OHIO RURAL HEALTH IMPROVEMENT PLAN

June 2021

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Table of Contents

Rural Health Improvement Process

In August 2017, a team led by the Appalachian Rural Health Institute (ARHI) at Ohio University began the Ohio Rural Health Improvement Process. The project was funded through the Ohio Department of Health, State Office of Rural Health, the National Rural Health Association, and several smaller grants from local organizations. The project included two major categories of work: 1) conducting the process; and 2) developing the Ohio Rural Health Association.

For about 18 months,[1] the team gathered primary and secondary data, conducted a statewide survey, worked with local health organizations, interviewed local health commissioners, facilitated local meetings, disseminated information to local health care organizations, produced research reports and peer-reviewed papers, and helped to organize the Ohio Rural Health Association. A summary timeline of activities can be found in Appendix 1.

The overarching purpose of the project was to develop a rural health plan for rural providers to make evidence-based decisions to improve rural health in Ohio.

Ohio Rural Health Improvement Process GOAL: Develop a comprehensive process for improving health in rural Ohio.	
Objective	Activities
Conduct an inventory of community health assessment planning efforts in rural areas in Ohio.	Identify common themes and issues. Identify needs of rural areas using qualitative methods including surveys and interviews.
Engage stakeholders in developing a rural health improvement plan with priorities, strategies, and resource needs.	Facilitate outreach in rural communities and counties to include public opinions, concerns, and support for health improvement strategies. Coordinate and facilitate the annual rural health conference. Develop the Ohio Rural Health Association. Publish a comprehensive rural health improvement plan.

This rural health improvement process is ongoing and will never be "completed" because rural health needs continually evolve. An overview of activities associated with the objectives is in Appendix 1. This timeline identifies a multi-pronged approach to accomplish the objectives related to the overall goal. Although hundreds of people participated in the rural health improvement process, the main collaborators are noted below.

[1] COVID curtailed some of the planned activities for 2020.

State Office of Rural Health

The Ohio State Office of Rural Health (SORH) is located within the Ohio Department of Health. Rural Ohio spans varying landscapes, from the flat farmlands or northwestern Ohio to the rolling hills of Appalachia in southern Ohio. Since its inception in 1991, the Ohio SORH has worked to improve rural health care delivery systems through programs and activities related to its five essential functions: collecting and disseminating rural health information, coordinating resources and activities to rural stakeholders statewide, providing technical assistance to meet the health needs of rural communities, and supporting recruitment and retention of healthcare professionals in rural areas.

The Ohio SORH serves as the state's grantee for the federal Health Resources and Services Administration's (HRSA) Medicare Rural Hospital Flexibility Program (Flex Program) grant, the State Office of Rural health (SORH) grant, and the Small Rural Hospital Improvement Program (SHIP) grant. The Ohio SORH administers these programs and has leveraged several significant partnerships locally, statewide, and nationally in its efforts to improve rural health care delivery systems. SORH staff plan and implement various workshops, conferences, and meetings, as well as provide resources and technical assistance to rural communities working to enhance existing systems of care. SORH provided financial and technical assistance to the rural health improvement process.

Appalachian Rural Health Institute—Ohio University

The Appalachian Rural Health Institute (ARHI) is in the Department of Social and Public Health in the College of Health Science at Ohio University. ARHI supports Ohio University's (OHIO) commitment to the Appalachian region by fostering interprofessional and interdisciplinary research, community outreach, and education. ARHI focuses on developing collaborative partnerships that empower university and community stakeholders to work toward solutions for improving rural health. ARHI facilitates research and education on health issues relevant to the Appalachian region specifically and rural communities and underserved populations in general. ARHI's achievements contributes to Ohio University being recognized as a leader in advancing the health and well-being of the Appalachian region.

The Appalachian Rural Health Institute's mission is:

> To improve the health status and quality of life for rural Appalachian populations by fostering interprofessional research, community outreach, and education through collaborative partnerships that empower university and community stakeholders.

ARHI led multiple sub-projects, served as the grantee for more almost $500,000 in grants and contracts to conduct the rural health improvement process, and led the research components of the work.

Ohio Rural Health Association

The Ohio Rural Health Association (ORHA) was officially established as a nonprofit in December 2019. Its development was one of the two key components of the rural health improvement process. ORHA is a growing organization of volunteers that includes hospitals and clinics, individual care providers, CEOs and administrators, researchers and teachers, health departments, area social agencies and legislators.

The mission of ORHA is:

> To enhance the health and well-being of the state's rural citizens and communities. Through combined efforts of individuals, organizations, professionals, and community leaders, the association is a collective voice for rural health issues and a conduit for information and resources.

ORHA is serving as the main point of contact and communication with rural health stakeholders throughout the state. In addition, ORHA's role in the rural health improvement process will become increasingly important as it becomes more well-established in the coming years.

State Health Improvement Plan

Ohio has been involved in activities to prioritize health concerns and craft strategies to address these concerns for many years. As the only state in the country that has mandated local health departments become accredited by the Public Health Accreditation Board (PHAB), every county in the state now has a community health assessment (CHA) and a community health improvement plan (CHIP).

In addition to local, county-level CHIPS, the state has a State Health Improvement Plan or SHIP. The 2020-2022 SHIP identifies 3 priority factors, or social determinants of health. These priority health factors ultimately affect health outcomes and the SHIP notes three priority health outcomes: Mental Health and Addiction; Chronic Disease, and Maternal and Infant Health.

For this rural health improvement process, we used the health factors identified in the SHIP as the foundation for our work. The sections below focus on community conditions, health status and health behaviors, and access to care

Priority Health Factors 2020-2022 Ohio State Health Improvement Plan		
Community Conditions	**Health Behaviors**	**Access to Care**
Housing affordability and quality Poverty K-12 student success Adverse childhood experiences	Tobacco/nicotine use Nutrition Physical activity	Health insurance Local access to care providers Unmet need for mental health care

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Snapshot of Ohio's Rural Population

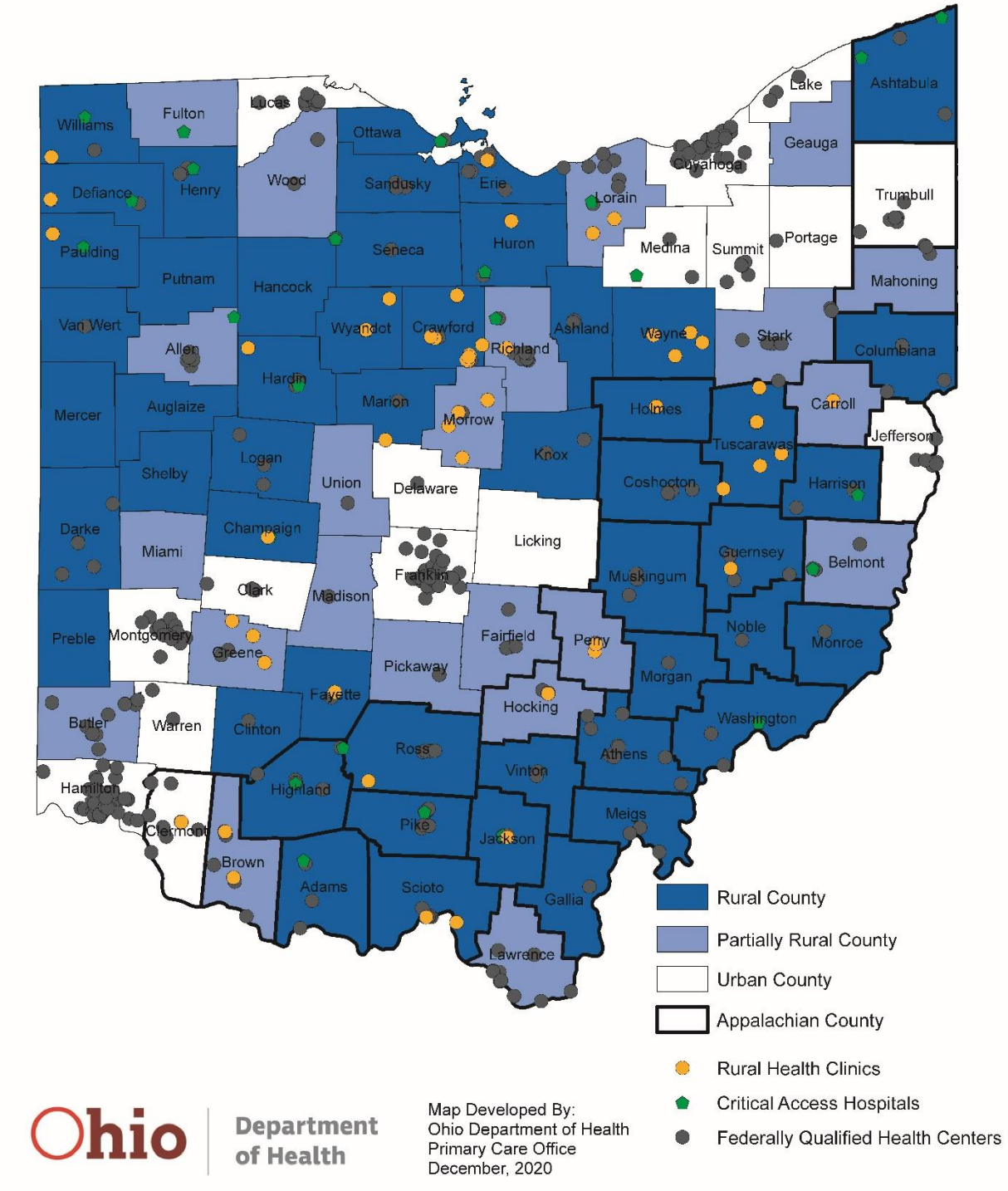
Defining "rural" is important to create policies that address the health care needs of the people who live there. There are several definitions of rural including those that focus on population size only to those that focus on the character of the place. The map below identifies rural, partially rural, urban, and Appalachian counties in Ohio. The State Office of Rural Health uses the definition from the Office of Rural Health Policy in the U.S. Department of Health and Human Services. This definition includes counties that have no urbanized area or cluster and are not adjacent to a metropolitan county. Rural counties have less than 50,000 people according to this definition.

Whether a county is defined as rural or partially rural depends on the influence of adjacent counties. For example, a county of less than 50,000 people would be considered partially rural if it has at least one urban cluster within or adjacent to it. This definition is why a county like Lawrence is defined as partially rural; the urban influence of adjacent counties, specifically across the river in Kentucky, leads to categorizing it this way.

Community Conditions

Multiple studies and sources document that, regardless of the definition used, rural areas are worse off than nonrural areas when it comes to many demographic indicators that could impact health status. Census data indicate that Appalachian and rural counties in Ohio have demographic indicators that are worse than other areas in the state. For example, as the table below shows, housing value is lowest in Appalachian counties and poverty rates are highest. Demographic factors contribute to access to care which ultimately affects health status.

Ohio's Rural and Urban Counties



Ohio Department of Health

Map Developed By:
Ohio Department of Health
Primary Care Office
December, 2020

Selected OHIO Population Indicators (Source: US Census, QuickFacts, V2019)					
County Type (#)	Rural (50)	Partially Rural (22)	Appalachian (32)	Urban (16)	OHIO (88)
Population change (2010-2019)	**-2.19%**	**.65%**	**-2.82%**	**2.40%**	**1.30%**
Median value of owner-occupied housing	**$121,260**	**$147,427**	**$115,694**	**$158,850**	**$145,700**
Persons in poverty	**12.76%**	**11.36%**	**15.34%**	**11.96%**	**13.10%**
College educated (BS or higher)	**16.54%**	**22.28%**	**15.44%**	**30.79%**	**28.30%**
Disability under the age of 65	**11.83%**	**10.62%**	**13.48%**	**9.96%**	**10.00%**
Median household income	**$51,932**	**$59,931**	**$48,240**	**$62,209**	**$56,602**
Households with broadband	**76.14%**	**80.60%**	**72.83%**	**83.98%**	**82.00%**
Population density per square mile	**101.45**	**255.85**	**126.35**	**934.06**	**282.30**
Under 65 without insurance	**8.37%**	**7.46%**	**8.97%**	**7.21%**	**7.80%**

KEY MESSAGES: COMMUNITY CONDITIONS

- **Lower housing values indicate that property taxes used to fund important social, educational, and infrastructure services are limited in rural and Appalachian counties.**
- **Education, income, and age differences between rural and non-rural areas suggest demographic factors can affect health status and access to care.**
- **Poverty, education, insurance, and employment could create greater challenges to accessing care in rural and Appalachian counties than other counties.**

Health Status and Health Behaviors

There are numerous measures that can be used to assess the health status of a population. For this section we rely in indicators from the Robert Wood Johnson Foundation (RWJF) 2020 County Health Rankings[2] and the Ohio Department of Health Data Warehouse[3].

Length of Life

Length of life can be indicative of many factors including behaviors and access to care. As the table below shows, just living in a rural or Appalachian county can affect how long you live. The years of potential life lost in Ohio are highest in these counties. This means that there are more preventable or premature deaths in rural areas in the state than urban areas. Years of potential life lost and premature death rates are highest in Ohio's Appalachian counties. In addition, the life expectancy for people who live in Appalachian and rural counties is at least one year lower than those who live in urban counties and lower than the state average.

Length of Life Indicators
(rates per 100,000)
(Source: RWJF 2020 County Health Rankings)

	Years of potential life lost[1]	Premature death rate[2]	Child mortality rate[3]	Infant mortality rate[4]	Drug overdose mortality rate[5]	Life expectancy[6]
Rural	8901	413.3	56.9	7.2	33.0	76.5
Partially rural	8238	415.4	53.8	6.6	35.2	77.1
Appalachian	9657	421.1	59.2	7.1	31.2	75.8
Urban	8453	414.7	52.6	6.0	31.8	77.2
Ohio	8606	408.0	59.0	7.0	38.0	76.9

1. Years of potential life lost before age of 75
2. Age-adjusted death rate among residents under 75
3. Number of deaths among children under 18
4. Number of deaths within 1 year of birth
5. Number of drug poisoning deaths
6. Average number of years a person can expect to live

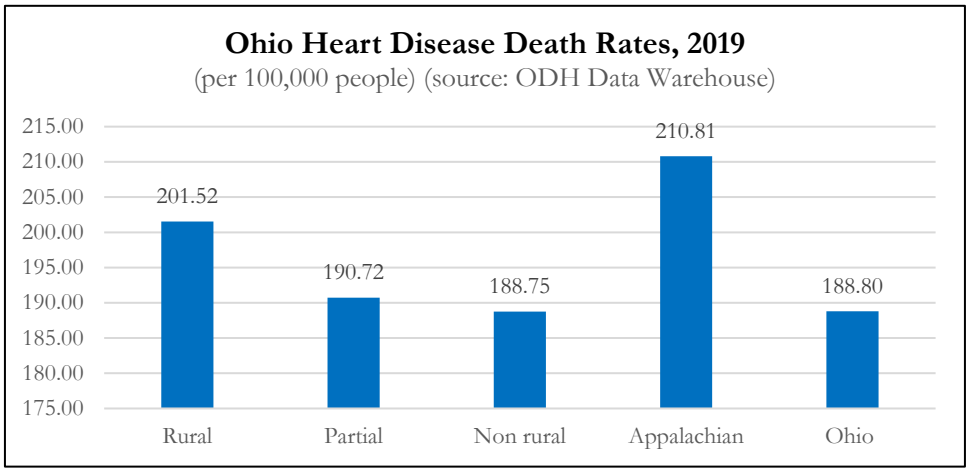
[2] https://www.countyhealthrankings.org/app/ohio/2019/overview
[3] https://odh.ohio.gov/wps/portal/gov/odh/explore-data-and-stats/interactive-applications/ohio-public-health-data-warehouse1

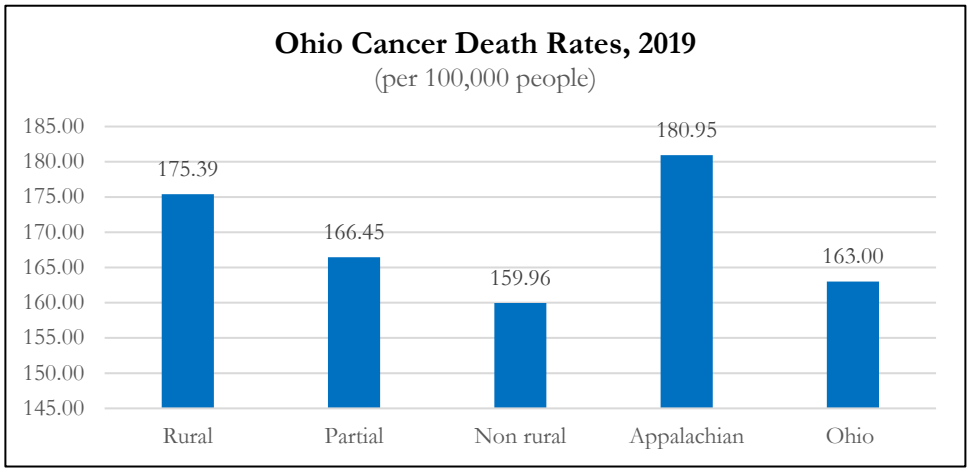
Leading Causes of Death

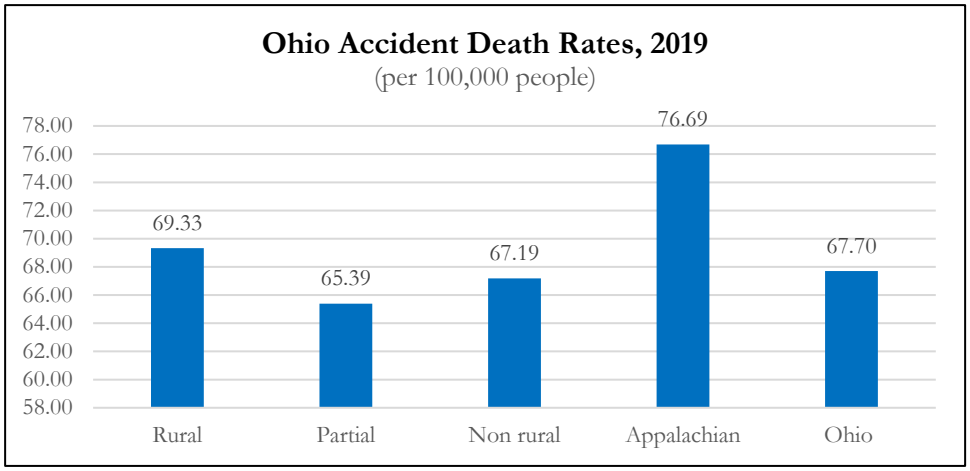
Examining how rural counties compare to each other, urban counties, and the state on death rates for specific causes paints a more detailed picture of mortality in Ohio. The six leading causes of death in Ohio are:

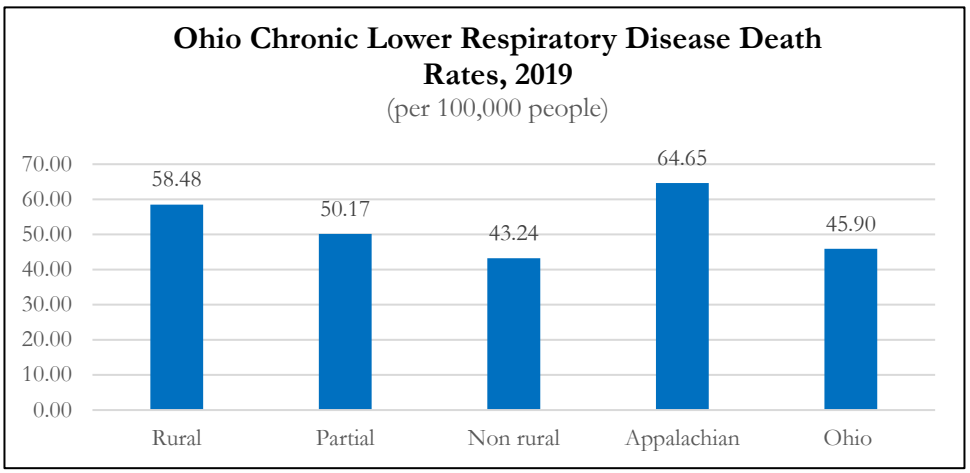
1. Heart Disease
2. Cancer
3. Unintentional Injuries
4. Chronic Lower Respiratory Diseases
5. Stroke
6. Alzheimer's Diseases

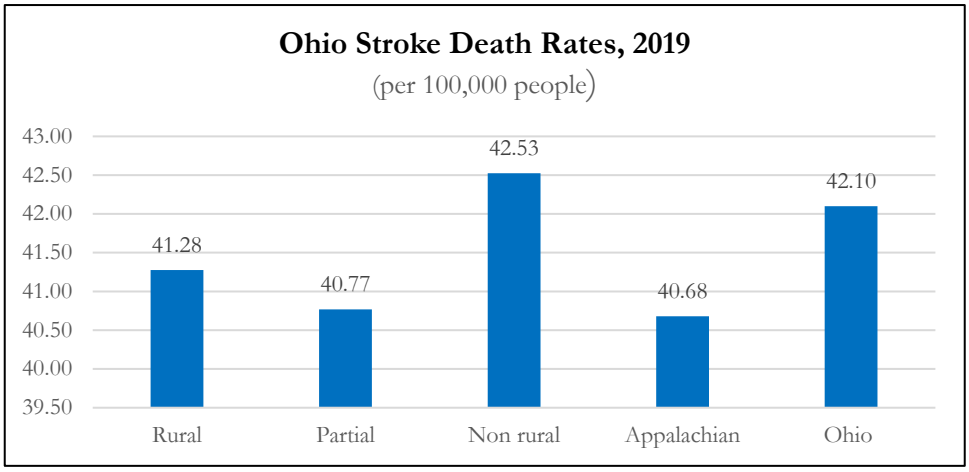
As the following figures show, when the death rates for these leading causes of death are broken down by geography, Appalachian and rural counties in Ohio have the highest rates for all the causes, except stroke. Here, we included one additional cause of death: diabetes. As with the other causes noted below, diabetes deaths in rural and Appalachian counties are higher than the state. This means that if a person is diagnosed with any of these conditions, they are more likely to die if they live in rural or Appalachian counties.

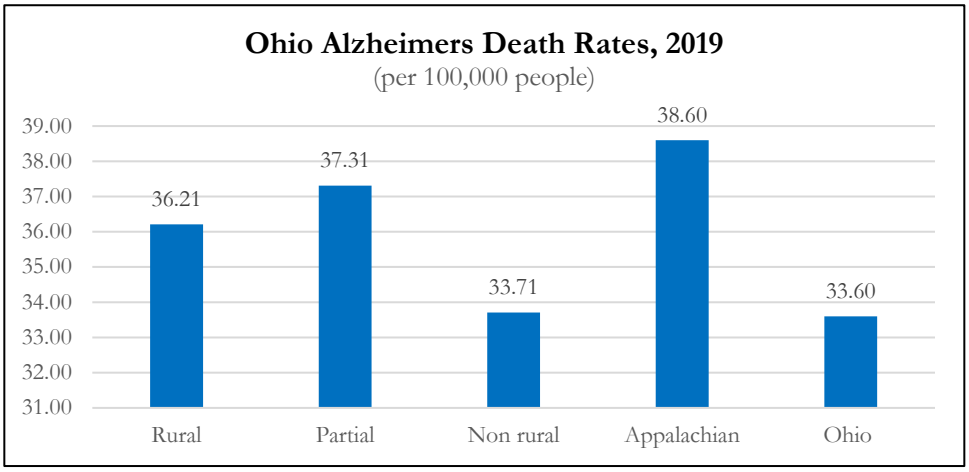


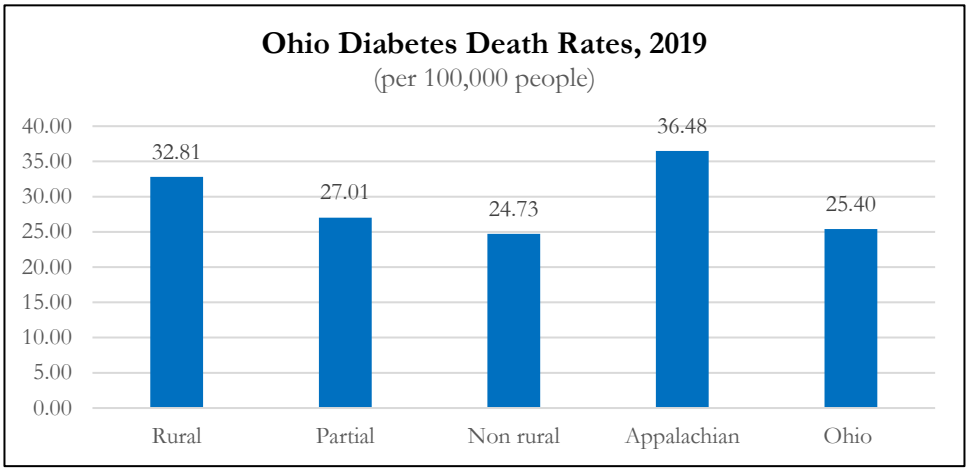

Ohio Cancer Death Rates, 2019
(per 100,000 people)
185.00
180.00
175.00
170.00
165.00
160.00
155.00
150.00
145.00
175.39
166.45
159.96
180.95
163.00
Rural
Partial
Non rural
Appalachian
Ohio


Ohio Accident Death Rates, 2019
(per 100,000 people)
78.00
76.00
74.00
72.00
70.00
68.00
66.00
64.00
62.00
60.00
58.00
69.33
65.39
67.19
76.69
67.70
Rural
Partial
Non rural
Appalachian
Ohio


Ohio Chronic Lower Respiratory Disease Death Rates, 2019
(per 100,000 people)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
58.48
50.17
43.24
64.65
45.90
Rural
Partial
Non rural
Appalachian
Ohio


Ohio Stroke Death Rates, 2019
(per 100,000 people)
43.00
42.50
42.00
41.50
41.00
40.50
40.00
39.50
41.28
40.77
42.53
40.68
42.10
Rural
Partial
Non rural
Appalachian
Ohio


Ohio Alzheimers Death Rates, 2019
(per 100,000 people)
39.00
38.00
37.00
36.00
35.00
34.00
33.00
32.00
31.00
36.21
37.31
33.71
38.60
33.60
Rural
Partial
Non rural
Appalachian
Ohio


Ohio Diabetes Death Rates, 2019
(per 100,000 people)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
32.81
27.01
24.73
36.48
25.40
Rural
Partial
Non rural
Appalachian
Ohio

Health Factors (including behaviors)

The Robert Wood Johnson Foundation generates a ranking of counties based on health factors that influence overall health. They base their rankings on four measures: 1) behaviors; 2) clinical care; 3) social and economic; and 4) physical environment.

- Using this composite approach, Appalachian counties in Ohio rank the lowest for healthy factors; 18 of the 32 Appalachian counties (underlined) rank in the lowest quartile for health factors.
- Fourteen of the 22 counties that rank the lowest for health factors are both Appalachian and rural counties.

Health Factors Rankings
(Source: 2020 County Health Rankings
Rural and partially rural counties in Bold; Appalachian counties asterisked;
Non-rural/urban counties italicized

Quartile 1(best)	Quartile 2	Quartile 3	Quartile 4 (worst)
1. Delaware	**23. Ottawa**	**45. Carroll***	**67. Highland***
2. Warren	**24. Ashland**	**46. Stark**	*68. Clark*
3. Medina	**25. Darke**	**47. Crawford**	**69. Lawrence***
4. Geauga	*26. Portage*	*48. Hamilton*	*70. Cuyahoga*
5. Putnam	**27. Preble**	**49. Belmont***	**71. Perry***
6. Union	**28. Holmes***	**50. Clinton**	**72. Harrison***
7. Mercer	**29. Shelby**	**51. Morrow**	**73. Marion**
8. Wood	*30. Clermont**	**52. Lorain**	*74. Jefferson**
9. Auglaize	**31. Knox**	**53. Hocking***	*75. Trumbull**
10. Fulton	**32. Logan**	**54. Huron**	**76. Monroe***
11. Greene	**33. Madison**	**55. Ross***	**77. Coshocton***
12. Hancock	**34. Sandusky**	**56. Hardin**	**78. Morgan***
13. Fairfield	**35. Seneca**	**57. Allen**	**79. Guernsey***
14. Lake	**36. Paulding**	**58. Columbiana***	**80. Pike***
15. Van Wert	**37. Erie**	**59. Muskingum***	**81. Gallia***
16. Henry	**38. Butler**	**60. Mahoning***	**82. Jackson***
17. Wayne	**39. Pickaway**	*61. Montgomery*	**83. Ashtabula***
18. Wyandot	*40. Summit*	**62. Richland**	*84. Lucas*
19. Miami	**41. Champaign**	**63. Noble***	**85. Scioto***
20. Licking	**42. Tuscarawas***	**64. Brown***	**86. Meigs***
21. Defiance	**43. Washington***	**65. Athens***	**87. Vinton***
22. Williams	*44. Franklin*	**66. Fayette**	**88. Adams***

Health Outcomes

Robert Wood Johnson also ranks health outcomes in counties based on 1) how long people live and 2) how healthy people feel. According to 2019 rankings:

- Fifteen out of 32 Appalachian counties are ranked in the lowest quartile for health outcomes.
- One Appalachian county (Holmes) ranked 2 for health outcomes.
- Nine counties that are both rural and Appalachian, rank in the lowest quartile in Ohio for health outcomes.

Health Outcomes Rankings
(Source: 2020 County Health Rankings
Rural and partially rural counties in Bold; Appalachian counties asterisked;
Non-rural/urban counties italicized

Quartile 1 (best)	Quartile 2	Quartile 3	Quartile 4 (worst)
1. Delaware	**23. Ashland**	**45. Stark**	*67. Hamilton*
2. Holmes*	*24. Lake*	**46. Belmont***	**68. Richland**
3. Union	**25. Morrow**	**47. Hocking***	**69. Brown***
4. Geauga	**26. Knox**	*48. Franklin*	**70. Guernsey***
5. Medina	*27. Portage*	**49. Perry***	*71. Trumbull**
6. Putnam	*28. Licking*	**50. Coshocton***	**72. Mahoning***
7. Warren	**29. Hancock**	**51. Harrison***	**73. Fayette**
8. Mercer	*30. Clermont**	**52. Columbiana***	**74. Highland***
9. Wood	**31. Ottawa**	**53. Butler**	*75. Cuyahoga*
10. Auglaize	**32. Champaign**	**54. Hardin**	*76. Lucas*
11. Henry	**33. Seneca**	**55. Athens***	**77. Ross***
12. Fairfield	**34. Wyandot**	**56. Erie**	*78. Jefferson**
13. Miami	**35. Darke**	**57. Washington***	**79. Vinton***
14. Shelby	**36. Van Wert**	*58. Summit*	*80. Montgomery*
15. Noble*	**37. Madison**	**59. Preble**	*81. Clark*
16. Defiance	**38. Carroll***	**60. Clinton**	**82. Lawrence***
17. Greene	**39. Pickaway**	**61. Allen**	**83. Meigs***
18. Tuscarawas*	**40. Lorain**	**62. Crawford**	**84. Gallia***
19. Wayne	**41. Huron**	**63. Morgan***	**85. Adams***
20. Fulton	**42. Sandusky**	**64. Ashtabula***	**86. Jackson***
21. Williams	**43. Monroe***	**65. Muskingum***	**87. Pike***
22. Paulding	**44. Logan**	**66. Marion**	**88. Scioto***

KEY MESSAGES: HEALTH STATUS AND BEHAVIORS

- With the exception of stroke (cerebrovascular) rural and Appalachian counties have the highest rates for the leading causes of death.
- Rural and Appalachian counties have higher overall life expectancy than other counties.
- Appalachian and rural counties in Ohio rank lowest in overall health outcomes.
- Appalachian and rural counties rank lowest in overall health factors that include behaviors that lead to poor health outcomes.
- People who live in rural and Appalachian counties are less healthy than those who live in other counties
- People who live in rural Appalachian counties are the least healthy in the state.

Health Priorities

Ohio is the only state that requires local health departments to take steps to earn accreditation from the Public Health Accreditation Board (PHAB). Part of this process requires each local health department (LHD) to complete a Community Health Assessment (CHA) and a Community Health Improvement Plan (CHIP). The CHA and the CHIP identify local health priorities and a plan to address them.

As of late 2020 the health departments noted in the table below are accredited. Of the 113 local health departments in the state, 42 are accredited (37%). It is notable that the non-rural health departments have been the most successful at earning accreditation and the rural and Appalachian counties have been the least successful. This could be yet another indicator of inadequate resources in these areas of the state. Even if the health department has not yet earned accreditation, most health departments have completed CHAs and CHIPS.

In addition, the state mandated that local health departments work with hospitals who are required to completed Community Health Needs Assessments (CHNA) moving forward. In late 2018, we interviewed health department officials from 24 rural counties in Ohio about their participation in the CHNA process and their relationships with local hospital systems. Most of the representatives stated that they had good relationships with their health systems and half of them said that they were extremely involved in the developing the CHNA. However, they noted some challenges, including:

- Many rural counties have multiple health systems and LHDs do not have the personnel and resources to work with all the systems that serve their constituents.
- Methodological and documentation differences between PHAB and CHNA requirements make it difficult to share information and collaborate.

- Some local rural LHDs do not believe they are considered an important part of the hospital CHNA process.

Accredited County Health Departments, December 2020 (Source: Public Health Accreditation Board)			
Rural (28%)	**Partially Rural (45%)**	**Appalachian (17%)**	**Nonrural (88%)**
Champaign	Allen	Clermont	Clermont
Defiance	Fairfield	Mahoning	Cuyahoga
Erie	Fulton	Ross	Delaware
Henry	Greene	Trumbull	Franklin
Huron	Lorain	Tuscarawas	Hamilton
Knox	Mahoning		Lake
Logan	Richland		Licking
Marion	Stark		Lucas
Preble	Union		Medina
Putnam	Wood		Portage
Ross			Montgomery
Sandusky			Summit
Tuscarawas			Trumbull
Williams			Warren
Accredited city health departments: Canton, Cleveland, Columbus, Portsmouth			

Local Priorities

In reviewing the CHIPS and CHNAs in rural counties, we identified a common set of priorities. In addition, we led a facilitated discussion at the 2018 state rural health meeting and gathered views of more than 100 rural health professionals at that time. The table below compares the ranking of these 5 issues from the health department perspective (CHIP), the hospital perspective (CHNA) and rural health professionals who attended 2018 State Rural Health Meeting.

Comparison of Ranking of Rural Health Priorities		
CHIPs	**CHNAs**	**Ohio Rural Health Meeting**
1. Substance abuse	1. Obesity	1. Mental/behavioral health
2. Mental/behavioral health	2. Mental/behavioral health	2. Access to care
3. Obesity	3. Substance abuse	3. Obesity
4. Chronic disease	4. Access to care	4. Substance abuse
5. Access to care	5. Chronic disease	5. Chronic disease

Federally Qualified Health Care (FQHC) Priorities

Using data from the Health Resources & Services Administration (HRSA), we developed a list of FQHCs in Ohio. Health priorities for the area served by each FQHC were determined from CHNAs, CHAs, and their own needs assessments. We contacted FQHCs in 46 counties to determine if they were engaged in creating their own needs assessments (full results are in Appendix #). We received responses from 29 that represent 128 locations in 31 counties. Of the 29 who participated in this effort:

- 28% produce their own needs assessments;
- 21% used a CHNA from the hospital system;
- 31% use a CHA from the public health department; and
- 21% use the CHIP based on the CHA data.

The main priorities noted in the documents from the 29 FQHCs are noted in the table below.

Main Priority from FQHC Needs Assessment Review		
Priority	**# of times listed (%) (n=29)**	**Counties Covered by FQHC**
Chronic Disease	8 (27.59)	Franklin, Belmont, Harrison, Allen, Clark, Defiance, Hardin, Seneca, Williams, Franklin, Lorain
Access to Health Care	7 (24.14)	Carroll, Tuscarawas, Erie, Van Wert, Huron. Stark, Henry, Wood
Mental Health	7 (24.14)	Hamilton, Lucas
Addiction/Mental Health	3 (10.34)	Coshocton, Guernsey, Morgan, Muskingum, Marion, Hancock
Obesity/Diabetes	2 (6.9)	Stark, Columbiana, Mahoning, Clermont
Opioid Use	1 (3.45)	Cuyahoga
Substance Abuse/Mental Health	1 (3.45)	Richland, Crawford

Rural Emergency Medical Services Priorities

Transportation to health care providers is a critical issue in rural areas, especially in the case of emergencies. In 2018, the State Office of Rural Health commissioned a survey to assess the needs of rural Emergency Medical Services (EMS). Rural EMS rely heavily on volunteers for their workforce and this can interfere with access to care for some of the most vulnerable populations. In addition, this situation further underscores that rural areas are underserved for some of the key health care services.

The EMS needs assessment identified 5 priorities:

- Recruiting practitioners to address the loss of personnel at the same time that trips are increasing;
- Retaining practitioners with a systematic approach;
- Securing sufficient funding;
- Increasing efficiencies through expanding educational resources; and
- Assessing options to transport patients between facilities.

Relationship Between State, Local, and Rural Health Priorities

The State Health Improvement Plan identifies three priority health factors: 1) community conditions; 2) health behaviors; and 3) access to care. As the demographic and health status indicators above show, people who live in rural and Appalachian counties generally have the worst community conditions. Addressing community conditions will take broad strategies at the state level to overcome systemic societal and economic issues that create inequities. For example, investment in infrastructure, including broadband requires attention in the state legislature.

Residents of rural and Appalachian counties also tend to engage in health behaviors that are more likely to contribute to negative health status. Impactful behavioral interventions are also more likely to be undertaken from a macro-level, that is in programs and policies that can contribute to healthy behaviors regardless of where a person lives.

Access to care is different than community conditions and health behaviors, in that it is both a priority and a need. There are also unique local circumstances that can support or hinder access. These can include external forces such as transportation and availability of providers as well as internal reasons such as culture. So, to address access to care, it is critical that local people are involved in identifying the gaps in access and developing strategies to address these needs.

Even with five similar health priority areas, ***most rural health care providers and public health officials who engaged throughout the rural health improvement planning process, explained that developing strategies to improve access to care was the most important need in their local areas.*** To develop a plan to address access to care, we took a two-pronged approach. First, we identified gaps in access to care. This included involving stakeholders as well as documenting access through secondary data sources. Second, we developed and implemented a tool for local communities to prioritize strategies to address the gaps that would work best for their specific circumstances.

Gaps in Rural Access to Care

Assessing gaps in access to care involved documenting availability of providers and insurers and compiling public perception and opinions about access.

Health Care Availability

Availability of health care does not necessarily translate into access to care because access is influenced by many factors. Insurance status and ratios of health care providers can be indicators of availability. These indicators suggest that rural and Appalachian counties are underserved when it comes to primary care, dental, and mental health services. Rural and partially rural counties also have the highest percentages of populations that are uninsured.

Indicators of Health Care Availability
(Source: 2020 RWJF County Health Rankings)

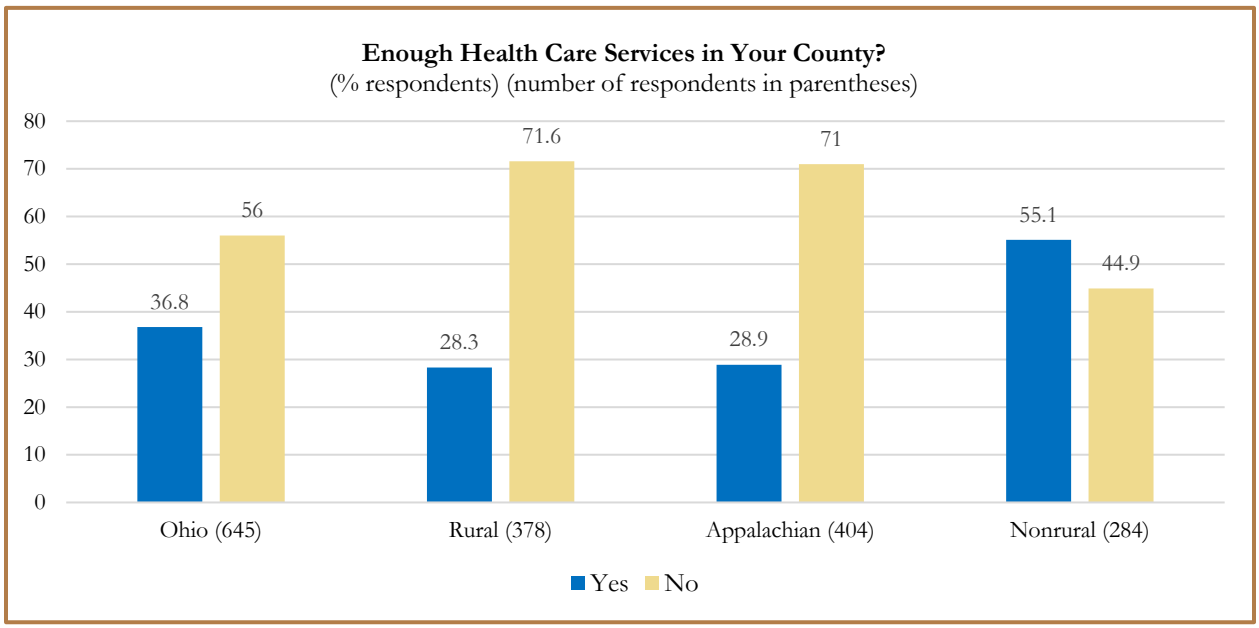
	Uninsured (under 65) (%)	Uninsured children (%)	Primary care ratio	Dentists ratio	Mental health provider ratio
Rural	7.8	5.4	3199:1	3248:1	1142:1
Partially rural	6.9	4.5	2432:1	2799:1	790:1
Appalachian	8.3	5.1	3561:1	3566:1	1142:1
Urban	6.6	4.9	1553:1	1802:1	537:1
Ohio	7.0	5.0	1312:1	1609:1	409:1

Health Professional Shortage Areas (HPSA) are designated based on shortages of primary medical care, dental or mental health providers and may be related to geography (county or service area), population (low income or Medicaid eligible), or facilities (federally qualified health center or other state or federal prisons). About two-thirds of all rural counties in Ohio are considered mental health shortage areas and more than one-third are designated primary care shortage areas. As the table below shows, two-thirds of the rural counties and more than one-half of the Appalachian counties in Ohio are designated HPSA for mental health services.

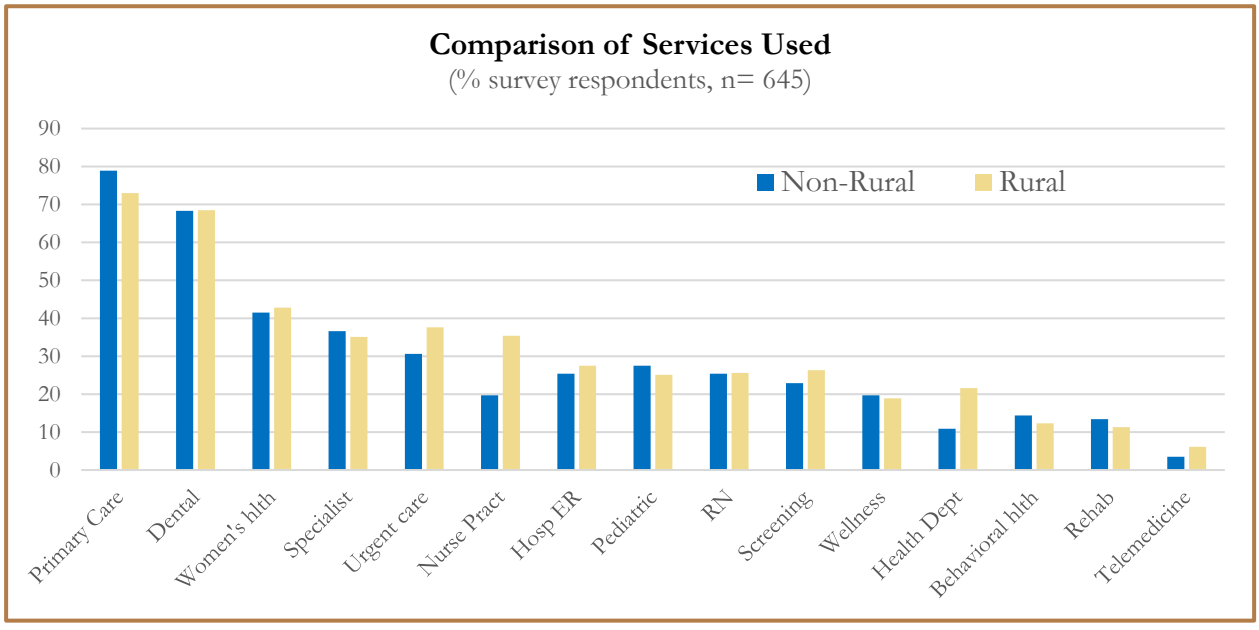
Rural and Partially Rural Counties Identified as Geographic Health Professional Shortage Areas (Appalachian counties are asterisked) (Source: HRSA, https://data.hrsa.gov/tools/shortage-area/hpsa-find				
Dental Shortage Area Vinton* **Mental Health Shortage Areas** **Rural: 66% (33/50)** **Partially Rural: 36% (8/22)** **Appalachian: 56% (18/32)**			**Primary Care Shortage Areas** **Rural: 36% (18/50)** **Partially Rural: 18% (4/22)** **Appalachian: 34% (11/32)**	
Adams*	Holmes*	Paulding	Ashland	Monroe*
Ashtabula*	Huron	Perry*	Ashtabula*	Morgan*
Brown	Jackson*	Pickaway	Auglaize	Morrow
Carroll*	Knox	Pike*	Carroll*	Paulding
Champaign	Lawrence*	Preble	Champaign	Perry*
Coshocton*	Logan	Putnam	Guernsey*	Pickaway
Crawford	Meigs*	Ross*	Hancock	Preble
Darke	Mercer	Scioto*	Hardin	Seneca
Erie	Miami	Shelby	Harrison*	Tuscarawas*
Fairfield	Morgan*	Tuscarawas*	Hocking*	Van Wert
Fayette	Morrow	Union	Holmes*	Washington*
Gallia*	Muskingum*	Van Wert	Huron	Wood
Guernsey*	Noble*	Wayne		
Highland	Ottawa			

Public Perception and Use of Services

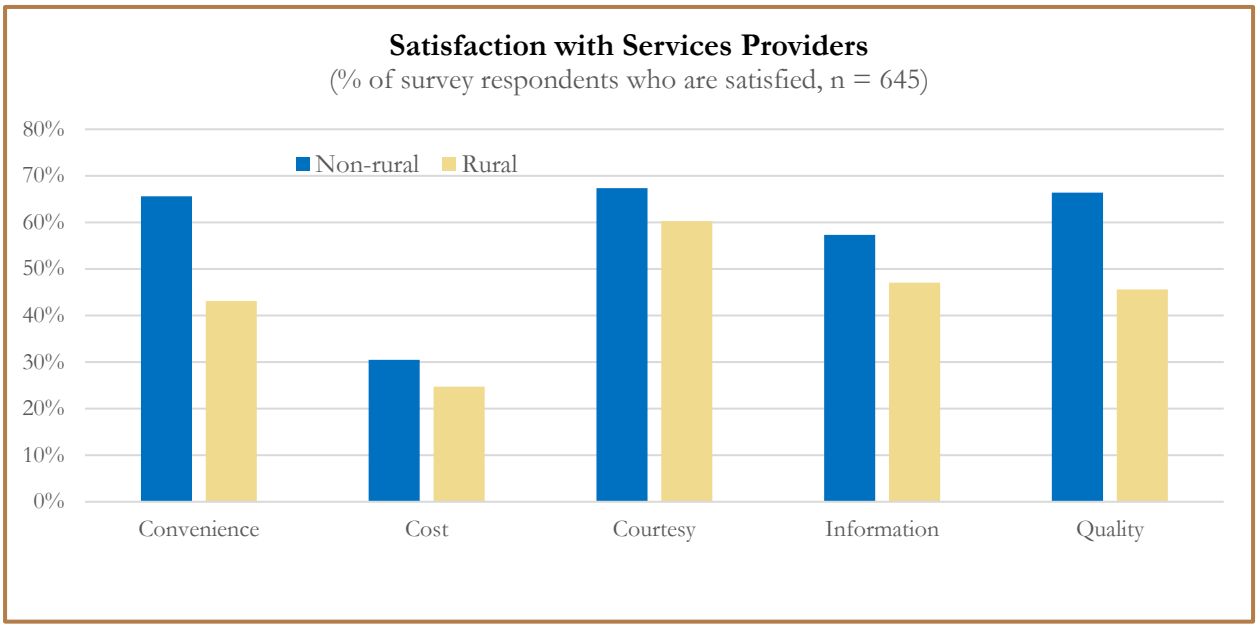
From April through September 2018, we conducted a statewide survey to gather public perception of health care access. Almost 650 people from 85 of the 88 counties in Ohio completed the online survey and more complete results are available upon request. When responding to the question about whether people thought there are enough health care services in their county, the figure below shows that there are major differences between those who live in rural and Appalachian counties and those who live in non-rural counties.



Access is also defined by how people use available services. In some cases, services are available, but people do not use them. In other cases, services are not available, but people express a need to access them. The figure below summarizes the services used by survey respondents.



The overall goal of health care is to improve health outcomes of individuals and populations. Some of the indicators for outcomes are found in perceptions of health status and how satisfied people feel about their care.



In summary, survey results indicate:

- Respondents from rural and Appalachian counties in Ohio are **less likely** to believe there are adequate services in their counties. The differences between rural/Appalachian and non-rural are statistically significant.
- Those who live in rural areas travel further distances and for longer times for primary care services than those who do not live in rural areas.
- **More than 20%** of the rural and Appalachian respondents travel 20 miles and 50 minutes to see a specialist; **less than 5%** of the non-rural respondents travel that far.
- Respondents who live in Appalachian and rural counties are **more likely** to say they are unable to afford their medical bills.
- Almost 8% of the respondents from rural counties said they were **unable to pay** household bills due to health care expenses, compared to only about 3% of non-rural respondents.
- Respondents in rural counties were **more likely** to say they took on more debt to pay medical bills.
- Almost 25% of the rural respondents **drive more than 50 miles** for specialty care, compared to less than 5% of non-rural respondents.
- **Urgent care** is the main place to access care for **25%** of the rural respondents and **15%** of the non-rural respondents. Rural respondents are also **more likely** to have used urgent care in the last 12 months.

- **Nurse practitioners** are the primary source of care for **12%** of the rural respondents and **4%** of the non-rural respondents.
- Rural respondents are **more likely** to use urgent care and nurse practitioners in their home counties, but less likely than non-rural respondents to use primary care, dental services, women's health services, pediatrics, and specialty care in their home counties.
- Respondents in rural and Appalachian counties are **slightly more likely** to use emergency rooms for conditions that could be treated by regular doctors.
- Rural respondents are generally **less satisfied** with all aspects of health care; the differences are statistically significant.
- All respondents are generally **not satisfied** with cost of health care; this is the only category where rural and non-rural respondents agree.

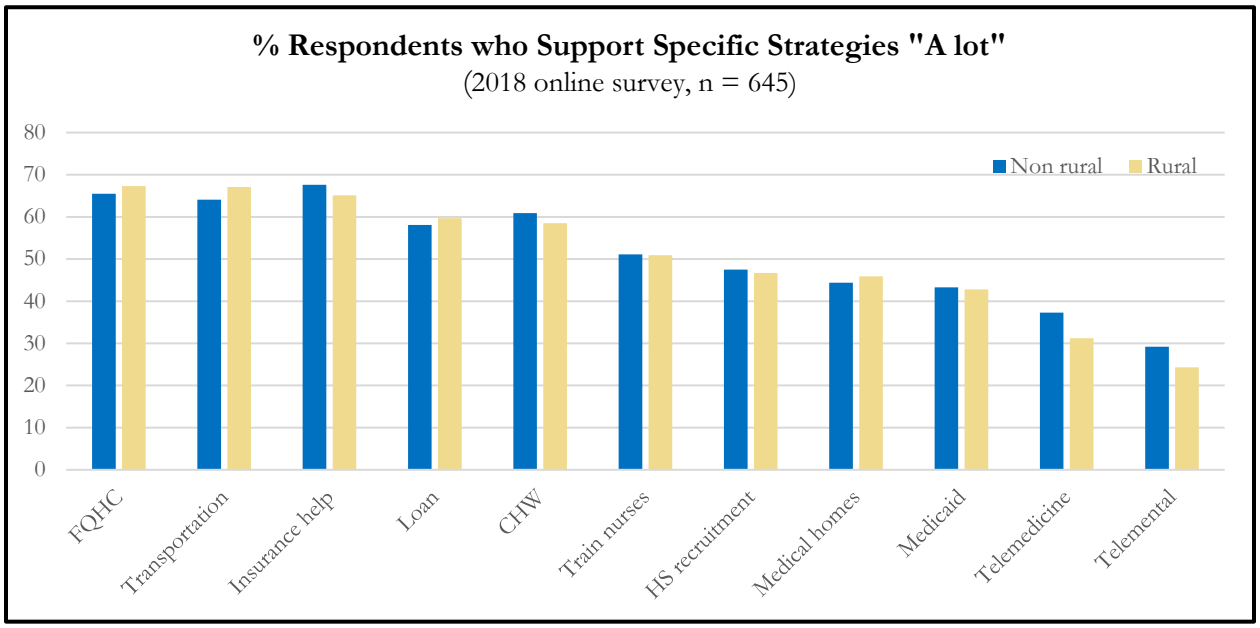
Strategies to Improve Access to Care

Robert Wood Johnson Foundation (RWJF) developed a comprehensive guide of strategies to address access to health care. *What Works for Health* offers evidence-based approaches to improving access. We included eleven strategies on the statewide survey and asked respondents to indicate their level of support. The strategies as written on the survey are ranked by support from rural respondents:

1. FQHC: Make sure places that get money from the federal government and provide health care to everyone can stay open.
2. Transportation: Improve transportation for people to get health care.
3. Insurance help: Help people find health insurance.
4. Loan: Make it easier for students to afford their education if they agree to work in health care in the county or other rural areas.
5. CHW: Train people who live in the county to help other people understand and get health care services (Community Health Workers).
6. Train nurses: Give new nurses more training.
7. HS recruitment: Get more high school students to go into health care.
8. Medical homes: Have a single office or clinic that helps you arrange all of your medical care.
9. Medicaid: Increase the amount of money that health care providers get from Medicaid.
10. Telemedicine: Use computers or phones to provide general health care.
11. Telemental: Use computers or phones to provide mental health care.

Statewide Public Support for Strategies

The 2018 public survey also included items related to support for strategies to improve access to care. The figure below notes the percent of respondents who supported these strategies "a lot."



There are notable differences between respondents who live in rural counties and respondents who do not.

- Rural respondents **(67.3%)** are **slightly more** supportive of federally qualified health centers than non-rural respondents **(65.5%).**
- Rural respondents **(67.1%)** are **slightly more** supportive of transportation programs than non-rural residents **(64.1%).**
- Only **31.2%** of rural respondents support telemedicine and only **24.3%** of rural respondents support telemental health services.

Local Strategies to Improve Access to Care

Access to health care is a function of specific local conditions that include available services, community conditions, and politics. Some strategies might effectively improve access to care, but they might not be feasible to implement based on any number of factors. To accommodate differences from one county to another, we developed a tool (below) to use in evaluating and prioritizing strategies in local communities. The tool is intended to be a qualitative approach to rating the impact and feasibility of specific strategies in the context of local conditions.

The tool is intended for use by local stakeholders to evaluate and prioritize strategies address access to care. It is based on two overall criteria: impact and feasibility. There are three indicators to qualitatively score for each criterion. The highest score that a criterion can earn is 6 points if all three indicators are evaluated to highly.

Tool for Evaluating Potential Strategies to Address Access to Care					
	Indicator (score)	**High (2)**	**Moderate (1)**	**Low (0)**	**Score**
Impact Criteria	# of people served	Strategy has potential to improve health care access for more than 50% of the population	Strategy has potential to improve health care access for 25-50% of the population	Strategy has potential to improve health care access for less than 25% of the population	
	Population characteristics	Strategy only focuses on underserved and low-income people and other vulnerable populations	Strategy has some focus on underserved and low-income people and other vulnerable populations	Strategy does not focus on underserved and low-income people and other vulnerable populations	
	RWJF rating	RWJF rating of SS (scientifically supported)	RWJF rating of SE (some evidence) or EO (expert opinion)	RWJF rating of IE (insufficient evidence), Mixed (mixed evidence) or EI (evidence of ineffectiveness)	
				Total Impact Score	
Feasibility Criteria	Cost	Strategy does not require significant new funding sources	Strategy requires some new funding sources	Strategy requires major new funding sources	
	Personnel	Strategy relies on the involvement of community members	Strategy involves a few key stakeholders in the community	Strategy does not involve community members	
	Time	Strategy can be implemented within 24 months	Strategy will take more than 24 months to implement	Strategy has no defined timeline or it is impossible to identify the time it will take to implement	
				Total Feasibility Score	

Evaluation of Strategies to Improve Access to Care

We facilitated 8 sessions with 9 local groups comprised of rural health care stakeholders. The facilitator's agenda for these sessions is in Appendix #. A total of 110 people participated in all sessions.

Local Health Care Access Strategy Meetings		
Date	Location	No. of Participants
4/23/2018	Perry County	9
10/18/2018	Meigs County	11
1/23/2019	Carroll County	17
1/23/2019	Morrow County	19
5/22/2019	Gallia County	7
5/23/2019	Vinton County	8
6/13/2019	Washington County &	21
	Marietta/Belpre	6
6/14/2019	Lawrence County	12
Total participants		110

The purpose of these sessions was to evaluate a range of strategies that have the potential to improve access to care in the rural areas. The strategies come from the Robert Wood Johnson Foundation's (RWJF) comprehensive list of strategies to address access to health care. *What Works for Health* offers evidence-based approaches to improving health across a range of factors.

Health Care Access Team Assessment: Individual representatives from health care and public health first identified strategies that they wanted to discuss and then evaluated the strategies using the tool. The average ratings are summarized and categorized in the tables below. The average ratings are categorized as follows: **H**igh = 4-6; **M**oderate = 2-3.9, and **L**ow = 0-1.9.

Average Ratings by Category, All Meetings (High = 4.00-6.00; Moderate = 2.00-3.99; L = <=1.99)			
	Local Workgroups		Public
Strategy: Alphabetical (For strategy descriptions, see Appendix 2)	**Impact**	**Feasibility**	**Support**
Activity Programs for Older Adults	**H**	**H**	**H**
Career Academies	**M**	**M**	**H**
Community Health Workers	**M**	**M**	**H**
Cultural Competency Training	**H**	**M**	**H**
Federally Qualified Health Centers	**H**	**M**	**H**
Health Career Recruitment	**H**	**M**	**M**
Health Insurance Enrollment & Outreach	**M**	**M**	**H**
Medical Homes	**H**	**M**	**M**
Places for Physical Activity	**H**	**M**	**H**
Retail	**M**	**M**	
Rural Training in Medical Education	**M**	**M**	**M**
Rural Transportation Systems	**M**	**M**	**H**
School-based Health Centers	**H**	**M**	
Telemedicine	**H**	**M**	**L**
Telemental Health Services	**M**	**M**	**L**

Public Support: As noted above, the sample who completed an online survey provide some indication of public support for specific strategies. In order to provide comparable information, public support for strategies is compiled from rural and partially-rural counties only. This support is categorized based on percentages of respondents who support the strategy "a lot:" **H**igh = more than 75% of respondents support the strategy "a lot;" **M**oderate = 50-74.99%; and **L**ow = less than 50 percent. A summary of public support from rural and partially rural counties is in Appendix #.

The specific average workgroup ratings are shown in the table below, sorted by those that averaged the highest impact scores to the lowest impact scores. The strategies that rated the highest for impact were federally qualified health centers (FQHC) (5.04) and school centers (4.80). The count is the number of participants in all local groups who rated each strategy. The count is also an indicator of how important each strategy is because it suggests whether the participants at the access to care sessions wanted to talk about it. For example, FQHCs were discussed at every meeting

because 107 people rated it. Retail clinics and cultural competency training only have about 60 ratings, indicating that these strategies were not considered to be effective enough at some session for further discussion.

Average Ratings All Groups (highest = 6)				
	Count	Impact (highest to lowest)	Feasibility	Difference* (Impact – Feasibility)
FQHC	107	5.04	3.25	1.79
School centers	86	4.80	3.26	1.60
Telemedicine	75	4.71	3.19	1.52
Medical homes	91	4.68	3.34	1.34
Active places	95	4.35	3.73	0.62
Older activities	87	4.33	4.33	0.00
Cult competency	64	4.03	3.73	0.30
Recruitment	86	4.01	3.73	0.28
Career academies	81	3.94	3.69	0.25
Comm workers	97	3.92	3.59	0.33
Insurance support	76	3.86	3.74	0.12
Transportation	102	3.74	3.60	0.13
Rural training	82	3.56	2.95	0.61
Retail clinics	60	3.48	2.90	0.58
Telemental	85	3.44	3.41	0.02

*Positive numbers indicate that the strategy is rated more impactful than feasible; the greater the number the larger the gap between impact and feasibility.

The combined average ratings do not tell a complete story about access to care locally. A more complete picture emerges when looking at the average rating in each of the 9 sessions. The table below identifies the number of groups that rated the strategy higher than 4.0 out of 6.0 for impact and feasibility. These ratings suggest that, while there is some agreement on the impact that strategies will have on improving rural health, the feasibility of implementing these strategies is subject to local constraints.

Number of Local Health Groups Rating Strategy High (average 4.0 or above, n = 9)		
Strategy	Number of Groups	
	Impact	**Feasibility**
Active Places	7	4
Career Academies	4	3
Community Health Workers	4	3
Cultural Competency Training	3	3
FQHCs	9	0
Insurance support	4	1
Medical Homes	9	2
Older Activities	7	7
Recruitment	3	2
Retail Clinics	1	0
School Centers	6	0
Rural training	4	0
Telemedicine	8	2
Telemental	0	1
Transportation	3	3

KEY MESSAGES: LOCAL RATINGS

- **All local groups rated the following as high impact strategies (not all local groups rated each strategy):**
  - **FQHC**
  - **Medical Homes**
  - **Telemedicine**
- **All local groups rated FQHCs high for impact, but none of them rated them high for feasibility.**
- **None of the strategies were rated high feasibility by all groups, so while there is some agreement on the impact of strategies, local conditions affect the feasibility.**

Rural Health Improvement Plans

The State Health Improvement Plan notes three general health factors as priorities: community conditions, health behaviors, and access to care. The data summarized above indicate that rural counties in Ohio have some of the worst community conditions, health behaviors, and access to care. The results from public and stakeholder engagement also suggest general support for specific strategies to improve access to care, but the feasibility of implementing strategies is tied to local conditions.

The Rural Health Improvement Process also identified that there is no "one size fits all' approach to improving access to care in rural places. The first part of the plan is to develop infrastructure at both the state and local levels to improve access to care. This infrastructure includes additional engagement with local rural health stakeholders and developing a statewide advocacy group that can focus on implementing strategic priorities at the state level and providing support for local efforts.

Finally, the Rural Health Improvement Process is an ongoing effort. These recommendations must include strategies for evaluating progress and revising the plan regularly.

Goal 1: Engage local rural health stakeholders

Even though we have engaged local rural health stakeholders, a more comprehensive approach is necessary. This approach focuses on including at least 50% of the rural and partially rural counties in the state to establish strategic priorities. This will be a collaborative process with the Ohio Rural Health Association leading the effort.

Engage Local Rural Health Stakeholders	
Objective(s)	Activities
Document strategic priorities from at least 25 rural counties and 12 partially rural counties	• Recruit local participation • Train local facilitators • Conduct meetings/sessions • Compile and compare strategies from rural and partially rural counties • Create and disseminate report
Identify 1-2 strategic priorities that can be developed and implemented at the state level	• Develop partnerships to share ideas and resources • Identify approaches to address strategic priorities

Goal 2: Advocate for improving access to care strategies in rural areas.

Key decisionmakers including elected officials, governmental agencies, and local health care providers are critical to improving access to care. This goal includes identifying opportunities to advocate for rural health care access as well resources that can assist local rural health care access efforts.

Advocate for Access to Rural Health Care	
Objective(s)	Activities
Create statewide Rural Health Care Access Advisory Group	• Subgroup/committee of the Ohio Rural Health Association • Identify advocacy and educational opportunities
Identify resources for local organizations and stakeholders	• Collaborate with SORH, NRHA, and other state rural health associations to inventory grants and other financial resources • Provide financial, technical, and political opportunities for local rural health stakeholders

Goal 3: Continue Rural Health Improvement Process

The process to improve rural health is ongoing, as such, there must be a commitment to evaluate progress, set new goals, and implement new objectives.

Continue Rural Health Improvement Process	
Objective(s)	Activities
Complete annual evaluation of goals	• Develop framework for evaluation • Public annual progress report
Reassess goals every two years	• Conduct facilitated sessions and public opinion polling

Appendix 1

Project Timeline

OHIO RURAL HEALTH IMPROVEMENT PROCESS

(Summary of Activities, December 2020)

Develop Ohio Rural Health Association | **Conduct Ohio Rural Health Needs Assessment**

DATE	ACTIVITY
August 2017	Appalachian Rural Health Institute (ARHI) at Ohio University receives a technical assistance grant from the National Rural Health Association (NRHA) to begin developing a state association.
	ARHI facilities a stakeholder discussion at State Rural Health Conference; mission and vision of an Ohio Rural Health Association (ORHA) emerges.
November 2017	ARHI convenes a full day planning meeting in Columbus; mission and purpose statements for ORHA are approved.
January 2018	ARHI receives second technical assistance grant from NRHA; needs assessment for an ORHA begins through an online survey.
	ARHI receives grant from Ohio Department of Health to coordinate Rural Health Improvement Process.
February 2018	ARHI begins discussion with OU about affiliating ORHA at the University.
April 2018	ARHI submits report to ODH about the status of community health assessments in rural counties.
	ARHI convenes second full day planning meeting; the group develops a logic model for ORHA that becomes the working strategic plan.
June 2018	ARHI submits proposed process for creating the rural health improvement plan to ODH.
	ARHI convenes small group to draft bylaws for ORHA.
July 2018	ARHI attends State Leadership Meeting sponsored by NRHA in Washington, DC.
August 2018	ARHI facilitates discussion about rural health at State Rural Health Meeting.
	Ohio Rural Health Priorities identified as: substance abuse; mental/behavioral health, obesity; chronic disease; and **ACCESS TO CARE.**
September 2018	Statewide survey on public perceptions of access to health care is completed; **more than 70% of respondents in rural counties do not believe there are enough local health care services**.

January 2019	ARHI receives third technical assistance grant from NRHA to continue working the ORHA.
	ARHI publishes and disseminates the *Rural Healthcare Access Research Report* that summarizes findings related to addressing gaps in access to care; all local health departments and 80 rural hospitals receive a copy.
February 2019	*Development and application of a rubric to compare strategies for improving access to care in rural communities in the United States* is published in Evaluation and Program Planning (https://doi.org/10.1016/j.evalprogplan.2019.02.013)
April 2019 – June 2019	ARHI facilitates 8 sessions in rural counties to prioritize strategies improve access to care.
July 2019	ARHI begins second phase of rural health improvement process to include finalizing the Ohio Rural Health Association, continuing access to care research and technical assistance, and planning regional roundtables.
	ARHI attends State Leadership Meeting sponsored by NRHA in Denver, CO.; ORHA files Articles of Incorporation with State of Ohio.
August 2019	ORHA is featured at the State Rural Health meeting; board members are recruited, and membership opens.
	ARHI receives second grant from Ohio Department of Health, State Office of Rural Health to complete Rural Health Improvement Process by June 2020.
September 2019	ORHA is incorporated in Ohio; first board meeting.
December 2019	Articles of Incorporation are approved; ORHA obtains a tax identification number; ORHA obtains 501(c)(3) status
	ARHI receives 4th technical assistance grant from NRHA.
February 2020	ORHA presents at the Ohio Community Health Center Conference; ORHA and ARHI collaborate with SORH to plan state rural health conference
March 2020	ORHA gets DUNS number; ORHA opens bank account
April 2020	ORHA website goes live: https://www.ohioruralhealth.org/
July 2020	ORHA board members attend virtual NRHA State Association Leadership conference
August 2020	ARHI and ORHA host the Virtual 2020 State Rural Health Conference.
November 2020	ORHA is identified as Ohio's Rural Community Health Star by NRHA.
December 2020	ORHA receives technical assistance grant from NRHA, taking additional steps to become a standalone organization.

Appendix 2

Definitions of Strategies

ACTIVITY PROGRAMS FOR OLDER ADULTS

Educational, social, or physical activities in group settings that encourage personal interactions, regular attendance, and community involvement.

CAREER ACADEMIES

Career academies prepare high school students for both college and careers. They link students with peers, teachers, and community partners. They have three key elements: 1) a small learning community; 2) a college prep curriculum with a career theme; and 3) an advisory board**.**

COMMUNITY HEALTH WORKERS

A community health worker is a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the worker to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery.

CULTURAL COMPETENCE TRAINING FOR HEALTH CARE PROFESSIONALS

Training opportunities focusing on skills and knowledge to value diversity, understand and respond to cultural differences, and increase awareness of providers' and care organizations' cultural norms.

FEDERALLY QUALIFIED HEALTH CENTERS

FQHCs are community-based health care providers that receive funds from the HRSA (Health Resources & Services Administration) Program to provide primary care in underserved areas. They must meet a stringent set of requirements, including providing care on a sliding fee scale based on ability to pay and operating under a governing board that includes patients.

HEALTH CAREER RECRUITMENT

Recruit and train students for careers in health fields via information about health careers, classes, practicum experiences, advising about college or medical school admissions.

HEALTH INSURANCE ENROLLMENT AND OUTREACH

Provide health insurance outreach and support to assist individuals whose employers do not offer affordable coverage, who are self-employed, or who are unemployed.

MEDICAL HOMES

Medical homes provide continuous, comprehensive, whole person primary care. In this model of care, personal physicians and their teams coordinate care across the health care system, working with patients to address all their preventive, acute, and chronic health care needs, and arranging care with other qualified health professionals as needed. Medical homes offer enhanced access, including expanded hours and easy communication options for patients. They also practice evidence-based medicine, measure performance, and strive to improve care quality.

PLACES FOR PHYSICAL ACTIVITY

Enhancing access to places for physical activity involves changes to local environments that create new opportunities or reduce the cost of existing opportunities (e.g. creating walking trails, building exercise facilities, or providing access to nearby facilities). Increased access is typically achieved in a particular community through a multi-component strategy that includes training or education for participants.

RETAIL CLINICS

Establish clinics in retail stores that provide basic services for minor illnesses and procedures; also known as retail pharmacy, walk-in, or convenient care clinics.

RURAL TRAINING IN MEDICAL EDUCATION

Expand medical school training and learning experiences focuses on the skills necessary to practice successfully in rural areas.

RURAL TRANSPORTATION SERVICES

Rural transportation services provide transportation across large areas that have low population densities and lack established public transportation systems. Services may include shared transportation options such as publicly-funded buses and vans running on fixed routes and schedules, more flexible pick-up and drop-off with smaller vehicles (e.g., dial-a-ride and other demand-response programs), or volunteer ridesharing programs.

SCHOOL-BASED HEALTH CENTERS

Provide health care services on school premises to attending elementary, middle, and high school students, services provided by teams of nurses, nurse practitioners, and physicians.

TELEMEDICINE

Services can encompass primary and specialty care, referrals, and remote monitoring of vital signs, and may be provided via videoconference, email, smartphones, wireless tools, or other modalities (ATA). Telemedicine can supplement health care services for patients who would benefit from frequent monitoring or provide services to individuals in areas with limited access to care.

TELEMENTAL HEALTH SERVICES

A subset of telehealth that uses technology to provide mental health services from a distance. This includes telepsychology, telepsychiatry, and telebehavioral health.

For a comprehensive list of strategies see *What Works for Health* at https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health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