 2: In small metro area of less than 1 million residents. 3: Micropolitan area adjacent to large metro area. 4: Noncore adjacent to large metro area. 5: Micropolitan area adjacent to small metro area. 6: Noncore adjacent to small metro area and contains a town of at least 2,500 residents. 7: Noncore adjacent to small metro area and does not contain a town of at least 2,500 residents. 8: Micropolitan area not adjacent to a metro area. 9: Noncore adjacent to micro area and contains a town of at least 2,500 residents. 10: Noncore adjacent to micro area and does not contain a town of at least 2,500 residents. 11: Noncore not adjacent to metro or micro area and contains a town of at least 2,500 residents. 12: Noncore not adjacent to metro or micro area and does not contain a town of at least 2,500 residents.

Exhibit 36. Comparison of Demographic Indicators for Appalachian Counties with and without ARC Health Grant Funding

	Appalachian Counties with or without ARC funding		All Appalachian vs. All US Counties	
	Counties with ARC funding (N=241)	Counties without ARC funding (N=182)	All Appalachian Counties (N=423)	All US Counties (N=3,142)
Population total (population density per sq. mile) [c]	96.9 (107.3)	161.6 (238.9)	124.7 (179.0)	251.9 (1,447.8)
Population race				
White non-Hispanic (%) [3]	87% (14.0)	88.1% (10.4)	87.5% (12.6)	76.2% (20.2)
Black non-Hispanic (%) [a, 2]	7.6% (13.2)	5.2% (8.0)	6.6% (11.3)	8.9% (14.4)
Hispanic or Latino (%) [a, 3]	2.9% (3.7)	3.6% (3.5)	3.2% (3.6)	9.4% (13.9)
Asian non-Hispanic (%) [c, 3]	0.5% (0.6)	1.0% (1.7)	0.7% (1.2)	1.4% (2.8)
Native Hawaiian/Pacific Islander non-Hispanic (%) [b, 1]	0.02% (0.05)	0.04% (0.07)	0.03% (0.06)	0.09% (0.6)
American Indian/Alaska Native non-Hispanic (%) [3]	0.5% (2.0)	0.2% (0.2)	0.4% (1.5)	1.8% (7.6)
Age				
Aged <15 (%) [a,3]	17.3% (2.2)	16.7% (2.2)	17% (2.2)	18.4% (3.1)
Aged 15-64 (%) [2]	63.4% (2.4)	63.5% (3.1)	63.4% (2.7)	62.9% (3.8)
Aged 65+ (%) [2]	19.4% (3.2)	19.7% (3.8)	19.5% (3.5)	18.8% (4.7)
Sex				
Male (%) [3]	49.9% (2.3)	49.8% (1.5)	49.9% (2.0)	50.4% (2.4)
Female (%) [3]	50.1% (2.3)	50.2% (1.5)	50.1% (2.0)	49.6% (2.4)

Note: Statistically significant between Appalachian counties with and without funding: [a]: p<0.05, [b]: p<0.01, [c]: p<0.001; Statistically significant between U.S. counties and Appalachian counties: [1]: p<0.05, [2]: p<0.01, [3]: p<0.001

Exhibit 37. Comparison of Social Determinants of Health Indicators for Appalachian Counties with or without ARC Heath Grant Funding				
	Appalachian Counties with or without ARC funding		All Appalachian vs. All US Counties	
	Appalachian Counties with ARC funding (N=241)	Appalachian Counties without ARC funding (N=182)	All Appalachian Counties (N=423)	All US Counties (N=3,142)
Education				
Population 25 years and over who completed high school (%) [c, 3]	82.4% (5.6)	85.9% (5.3)	83.9% (5.7)	86.9% (6.3)
Population 25 years and over who completed college (%) [c, 3]	16.5% (5.8)	20.4% (8.6)	18.2% (7.4)	22.0% (9.6)
Children aged 3-4 and enrolled in school (%) [a, 3]	35.6% (14.6)	38.8% (17.2)	37.0% (15.9)	43.0% (18.2)
Economic Distress				
Distressed [c]	74 out of 241 counties (30.7%)	8 out of 182 counties (4.4%)	82 out of 423 counties (19.4%)	n/a
At-Risk [b]	69 out of 241 counties (28.6%)	32 out of 182 counties (17.6%)	101 out of 423 counties (23.9%)	n/a
Transitional [c]	93 out of 241 counties (38.6%)	132 out of 182 counties (72.5%)	225 out of 423 counties (53.2%)	n/a
Competitive	5 out of 241 counties (2.1%)	6 out of 182 counties (3.3%)	11 out 423 counties (2.6%)	n/a
Attainment [a]	0 out of 241 counties (0%)	4 out of 182 counties (2.2%)	4 out of 423 counties (1.0%)	n/a
Labor force participation (%) [c, 3]	71.5% (9.3)	77.8% (5.5)	74.2% (8.5)	78.5% (9.1)
No health insurance coverage (%) [3]	8.7% (3.4)	8.6% (4.0)	8.7% (3.7)	9.6% (5.1)
Median household income [c, 3]	$43,263.31 (8159.7)	$50,232.06 (9586.2)	$46,261.69 (9445.3)	$53,475.91 (14,192.5)
Households with severe housing burden cost (%) [3]	10.0% (2.2)	9.8% (2.5)	9.9% (2.3)	10.4% (3.4)
No health insurance coverage (%) [3]	8.7% (3.4)	8.6% (4.0)	8.7% (3.7)	9.6% (5.1)
Unemployment rate (%) [c,2]	3.3% (1.1)	3.0% (0.8)	3.2% (1.0)	3.0% (1.4)
Primary industry dependency				

Farming-dependent [3]	13 out of 241 counties (5.4%)	7 out of 182 counties (3.8%)	20 out of 423 counties (4.7%)	507 out of 3,142 counties (16.1%)
Mining-dependent [a]	31 out of 241 counties (12.9%)	10 out of 182 counties (5.5%)	41 out of 423 counties (9.7%)	256 out of 3,142 counties (8.1%)
Manufacturing-dependent [3]	56 out of 241 counties (23.2%)	46 out of 182 counties (25.3%)	102 out of 423 counties (24.1%)	516 out of 3,142 counties (16.4%)
Federal/state government-dependent	35 out of 241 counties (14.5%)	21 out of 182 counties (11.5%)	56 out of 423 counties (13.2%)	461 out of 3,142 counties (14.7%)
Recreation	27 out of 241 counties (11.2%)	24 out of 182 counties (13.2%)	51 out of 423 counties (12.1%)	428 out of 3,142 counties (13.6%)
Nonspecialized [a]	95 out of 241 counties (39.4%)	90 out of 182 counties (49.5%)	185 out of 423 counties (43.7%)	1,235 out of 3,142 counties (39.3%)
Disability status (%) [c,3]	11.1% (3.4)	8.7% (2.2)	10.1% (3.2)	7.9% (2.7)
Persistent poverty [c,3]	64 out of 241 counties (26.6%)	6 out of 182 counties (3.3%)	70 out of 423 counties (16.5%)	318 out of 3,142 counties (10.1%)
Households with cash assistance or food stamps/SNAP (%) [c,3]	17.8% (6.2)	13.9% (4.3)	16.1% (5.8)	13.1% (6.3)
Poverty rate - Families below federal poverty level (FPL) (%) [c,3]	18.6% (5.6)	14.5% (3.7)	16.8% (5.3)	14.4% (6.1)
Population with broadband access (%) [c,3]	71.1% (6.8)	74.9% (6.6)	72.7% (6.9)	75.4% (8.8)
Population with no phone service (%) [a]	2.5% (1.1)	2.2% (1.2)	2.4% (1.2)	2.3% (1.6)
Household with access to at least one vehicle (%) [b,2]	93.0% (2.6)	93.7% (2.9)	93.3% (2.7)	93.9% (4.5)

Note: Statistically significant between Appalachian counties with and without funding: [a]: $p<0.05$, [b]: $p<0.01$, [c]: $p<0.001$; Statistically significant between U.S. counties and Appalachian counties: [1]: $p<0.05$, [2]: $p<0.01$, [3]: $p<0.001$

Exhibit 38. Comparison of Mortality Indicators for Appalachian Counties with and without ARC Health Grant Funding				
	Appalachian Counties with or without ARC funding		All Appalachian vs. All US Counties	
	Counties with ARC funding (N=241)	Counties without ARC funding (N=182)	All Appalachian counties (N=423)	All US Counties (N=3,142)
Heart disease mortality rate (per 100,000) [c,3]	321.0 (67.1)	288.8 (64.2)	307.1 (67.7)	268.3 (85.7)
Cancer mortality rate (per 100,000) [c,3]	266.1 (43.3)	249.6 (47.0)	259.0 (45.6)	231.1 (59.3)
Stroke mortality rate (per 100,000) [c,3]	62.8 (14.1)	57.5 (12.5)	60.5 (13.7)	54.9 (18.1)
COVID mortality rate (per 100,000) [3]	331.3 (240.6)	384.4 (388.3)	354.1 (313.5)	285.7 (232.6)
Respiratory disease mortality rate (per 100,000) [c,3]	98.8 (27.4)	80.7 (25.8)	91.0 (28.1)	69.9 (29.7)
Alzheimer's mortality rate (per 100,000) [a,3]	54.6 (20.7)	50.3 (21.1)	52.8 (21.0)	47.3 (21.0)
Drug overdose mortality rate (per 100,000) [a,3]	56.5 (33.9)	50.1 (23.1)	53.8 (29.8)	35.1 (20.8)
Opioid overdose mortality rate (per 100,000) [b,3]	44.2 (30.0)	37.5 (20.0)	41.3 (26.3)	25.4 (18.6)
All-cause mortality rate (per 100,000) [b]	925.2 (95.6)	792.5 (142.2)	847.4 (139.9)	817.5 (142.8)

Note: Statistically significant between Appalachian counties with and without funding: [a]: p<0.05, [b]: p<0.01, [c]: p<0.001; Statistically significant between U.S. counties and Appalachian counties: [1]: p<0.05, [2]: p<0.01, [3]: p<0.001

Exhibit 39. Comparison of Morbidity Indicators for Appalachian Counties with and without ARC Health Grant Funding				
	Appalachian Counties with or without ARC funding		All Appalachian vs. All US Counties	
	Counties with ARC funding (N=241)	Counties without ARC funding (N=182)	All Appalachian counties (N=423)	All US Counties (N=3,142)
Physically inactive (%) [c,3]	30.8% (5.2)	27.7% (5.0)	29.4% (5.3)	26.7% (5.9)
Average # of poor mental health days in the last 30 days [c,3]	5.5 (0.6)	5.2 (0.5)	5.4 (0.6)	4.7 (0.7)
HIV cases per 100,000 [b,3]	155.4 (95.0)	132.0 (88.1)	145.3 (92.9)	194.7 (192.7)
Adults with diabetes (%) [c,3]	15.0% (3.3)	13.5% (3.2)	14.4% (3.3)	12.4% (3.7)
Obese adults (BMI greater than or equal to 30) (%) [c,3]	36.5% (4.9)	34.4% (4.9)	35.6% (5.0)	33.5% (6.0)

Note: Statistically significant between Appalachian counties with and without funding: [a]: p<0.05, [b]: p<0.01, [c]: p<0.001; Statistically significant between U.S. counties and Appalachian counties: [1]: p<0.05, [2]: p<0.01, [3]: p<0.001

Exhibit 40. Comparison of Child Health Indicators for Appalachian Counties with and without ARC Health Grant Funding				
	Appalachian Counties with or without funding		All Appalachian vs. All US Counties	
	Counties with ARC funding (N= 241)	Counties without ARC funding (N=182)	All Appalachian counties (N=423)	All US Counties (N=3,142)
Low birth weight (%) [c,3]	9.3% (1.7)	8.4% (1.4)	8.9% (1.7)	8.2% (2.1)
Infant death rate per 1,000 live births [b,3]	7.1 (1.5)	6.7 (1.4)	7.0 (1.5)	6.3 (1.6)
Women between the ages of 15-50 who gave birth in the last 12 months (%) [3]	5.2% (2.0)	5.1% (1.8)	5.1% (1.9)	5.7% (3.1)

Note: Statistically significant between Appalachian counties with and without funding: [a]: $p<0.05$, [b]: $p<0.01$, [c]: $p<0.001$; Statistically significant between U.S. counties and Appalachian counties: [1]: $p<0.05$, [2]: $p<0.01$, [3]: $p<0.001$

Exhibit 41. Comparison of Behavioral Health Indicators for Appalachian Counties with and without ARC Health Grant Funding				
	Appalachian Counties with or without funding		All Appalachian vs. All US Counties	
	Counties with ARC funding (N=241)	Counties without ARC funding (N=182)	All Appalachian counties (N=423)	All US Counties (N=3,142)
Suicide mortality rate (per 100,000)	18.6 (3.9)	18.5 (4.6)	18.5 (4.2)	18.0 (6.0)
Excessive drinking (%) [c,3]	16.1% (2.4)	17.8% (2.5)	16.8% (2.6)	19.1% (3.4)
Frequent mental distress (%) [c,3]	18.0% (2.1)	16.7% (1.9)	17.4% (2.1)	15.1% (2.4)
Opioid dispensing rate (per 100 persons) [3]	52.8 (39.4)	49.5 (35.5)	51.4 (37.7)	41.3 (32.8)
Poisoning death rate (per 100,000) [a,3]	56.9 (23.1)	51.6 (16.9)	54.6 (20.8)	41.6 (16.0)

Note: Statistically significant between Appalachian counties with and without funding: [a]: $p<0.05$, [b]: $p<0.01$, [c]: $p<0.001$; Statistically significant between U.S. counties and Appalachian counties: [1]: $p<0.05$, [2]: $p<0.01$, [3]: $p<0.001$

Exhibit 42. Comparison of Healthcare Access Indicators for Appalachian Counties with and without ARC Health Grant Funding				
	Appalachian Counties with or without funding		All Appalachian vs. All US Counties	
	Counties with ARC funding (N=241)	Counties without ARC funding (N=182)	All Appalachian counties (N=423)	All US Counties (N=3,142)
Primary care physicians per 100,000 [b,2]	44.5 (26.8)	55.0 (46.8)	49.1 (37.1)	54.2 (36.0)
Mental health providers per 100,000 [3]	143.7 (217.5)	120.4 (107.4)	133.7 (179.0)	168.3 (182.6)
Dentists per 100,000 [c,3]	34.9 (19.1)	42.1 (21.8)	38.0 (20.6)	46.8 (32.7)
Pediatricians per 100,000 children [c]	20.7 (29.0)	35.9 (54.3)	27.2 (42.4)	27.4 (89.7)

Hospitals with telehealth consultation visits per 100,000 [3]	0.9 (2.0)	1.0 (1.6)	0.9 (1.9)	2.1 (5.9)
Hospital beds per 100,000	242.7 (269.6)	244.0 (394.2)	243.3 (328.6)	281.5 (485.2)

Note: Statistically significant between Appalachian counties with and without funding: [a]: $p<0.05$, [b]: $p<0.01$, [c]: $p<0.001$; Statistically significant between U.S. counties and Appalachian counties: [1]: $p<0.05$, [2]: $p<0.01$, [3]: $p<0.001$

Exhibit 43. Comparison of Health Professional Shortage Area (HPSA) Coverages for Appalachian Counties with and without ARC Health Grant Funding

	Appalachian Counties with or without ARC funding		All Appalachian vs. All US Counties	
Health Professional Shortage Areas	Counties with ARC funding (N=241)	Counties without ARC funding (N=182)	All Appalachian counties (N=423)	All US Counties (N=3,142)
Primary Care [c,3]				
Whole county is shortage area (%)	218 (90.46%)	132 (72.53%)	350 (82.74%)	2239 (71.26%)
Part of county is shortage area (%)	11 (4.56%)	22 (12.09%)	33 (7.80%)	381 (12.13%)
None of county is shortage area (%)	12 (4.98%)	28 (15.39%)	40 (9.46%)	522 (16.61%)
Dental Health [a,3]				
Whole county is shortage area (%)	207 (85.89%)	145 (79.67%)	352 (83.22%)	1945 (61.90%)
Part of county is shortage area (%)	1 (0.42%)	6 (3.30%)	7 (1.66%)	227 (7.22%)
None of county is shortage area (%)	33 (13.69%)	31 (17.03%)	64 (15.13%)	970 (30.87%)
Mental Health [a,3]				
Whole county is shortage area (%)	227 (94.19%)	150 (82.42%)	377 (89.13%)	2698 (85.87%)
Part of county is shortage area (%)	0 (0.00%)	1 (0.55%)	1 (0.24%)	167 (5.32%)
None of county is shortage area (%)	14 (5.81%)	31 (17.03%)	45 (10.64%)	277 (8.82%

Note: Statistically significant between Appalachian counties with and without funding: [a]: $p<0.05$, [b]: $p<0.01$, [c]: $p<0.001$; Statistically significant between U.S. counties and Appalachian counties: [1]: $p<0.05$, [2]: $p<0.01$, [3]: $p<0.001$

Appendix D. Response Rate for Web-Based Survey of Grantees

A web-based survey of grantees was conducted to collect data from health grantees on grant performance, project characteristics, project implementation and sustainability, and broader project health and economic impacts. While the evaluation includes 96 individual health grants, a total of 88 unique survey instruments were designed and administered to grantees to account for specific features of the grant portfolio, including the presence of grantees with more than one grant. Surveys were categorized as complete (fully or partially) or incomplete, with response rates presented by select grantee and grant characteristics in Exhibit 44.

Exhibit 44. Response Rate Trends for the Web-Based Survey of Grantees

Grant Characteristic	Complete or Partial n (%)	Incomplete n (%)
Total		
Most Recent Year of Grant Closure [a]		
2016-2017	7 (43.8%)	9 (56.3%)
2018-2019	25 (62.5%)	15 (37.5%)
2020-2021	21 (65.6%)	11 (34.4%)
Majority Subregion [b]		
Northern Appalachia	13 (65.0%)	7 (35.0%)
North Central Appalachia	11 (73.3%)	4 (26.7%)
Central Appalachia	9 (50.0%)	9 (50.0%)
South Central Appalachia	5 (62.5%)	3 (37.5%)
Southern Appalachia	13 (56.5%)	10 (43.5%)
Grant Type [c]		
Career & Technical Education + Workforce Training	5 (100.0%)	0 (0.0%)
Clinical Services	11 (68.8%)	5 (31.3%)
Health Promotion/Disease Prevention	9 (52.9%)	8 (47.1%)
Healthcare Access	28 (57.1%)	21 (42.9%)
Other	0 (0.0%)	1 (100.0%)
Grant Purpose [d]		
Equipment	25 (58.1%)	18 (41.9%)
Operations	10 (50.0%)	10 (50.0%)
Other	18 (72.0%)	7 (28.0%)
Grantee Type [e]		
State, County, City, or Township Government	9 (60.0%)	6 (40.0%)
Institution of Higher Education	8 (61.5%)	5 (38.5%)

Non-Profit (Other than Institution of Higher Education)	27 (56.3%)	21 (43.8%)
Other	9 (75.0%)	3 (25.0%)
Most Recent Benefit to Distressed County & Area [f]		
None/Limited	14 (63.6%)	8 (36.4%)
Substantial	17 (70.8%)	7 (29.2%)
Primary	22 (52.3%)	20 (47.6%)

Note: Due to rounding, some totals may exceed 100%.

[a] Grant closure years were collapsed into three categories. For example, 2016-2017 includes grants that closed in 2016 or 2017.

[b] Grants serving all or a large portion of Appalachia beyond a single subregion are not included.

[c] Grant types of "career & technical education" and "workforce training" were combined into "career & technical education and workforce training."

[d] Grant purposes were collapsed into three categories. Grants categorized by ARC only as "equipment" were considered "equipment." Grants categorized by ARC only as "operations" were considered "operations." All remaining grants were categorized as "other," including multi-purpose grants (e.g., construction + equipment).

[e] Grantee types were combined as follows: "State Government," "County Government," and "City or Township Government" were combined into "State, County, City, or Township Government"; "Private Institution of Higher Education" and "Public/State Controlled Institution of Higher Education" were combined into "Institute of Higher Education"; "Non-Profit with 501C3 IRS Status (Other than Institution of Higher Education)" and "Non-Profit without 501C3 IRS Status (Other than Institution of Higher Education)" were combined into "Non-Profit (Other than Institution of Higher Education)"; and "Regional Organization," "Other (specify)," and "LDD" were combined into "Other."

[f] Grants estimated to have no or limited benefit to distressed counties/areas were collapsed into a single category.

Appendix E. Example Data Collection Instrument

The questions that guided interviews/focus groups with health grant-related personnel as part of the in-person site visits are presented below, providing an example of a data collection instrument that supported the evaluation.

Introductory Question

1. Briefly, please tell us about your organization, including the mission and focus of your work.

Transition Question

2. Please tell us a little about your organization's ARC-funded health project, including primary goals and activities.

Key Questions

3. Who were the primary beneficiaries of your health project?
    a. How closely did the grantee beneficiaries reflect the demographics of the broader community served by your organization? Demographics may include characteristics such as age, gender, and race or ethnicity.
        i. How and why did the demographics differ?
    b. What changes or improvements did grant beneficiaries experience because of the health project?
4. What information guided the design of your health project?
    a. Briefly, how did your organization implement your health project?
    b. Please tell us about any aspects of your health project that your organization considers promising or innovative. These can be related to any portion of the project, such as design, implementation, evaluation, or another activity that you think is relevant.
        i. If innovative aspects are identified:
            1. What was new or different about what your organization did?
            2. How and why did your organization decide to [innovative aspect described above]?
            3. What worked well with this innovative approach?
    c. Please tell us about any resources that guided your organization's health project.
        i. Why did your organization select the [model/program/resource]?
        ii. How, if at all, did your organization modify or adapt the [model/program/resource] for your health project?

5. How, if at all, did your organization's health project help everyone, particularly those who face more challenges, in your community or Appalachia overall to attain their highest level of health?
6. What were the greatest successes that your organization experienced through your organization's health project?
    a. What about any notable successes related to improving health (or healthcare services), particularly for those who face more challenges?
    b. What factors contributed most to the success of your health project?
    c. How, if at all, did your organization evaluate the success or impact of your health project?
7. How, if at all, did your organization's health project impact the economy of your community or Appalachia overall?
8. What were the greatest challenges that your organization experienced with your health project?
    a. What about any challenges related to improving health (or healthcare services), particularly for those who face more challenges?
    b. How did your organization address these challenges? In particular, were any innovative solutions or strategies used?
9. Did your organization continue any project-related activities after your health grant closed?
    a. [If yes] What factors helped your organization sustain these activities?
    b. [If no] Was this intended?
        i. [If no] What factors limited your organization's ability to sustain project-related activities?
10. Knowing what your organization knows now, what would your organization have done differently, whether when designing, implementing, or sustaining your health project?
11. What project-related guidance or resource(s) would have been helpful to your organization, again, whether when designing, implementing, or sustaining your health project?
12. Thinking about your organization's health project, including design and implementation are there any areas that your organization thinks could benefit from innovation in the future?
13. What advice would your organization give to an organization that is applying for or recently received a health grant from ARC?

<u>Final Question</u>

14. What other information about your organization's health project would you like to share?

References

1. Appalachian Regional Commission. About the Appalachian Regional Commission. Appalachian Regional Commission. https://www.arc.gov/about-the-appalachian-regional-commission/. Accessed June 20, 2025.
2. Appalachian Regional Commission. Appalachian Counties Served by ARC. Appalachian Regional Commission. https://www.arc.gov/appalachian-counties-served-by-arc/. Accessed June 20, 2025.
3. Appalachian Regional Commission. Investing in Appalachia's Economic Future. Appalachian Regional Commission. https://www.arc.gov/. Accessed June 20, 2025.
4. Appalachian Regional Commission. Classifying Economic Distress in Appalachian Counties. Appalachian Regional Commission. https://www.arc.gov/classifying-economic-distress-in-appalachian-counties/. Accessed January, 2024.
5. Appalachian Regional Commission. Guide to ARC Project Performance Measures. Appalachian Regional Commission. https://www.arc.gov/resource/guide-to-arc-project-performance-measures/. Accessed July 22, 2025.
6. NORC Walsh Center for Rural Health Analysis and University of Minnesota Rural Health Research Center. Rural Community Health Toolkit. Rural Health Information Hub. https://www.ruralhealthinfo.org/toolkits/rural-toolkit. Updated March 7, 2025. Accessed July 10, 2025.
7. NORC Walsh Center for Rural Health Analysis. Rural Transportation Toolkit. Rural Health Information Hub. https://www.ruralhealthinfo.org/toolkits/transportation. Updated April 4, 2025. Accessed August 20, 2025.
8. Rural Health Information Hub. Transportation to Support Rural Healthcare. Rural Health Information Hub. https://www.ruralhealthinfo.org/topics/transportation. Updated March 6, 2025. Accessed July 10, 2025.
9. StataCorp. Stata Statistical Software: Release 18. College Station, TX: StataCorp LLC.
10. Esri. ArcGIS Pro. Version 3.3. Environmental Systems Research Institute. https://www.esri.com/en-us/arcgis/products/arcgis-pro
11. NVivo Qualitative Data Analysis Software: Release 1.7. QSR International Pty Ltd; 2022.
12. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research Electronic Data Capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009;42(2): 377-81. https://doi.org/10.1016/j.jbi.2008.08.010.
13. Harris PA, Taylor R, Minor BL, Elliott V, Fernandez M, O'Neal L, McLeod L, Delacqua G, Delacqua F, Kirby J, Duda SN. The REDCap consortium: Building an international community of software partners. *J Biomed Inform*. 2019:95. https://doi.org/10.1016/j.jbi.2019.103208.
14. SAS Institute Inc. SAS Software. Version 9.4. Cary, NC: SAS Institute Inc.

15. Hamilton A. Qualitative Methods in Rapid Turn-Around Health Services Research. https://www.hsrd.research.va.gov/for_researchers/cyber_seminars/archives/video_archive.cfm?SessionID=780. Presented December 11, 2013. Accessed January 24, 2023.
16. Averill JB. Matrix analysis as a complementary analytic strategy in qualitative inquiry. *Qual Health Res*. 2002;12(6):855-866. doi:10.1177/104973230201200611
17. Beatty K, Smith MG, Khoury AJ, et al. Contraceptive care service provision via telehealth early in the COVID-19 pandemic at rural and urban federally qualified health centers in 2 southeastern states. *J Rural Health*. Published online July 22, 2022:10.1111/jrh.12701. doi:10.1111/jrh.12701
18. U.S. Census Bureau. American Community Survey 2017-2021 5-Year Data Release. U.S. Census Bureau. https://www2.census.gov/programs-surveys/acs/tech_docs/table_shells/2021/. Published September, 2022. Accessed January, 2024.
19. CDC Wonder. National Center for Health Statistics: Mortality Data on CDC WONDER 2018-2021. U.S. Centers for Disease Control and Prevention. https://wonder.cdc.gov/mcd.html. Accessed January, 2024.
20. Economic Research Service. Data Products. U.S. Department of Agriculture. https://www.ers.usda.gov/data-products. Accessed January, 2024.
21. U.S. Centers for Disease Control and Prevention. COVID Data Tracker. U.S. Department of Health and Human Services. https://covid.cdc.gov/covid-data-tracker/#datatracker-home. Accessed January, 2024.
22. U.S. Centers for Disease Control and Prevention. Opioid Dispensing Rate Maps. U.S. Department of Health and Human Services. https://www.cdc.gov/overdose-prevention/data-research/facts-stats/opioid-dispensing-rate-maps.html. Accessed January, 2024.
23. Appalachian Regional Commission. Subregions in Appalachia. Appalachian Regional Commission. https://www.arc.gov/map/subregions-in-appalachia/. Accessed January, 2024.
24. The American Board of Pediatrics. Data and Workforce. The American Board of Pediatrics. https://www.abp.org/content/data-and-workforce. Accessed January, 2024.
25. HRSA Data Warehouse. Data Downloads. Health Resources and Services Administration. https://data.hrsa.gov/data/download. Accessed January, 2024.
26. County Health Rankings & Roadmaps. Health Data. University of Wisconsin Population Health Institute. https://www.countyhealthrankings.org/health-data. Accessed January, 2024.