Ohio's COVID-19 Populations Needs Assessment

Minimizing the Disparate Impact of the Pandemic and Building Foundations for Health Equity

This document contains excerpts from the full report, which can be found here: https://go.osu.edu/inequitable-burdens-covid-19

The Ohio State University
College of Public Health

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Findings and Recommendations for *Needs Assessment* Populations

Rural Communities in Ohio

Background

Terminology

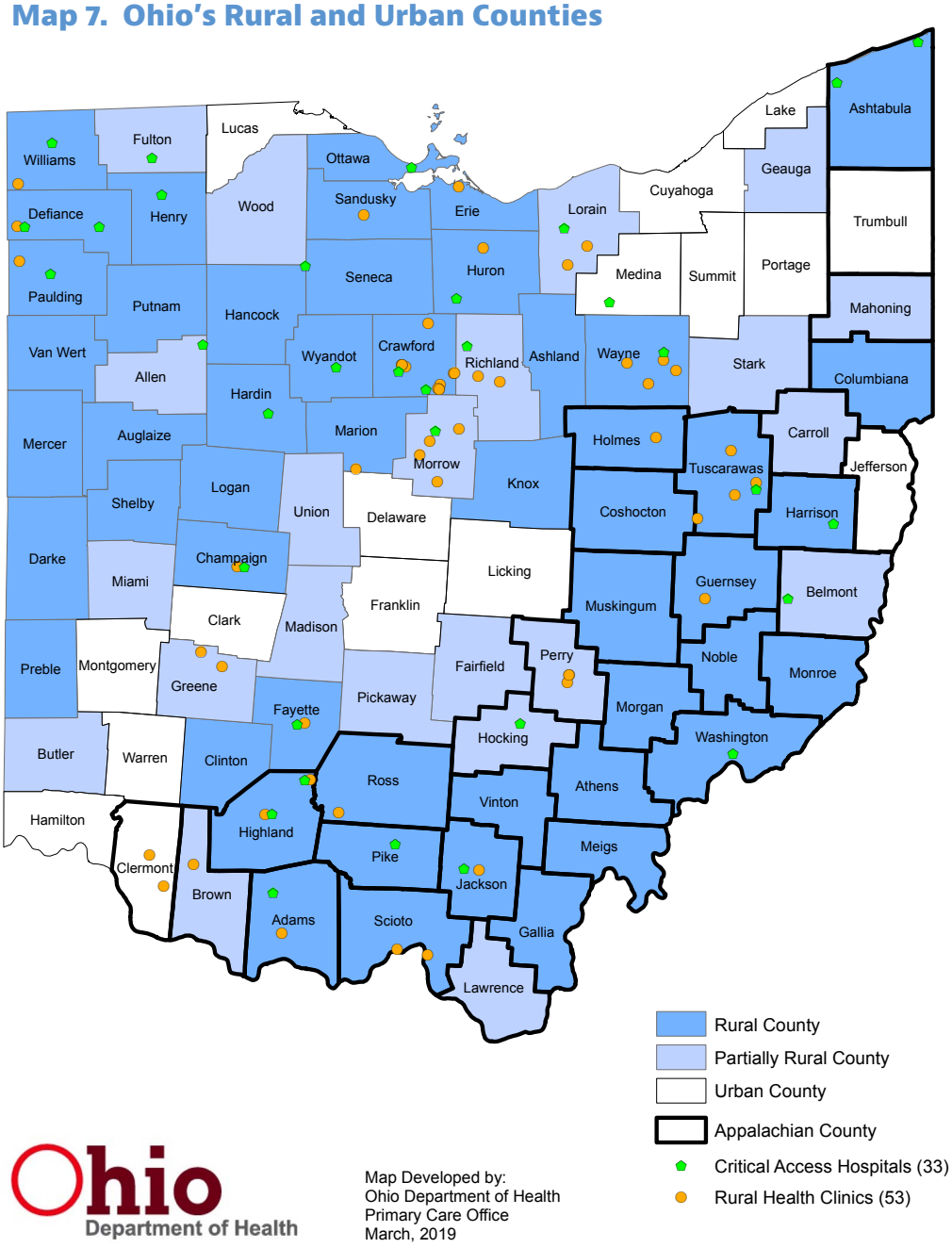
Needs Assessment key populations are identified throughout this document using the terminology preferred by respondents. This section focuses on those who identified themselves as representing rural populations in Ohio.

The definition of a rural area differs across agencies and institutions. The U.S. Census Bureau definition identifies an urban area as having a population of 50,000 or more, and geographic areas with fewer than 50,000 people to be rural. This definition is also used by the Centers for Medicare and Medicaid Services and Ohio's State Office of Rural Health (SORH). According to SORH, most counties in Ohio are rural or partially rural (see Map 7).

Appalachian Ohio is a specific geographic region in the southeastern part of the state. The area comprises the western foothills of the Appalachian Mountains and the Appalachian Plateau, and includes 32 counties, of which 29 are rural or partially rural.

Primarily defined by population size and density, rural populations are not homogenous. Ohio's rural geographic areas encompass many subpopulations, including those living in Appalachia, Amish communities, incarcerated persons, and migrant workers. This report therefore considers rural populations through an intersectional lens that considers both identity and place.

Map 7. Ohio's Rural and Urban Counties



Source: *Map 7.* Ohio's Rural and Urban Counties. Original source document: Ohio Department of Health Primary Care Office, *Ohio Department of Health* via personal communication.

Population

Rural Ohio is majority White. The Ohio Appalachian population is more than 90% White (as well as 4.3% Black, 2.2% Hispanic/Latino, and 2.7% Other non-Hispanic), and has seen only a 1.1 increase in racial minority populations since 2010 (Pollard & Jacobsen, 2020). Only two rural or partially rural Ohio counties have 10% or more Black residents, and no county in Ohio has more than 10% Hispanic population (Rural Health Information Hub, 2020a). A larger proportion of Hispanic individuals reside in Northeastern rural counties and work as migrant farm laborers. Individuals from Mexico, El Salvador, and Guatemala work in U.S. agriculture through the H-2A program, and Ohio's migrant workers are most concentrated in Sandusky and Ottawa counties (Carson, 2020).

Appalachian Ohio has a population of over 1.9 million, or 17% of Ohio's residents (Pollard & Jacobsen 2020). The region's population has decreased 2.4% since 2010. The region's residents are also somewhat older than average overall: 19.1% of Appalachian Ohioans are 65 or older (compared to 16.7% of the rest of the state), and the median age in Appalachia is 42.0 years old (compared to 38.9 years in the rest of the state) (Pollard & Jacobsen, 2020). This somewhat older population raises the risk of disproportionate negative COVID-19 outcomes in Appalachian Ohio, since older adults are at greater risk of serious illness or death if infected.

As of 2018, approximately 35,850 Amish individuals resided in Holmes County – a rural and Appalachian county – and 19,055 Amish individuals lived in partially rural Geauga County (Young Center for Anabaptist and Pietist Studies, 2019). Holmes County is a popular tourist destination also known as "Amish Country." Amish cultural practices include finishing schooling at the end of 8th grade, which may contribute to low health literacy (Katz et al., 2013). Additionally, traditional Amish lifestyles prohibit certain electronic technologies, which may decrease access to timely COVID-related health information. Efforts to prevent and contain COVID-19 in Ohio Amish communities must consider these culturally specific challenges.

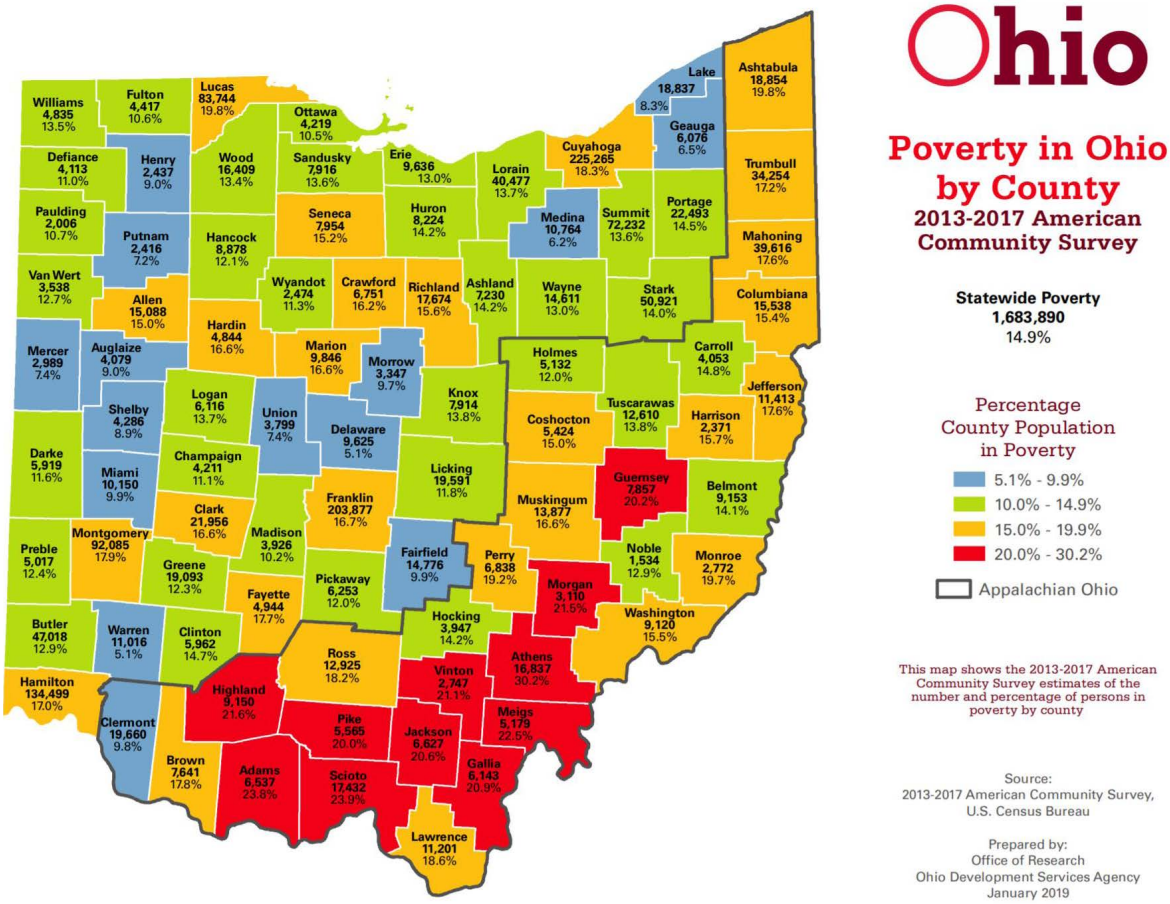
Education and Income

Rural Ohio populations are challenged by lower levels of education and employment than urban residents. In rural Ohio, 12.2% of residents have not completed high school and 43% ended their education with only a high school diploma (versus 9.3% and 30.8%, respectively, of their urban peers); 16.9% of rural Ohioans have finished college (versus 30.6% of their urban peers) (USDA ERS, 2020). Unemployment rates vary widely across rural Ohio.

In May 2020, unemployment in rural non-Appalachian Ohio counties averaged 12.9%, ranging from a low of 9.0% in Mercer county to a high of 19.9% in Erie County (ODJFS, 2020). The unemployment rate in Appalachian Ohio was 12.4% in May 2020 (compared to the five-year average unemployment rate in that region of 17.2%) (Larrick, 2019; ODJFS, 2020).

Poverty rates are considerably higher in rural Ohio than other parts of the state; this is particularly problematic in Appalachia, where 20-30% of residents live in poverty in 11 of 32 counties (see Map 8). The four poorest counties in Ohio are all Appalachian (Athens, Scioto, Adams, and Meigs), and five Appalachian counties are designated as "distressed": in the bottom 10% of all US counties economically (Larrick, 2019; Pollard & Jacobsen, 2020).

Map 8. Poverty in Ohio, by County



Source: *Map 8.* Poverty in Ohio by County. Adapted from American Community Survey by Office of Research Ohio Development Services Agency, 2019, *Ohio Development Services Agency.* Retrieved July 2020, from https://www.development.ohio.gov/files/research/P7005.pdf

Settlement and Economic History

Native Americans lived throughout Ohio until German and Irish immigrants arrived in the area. As early as 1785, European immigrants began building canals and railroads to expand the American frontier (Ohio Development Services Agency, 2019c). Native American populations were displaced from Ohio as immigrant groups settled along the Ohio River region and gradually rural – and specifically Appalachian – Ohio came to rely on the coal and steel industries. As these industries closed or left the region, Appalachian and rural Ohio was faced with poverty and economic decline. Farming was a staple of rural Ohioan incomes until the early 1900s, when the focus of the economy shifted to urban industries. World War I and II brought moments of economic prosperity for Ohio farmers, but as the wars ended farm machinery became more expensive and farm workers left for urban careers. These factors generated the need for low-cost labor found in the form of migrant farm workers (Ohio History Connection, 2020c).

The Appalachian Redevelopment Act of 1965 created the Appalachian Regional Commission, which works to strengthen economic development in Appalachia (Appalachian Regional Commission, 2015). A once economically flourishing region for its natural resources (i.e., coal, timber, iron) is now one of the poorest areas in Ohio.

Health Profile

Appalachian residents have lower life expectancies than non-Appalachian residents and, as of 2013, all-cause mortality was 18% higher in Appalachia than the rest of the U.S. (Singh et al., 2017). Appalachian Ohioans experience high rates of several key risk factors for chronic disease, including tobacco use, sedentary lifestyles, lack of access to nutritious food, and risky sexual behaviors. Chronic obstructive pulmonary disease (COPD) mortality rates are 35% higher in Appalachian Ohio than in the general U.S. population, and 15% higher than in non-Appalachian Ohio (Marshall et al., 2017). In addition, rural and Appalachian Ohioans are more likely to die from chronic health problems that increase morbidity and mortality risks associated with COVID-19 (Erwin et al., 2020).

Mental health is a substantial concern in rural areas as well. The rate of mental health problems – including anxiety and depression – is 17% higher among Appalachian Ohioans than among Americans overall, and 5% higher than among non-Appalachian Ohioans. Suicide rates in Appalachian Ohio are also 26% higher than in non-Appalachian Ohio (Marshall et al., 2017).

Healthcare availability and access are challenges for many rural Ohioans. Inability to afford healthcare is a significant barrier: 37% of rural U.S. residents report needing to delay healthcare, mainly due to cost (Washington Post/Kaiser Family Foundation, 2017). Other barriers limit healthcare usage as well. While 17% of US population lived in rural areas as of 2010, only 9% of doctors practiced in rural areas (Bolin et al., 2015). Rural residents often have to travel long distances to access health care, which is made more challenging by limited public transportation. They are also less able to utilize telehealth due to insufficient Internet access (Douthit, 2015).

In recent decades, rural Ohio counties have been challenged by multiple, overlapping health crises, including mass incarceration, the opioid epidemic, food deserts and food swamps, and intimate partner violence (Dumont et al., 2012; Erwin et al., 2020; Mulangu & Clark, 2012; Ohio Department of Health, 2018c). The opioid epidemic has particularly ravaged rural Ohio. While unintentional drug overdose deaths have generally been decreasing in Ohio, overdose deaths have increased in 16 of the state's most rural counties (Ohio Department of Health, 2018c).

Challenges Specific to COVID-19

COVID-19 may exacerbate health disparities for vulnerable rural populations. Early studies indicate that 46% of Ohio's small rural counties have high COVID-19 mortality risk, compared to 18% of urban and large rural counties (Rhubart et al, 2020). These risk differences are driven by the high prevalence of older adults in rural Ohio counties and high rates of chronic health conditions (e.g.: obesity, diabetes, heart disease) that may complicate COVID-19 treatment and recovery. Most Ohio prisons are also located in rural or partially rural counties, which may affect COVID-19 prevalence rates. Marion Correctional Institute and Pickaway Correctional Institute made headlines after 73% of incarcerated individuals tested positive for COVID-19 cases, and prison staff return home to rural communities (Chappell & Pfleger, 2020; Raphling 2020).

Culture

Rural populations have traditionally distrusted government policies and interventions. Historical and contemporary experiences of poverty and weak economic recovery have contributed to a culture that relies heavily on local networks and communities for support rather than government. Many rural residents also rely on their Christian – and often evangelical – faith to cope with economic stresses and structural inequities. Compared to those living in urban areas, rural residents are more likely to report that where they live is a good place to raise children and that people look out for each other (Washington Post/Kaiser Family Foundation 2017).

Findings from Analysis of *Needs Assessment* Data from Respondents Representing Rural Ohioans

Description of Respondents:

129 respondents representing rural communities in Ohio completed the *Needs Assessment* survey; many identify themselves as members of rural communities. This is not a general sample of rural Ohioans, but a purposeful sample of individuals who represent organizations, agencies, and community groups that work with rural populations. The largest group of respondents identify themselves as female, middle-class healthcare professionals. Respondents work in healthcare settings, public health departments, and non-profit organizations.

Description of Communities:

Respondents describe their communities as rural small towns and/or villages comprised of predominantly White people, many of whom are unemployed, have low incomes, and have low levels of education. Others describe their areas as Appalachian, immigrant Latino, Amish, agricultural/manufacturing communities, areas where there is only one hospital and many people travel out of the county to go to work, and areas with no public transit. Respondents describe the largest industries in their regions as agriculture, healthcare, communications, tourism, food service, and retail. In these areas, respondents describe that there are high co-morbidities, poor access to transportation, poor access to healthy food, as well as a large number of elderly people caring for grandchildren. Local healthcare is limited, and health services may require a minimum 30-minute travel time. Access issues described include socio-economic barriers, behavioral health issues and a substantial burden of chronic disease described as congestive heart failure, chronic obstructive pulmonary disease, cancer, and diabetes. In these areas, many people live at or below the federal poverty level, and substantial portions of local counties are federally designated health professional shortage areas for primary care, with only parts of the population being served.

I. Strengths of the Community

Respondents identified a broad range of community strengths that should be used as part of the COVID-19 response within rural communities. These include:

- Dependable & hard-working
- Community organizations work very well together
- Tradition of assisting others in the community, desire to work together and protect each other
- Strong community relationships
- Agencies understand the community, team approach to care
- Resilience
- Good communication
- Honesty, integrity
- Use of pharmacies to provide information about community and medical resources
- Family and social cohesion

II. Key Barriers to Using Public Health Strategies to Minimize the Impact of COVID-19

These categories represent the barriers that most commonly challenge the ability of rural Ohioans to use public health strategies to minimize the impact of COVID-19. These key barriers were mentioned by multiple respondents (ranging from 5 to >30), and they affect communities' ability to use multiple public health strategies. A summary of each barrier is followed by bullets which detail specific instances and problems commonly mentioned by respondents. Selected quotes exemplify the stories and ideas of *Needs Assessment* respondents.

Topic A: Hygiene
Topic B: Social Distancing
Topic C: Mask-Wearing and Personal Protective Equipment (PPE)
Topic D: COVID-19 Testing
Topic E: Contract Tracing
Topic F: Isolation
Topic G: Self-Quarantining
Topic H: Healthcare Access

1. Lack of access, availability, and cost

This barrier limits the ability of community members to use most public health strategies to minimize the impact of COVID-19, including protective hygiene, social distancing, PPE, COVID-19 testing, isolation, self-quarantining, and healthcare (Topics ABCDFGH).

- Community members lack access to cleaning and hygiene supplies, grocery stores, PPE, and clean water.
- Needed items aren't available locally, or cost too much
- Supplies can't be purchased with food stamps
- Few opportunities exist to shop for needed items
- There is a shortage of healthcare providers – in general, nurses, mental health providers
- Healthcare that does exist may be inaccessible due to overbooking
- Safety net providers in rural areas may be primary care providers and free clinics not associated with Federally Qualified Health Centers (FQHCs) so they don't receive federal funding
- Telehealth services may not be offered or may not be accessible due to lack of technology, cellular coverage, and Internet connectivity
- There is a cultural preference for face-to-face visits with clinical providers

"Social distancing is not as difficult in rural areas. Having masks, sanitizer, or gloves is more difficult when going to a rural store."

"In living situations without running water washing hands is impossible."

"The other issue became cost. The cost of some items rose significantly during this pandemic, which is wrong."

"There are no sewing stores in the county so it would be hard for [people] to make their own face coverings. Organizations in the county have just started to donate face coverings."

"We live in a rural setting where access to healthcare is a challenge during normal times. Patients who live in rural areas are sicker, poorer, and at times lack the means to get to those services."

- Healthcare and mental health services have closed due to COVID-19
- Providers who accept Medicaid are lacking
- Healthcare providers lack PPE, COVID-19 tests
- Where COVID-19 tests exist, they are not available to everyone. There is often a long wait to test, and testing criteria change frequently.
- Poverty and low incomes are common; overall lack of financial resources
- Local economy cannot afford restrictions
- Resources need to be shared because of poverty
- There is a lack of health insurance; care is too expensive
- There is a fear of costs associated with having COVID-19
- Meeting basic needs is more important than responding to COVID-19

"A local health department placed an order for gloves in February. As of the middle of April, those supplies had not been received. If health departments are struggling to get supplies, households can't even begin to find the needed supplies."

"Requesting a member of the community to wear a mask means that client is obligated to get a mask; however that person did not have the means or funds to buy a mask. Also that client did not have the transportation to get hygiene products needed to sanitize their house. Not having a facial mask means that person is not able to go in a store if a mask is required."

"The local economy is very dependent on tourism and cannot afford to have limited dining or entertainment restrictions."

2. Gaps in knowledge, lack of current information from trusted sources

A range of gaps in knowledge and information impedes the ability of community members to use most public health strategies to minimize the impact of COVID-19, including protective hygiene, social distancing, PPE, COVID-19 testing, self-quarantining, and healthcare (Topics ABCDGH)

- Lack of access to current information from trusted, local sources
- Feeling bombarded with information from other sources
- "Safety fatigue" resulting from over-exposure to information without any information from trusted sources
- Fatigue from social media
- Low general level of education
- Low health literacy
- Lack of information about what public health strategies are or how to use them
- Lack of information about who is at risk

"[Individuals] lack…education about the virus due to limits to TV or Internet. In the Amish community, frequently the husband brings home word of mouth news to the family, [which] may not be accurate or adequate."

"[Many disbelieve] the pandemic is as bad as they hear on television."

"I see individuals using winter ear bands around their mouths in an effort to protect themselves. They do not have access to the PPE that is being encouraged by the state to stay safe. It is not enough to protect them."

- Misinformation
- Inconsistent information from regulatory agencies and hospitals
- Lack of knowledge about where to go to purchase supplies
- Lack of information about available resources
- Lack of understanding of how and where to seek care, how to use telehealth
- Lack of understanding of community health impact of COVID-19
- Lack of information and resources to sanitize home after a person has been diagnosed and/or recovered from COVID-19

"I am troubled at the lack of proper use of gloves [and] cloth masks. I feel that people practice less hand hygiene when they have these on. They provide a false sense of security for protection against the virus."

"Community members appear angry when asked to allow social distance as well as mask usage and see it as loss of 'rights'…Social media is a single source of information for many in this region. The spread of false information occurs via social media."

"One hospital's requirement for staff [is] different than another's. Healthcare workers share information and frustration and fear cause problems."

3. Work-related issues

Many members of these communities must go to work and cannot work from home. Work impedes use of protective hygiene, social distancing, COVID-19 testing, and self-quarantining (Topics ABDG).

- Must go to work for financial reasons
- Inability to work from home due to work policy or limited broadband
- Inability to use social distancing or other necessary protections in the workplace
- Reluctance to test because it could mean losing work
- Reluctance to skip work to self-quarantine because of potential loss of employment

> *"Many employers are not providing these resources at work. We have received many complaints from individuals along these lines."*

4. Caregiving responsibilities

Caregiving responsibilities impede the ability of community members to use protective hygiene, social distancing, isolation, and self-quarantining (Topics ABFG).

- Lack of childcare or challenges with childcare
- Single parent households
- Caregivers for children, others must continue working or providing care even if sick
- Reliance on grandparents to care for children

"I think parents are frustrated with children being at home without guidance so they are letting them play with friends. They need organized activities to help keep them busy."

"A single mom, with no support, cannot isolate herself from her two small children."

"We have multiple situations where an individual is primary care giver for both a child and one or more elderly family members."

5. Housing Challenges

Housing conditions in these communities affect members' ability to use protective hygiene, social distancing, isolation, and self-quarantining (Topics ABFG).

- Crowded housing, small living quarters
- Multi-generational households
- Multi-family residences
- Multi-unit housing
- Large families
- Need to share housing, unable to live independently
- Homelessness, unstable housing
- Inability to isolate or self-quarantine
- Inability to get groceries or supplies while in self-quarantine
- Homes have only one bathroom
- Congregate settings and prison population
- Alternative living arrangements are not affordable

"A multi-generational family of 11 people ranging from age 4-57 [years old] live in the same house. One member is immunocompromised. Bedrooms are shared, meals are prepared together and eaten together. Schooling the children is shared. They do have adequate running water and ability to perform hand hygiene but the ability to clean surfaces often enough with that many people is limited. Not much room to socially distance."

"Loss of income may result in families moving in together to preserve income, making social distancing and isolating the sick impossible."

"In some cultures family members collectively work together to care for the sick. Quarantine and isolation is completely counter to their beliefs."

"Congregate living situations for homeless patients [are a problem. People] can't isolate if living in a homeless shelter."

6. Transportation Challenges

Lack of access to personal transportation, and limited access to all forms of transportation, impedes use of protective hygiene, social distancing, PPE, COVID-19 testing, and healthcare (Topics ABCDH).

- Reliance on public transportation
- Lack of public transportation
- No ride-share services
- Transportation costs limit use of transportation
- Cannot get to testing sites or healthcare located far from home
- Cannot get to stores to purchase supplies

"Limited to no transportation also plays a role in access to needed resources and creates challenges for social distancing due to the need to car pool or 'get a ride'. [This] often [results in] members of multiple different families crowded in one vehicle."

7. Political beliefs and cultural norms

Political beliefs and cultural norms limit community members' understanding of, and investment in, protecting themselves from COVID-19 using hygiene, social distancing, PPE, COVID-19 testing, isolation, and self-quarantining (Topics ABCDFG).

- Don't believe COVID-19 is real
- Don't believe COVID-19 will affect them personally
- Believe that COVID-19 is a metropolitan issue
- Don't believe social distancing is needed when not sick
- Don't believe isolation or self-quarantining helps
- Don't believe masks are effective; cultural pressure not to wear them
- Don't believe tests are reliable
- Anti-science attitudes exist
- Social pressure to conform to these beliefs exists

"There is a lot of 'chatter' on Facebook from members of the community that refuse to be told that they must wear a face mask. They are stating that they are not afraid of COVID-19. When others point out that they are to do it to protect others, not themselves, they state that it is against their rights. There is a lot of discussion that this was a manipulated intentional release of the virus to upset the election year. Community members don't understand or state that it is ridiculous that they cannot go to visit family members in nursing homes or go out to dinner. The community is about 50/50."

"The rural farming community believes they are immune to the virus."

"If I'm not sick, why should I do this?"

"Many are suspicious of the science, and government authority. They do accept responsibility for protecting others with appropriate behaviors."

"We were divided before and now it is worse. Examples… include the mean statements, hostile looks, complaints toward people taking precautions such as wearing masks. While violence has not yet occurred over masks, I anticipate that it will. People believe their opinions are facts and that people who disagree are their enemy – 'you're with us or against us' mentality. Very disturbing."

- Conservative ideology is common
- Valuing economics over science is common
- Many object to restraints on personal freedoms
- There are unhealthy social norms
- Social norms involve physical touching, caring for the sick
- It feels rude, culturally inappropriate to wear PPE
- Community groups include Amish communities and Latino communities
- Community and religious norms prioritize social interaction, family gatherings
- Many feel it is important to attend church, faith-based groups

"Many Appalachian families are following the lead of Donald Trump, who will not wear a mask, so they do the same. The community spread is high in our rural area because multiple families live in one household and work together in close quarters in factories."

"People are primarily concerned about [their] living situation or economic situation; safety or guidelines are not a priority."

"Nobody has a right to tell me what to do."

"For some who are uneducated, or frustrated by unemployment due to the pandemic, wearing a mask or complying with the hygiene guidelines may serve as a symbol of acceptance. Noncompliance is one way to protest."

"My community sees face coverings as a sign of weakness, or a sign of liberal political views, etc. Significant stigma exists against face covering."

"We have a large Amish and faith-based population that enjoys congregating in big groups."

8. Lack of access to technology

This barrier limits the ability of community members to use social distancing, contact tracing, and healthcare (Topics BEH).

- No Internet, no broadband
- No reliable access to phones
- Many do not have a landline
- Lack of access to telehealth
- Limited access to broadband prohibits telehealth and working from home

"The kids do not all have Internet access in order to complete school work."

"Primary care visits have declined because people are afraid of going to a doctor for fear of getting the virus. Telehealth only works if people have access to technology and have the ability to use it – [this poses] challenges for rural, elderly and immigrant populations."

"In our rural hospital we have used telehealth for several years due to lack of providers. Having that in place has been a benefit as systems are in place to expand capability rapidly. Unfortunately, many people stuck at home do not have access to technology in order to benefit from telehealth services."

9. Distrust of government and healthcare providers

These barriers impede the ability of community members to use most public health strategies to minimize the effects of COVID-19, including protective hygiene, social distancing, PPE, COVID-19 testing, contact tracing, and self-quarantining (Topic ABCDEG).

- Many distrust protective advice from government leaders
- Community doesn't like being told what to do
- Many distrust contact tracers, contact tracing process
- Confidentiality concerns exist
- Many do not want to "rat people out"
- There is fear of consequences of sharing information
- There is fear of deportation
- Noncompliance may reflect frustration with unemployment, pandemic
- There is distrust and fear of testing, testing sites
- Many do not trust that test results will be kept private
- Many do not trust providers to act in patients' best interests
- There is a fear of the repercussions of a positive test

"Many have an anti-government belief system, a lot of mistrust of any information they receive from the State, CDC, the WHO, etc."

"[Many individuals] don't see [recommendations] as a way to mitigate the spread but rather the government telling them what to do."

"Mistrust of government will probably be a barrier. Too many people live on the margins and may not want to give up names of people they hang with."

"When this started, citizens accused the hospital of hoarding supplies instead of testing patients. They struggled with understanding that we were required to test based upon guidelines that were established by a state agency. There was lack of trust in that response."

Other Barriers

These additional barriers represent separate issues reported by multiple respondents, but not as frequently as the 9 key barriers described above.

- Topic A & B – Hygiene & Social Distancing
  - Inconsistent enforcement of guidelines
- Topic B – Social Distancing
  - Hard to gauge adequate social distance
  - Small square footage of small businesses
  - Community is religious, has faith in religious leaders who don't respect need to social distance
  - Mental health concerns
- Topic C – PPE
  - Improper use of PPE, most notably masks
  - Mask wearing is not widespread in the community
  - Mask wearing is uncomfortable, difficult to breathe
  - Mask wearing is difficult for people with disabilities

"We are a rural community of about 16,800 people. Everything revolves around school, school activities, etc. People are lost without this. How can we continue to keep folks engaged at all levels that gives them meaning and purpose?"

"We have had a complete breakdown of societal norms for a virus that has proven to be not as dangerous as believed and similar to the common cold [sic]. We have confused young, blossoming minds with fear, confusion and instead of making them feel 'safe', they now feel more unsafe than ever before. In fact, many of them are, with increased risk of at-home abuse and neglect, lack of safe places for them to go and lack of abuse reporting. Elderly [people] are lonely and isolated. Those with mental health and addiction issues, especially veterans, feel like they have been cast aside for the sake of "public safety" for this virus. Animals have continued to be neglected and have died as a result of these efforts. The stories I've encountered are too many to choose one."

"I am able to wear a mask outside of my office in the hallways, at the grocery and in other community areas, however, with the asthma & COPD sometimes it is not easy to breathe."

- Topic D – Testing
  - People felt they were not important enough to get a test; rural communities get thought of last
  - Testing isn't occurring so no one knows who should be isolating
  - There are delays in waiting for test results
  - There is a lack of understanding of what the testing results mean, point-in-time testing
  - Tests need to be more reliable
- Topic E – Contact Tracing
  - Not enough contact tracers in the community
  - Bilingual translators fear for their own health – don't want to enter health departments
  - Contact tracing has been successful in some cases
  - Small-town feeling – everyone knows everyone
  - Some don't believe it can be done successfully

"Some members of our senior communities are frustrated when they hear famous athletes, coaches and other high-profile people are tested without even having symptoms and they cannot get a test. It took a long time for our EMS, fire departments and law enforcement workers to get access to testing."

"Testing results are often inaccurate, there's no consistency, no understanding of what results really mean, and none of this justifies the infringement of contract tracing or what that reporting will actually be used for."

"[There is a] lack of staff at the health department to help with the demands that have been placed on them due to COVID-19."

"Appalachia is very poor. Organizations that would normally do [contact] tracing are understaffed and grappling with other health issues that dilute [their] response."

- Topic H – Healthcare Access
  - Fear of disease
  - Stigma
  - Fear of going to the doctor
  - Mental health concerns
  - Increased substance abuse

"[The] geriatric population [is] overall afraid to come into the office for a health concern."

"Most mental health facilities are not operating during COVID-19, so there are very, very, very few resources for those who might search out treatment options."

"[We are seeing an] increase in positive depression screens and increase in alcohol consumption."

III. Key Ideas (Solutions) to Address Barriers and Minimize the Impact of COVID-19

These categories represent the most common solutions suggested to help rural communities use public health strategies to minimize the impact of COVID-19. These key ideas were mentioned by multiple respondents (ranging from 5 to >30) and would facilitate communities' ability to use multiple public health strategies. A summary of each proposed solution is followed by bullets which list details and specifics commonly mentioned by respondents. Selected quotes exemplify the stories and ideas of *Needs Assessment* respondents.

1. Provide supplies and resources directly

Commonly suggested ideas to address the barriers above focus on direct and free provision of resources. These approaches would help improve community members' ability to utilize protective hygiene, social distancing, PPE, COVID-19 testing, isolation, and self-quarantining (Topics ABCDFH).

- Provide direct resources and financial support
- Provide free sanitizing and cleaning supplies, masks
- Distribute products to households and at community locations
- Distribute cleaning supplies with food boxes at schools
- Gather donated supplies
- Offer PPE at local distribution sites, or deliver it
- Mail masks and instructions to every home
- Improve availability of supplies, PPE at stores and public places (e.g.: senior centers)
- Provide PPE to caregivers
- Improve availability of testing in community sites, (e.g.: local pharmacies)
- Conduct free tests

"[Provide a] way for families to get assistance not viewed as government assistance – similar to the way BCMH [Bureau for Children with Mental Handicaps] used to be before [recipients] were required to apply for Medicaid first."

"In rural or economically disadvantaged areas, make sure sanitation or hand washing stations are available."

"Communities are very school focused and this could be used to reach MANY people."

"[Hold] drive-by [and] walk-up hand sanitizer and disinfectant wipe give-aways to [the] Amish community along with education. They are prideful and do not like handouts, however they are concerned too. They have limited access to the news reports."

- Open more testing sites within the community, including drive-up testing at health departments, mobile testing
- Offer testing at home, work, school
- Loosen criteria for testing
- Provide paid leave from work
- Deliver groceries and meals, particularly for those who are isolating
- Use volunteers to deliver services and supplies
- Provide free clinics in small communities
- Offer free healthcare and free prescriptions

"Community health centers are one of several safety-net providers in rural areas. The CHC in my county is not well established or trusted. When trying to reach the most vulnerable populations other safety-net providers must be considered. This includes Rural Health Clinics, free clinics, or any other provider which accepts patients regardless of their ability to pay. They may not receive the same level of funding as the CHCs, but often are the providers taking care of the community."

2. Partner with trusted community members, leaders, and organizations

Build trust in use of public health strategies to minimize COVID-19 by building partnerships with trusted community members, organizations, and leaders. This would facilitate use of hygiene, PPE, COVID-19 testing, contact tracing, and healthcare (Topics ACDEH).

- Develop messaging with input from target population
- Work with local health departments and businesses to provide community-specific messages
- Create community buy-in for public health strategies
- Use community sites and groups (food pantries, social service agencies, churches, etc.) to make supplies available and distribute supplies
- Use community health workers as key link between community and COVID-19 response
- Use trusted and respected community members to run testing sites
- Employ local community members to do contact tracing
- Use trusted community leaders in public education campaigns and activities
- Use community health workers and navigators to ensure proper care
- Support non-profit organizations with corporate funding
- Involve faith-based organizations
- Use community leaders as role models
- Engage with churches and religious leaders

"Someone from [community members' own] group talking about the hygiene practices [is] needed – better and more hand washing, use of hand sanitizers."

"Focus on protecting the most vulnerable – 'protecting grandma'."

"[We need] messaging that helps the population look to the future, when this has passed, that a time will come when social distancing will no longer be needed."

"Partner with senior programs like meals on wheels to inform and provide cleaning products/masks."

"[Community health workers are] an untapped resource that could be very effective. If available, the pharmacy could also provide education on the proper use of PPE when distributing."

"[Many community members] have a strong belief in those in an educated position such as healthcare providers etc. If they publicly take a stance, others will follow."

"[Use] real testimonials of rural folks impacted by COVID-19."

3. Increase and improve COVID-related education

High-quality education about a range of topics could be developed and used to improve use of almost all public health strategies to minimize the impact of COVID-19, including: protective hygiene, social distancing, PPE, testing, contact tracing, isolation, and self-quarantining (Topics ABCDEFG).

- Important topics for education and information:
  - Social distancing
    - How to use
    - Needed with extended family; protects others; isn't intended to limit rights
  - PPE
    - Importance of PPE
    - How and where to obtain PPE
    - Easy directions for making PPE
  - Testing
    - Importance and safety of testing
    - Locations, how to access without insurance
  - Contact tracing
    - Process and purpose
  - Importance and guidance for isolation and self-quarantining, including at home
  - Benefits of complying with public health advice
  - Public assistance available while a person is in quarantine
  - Ensure confidentiality of testing and contact tracing
  - Share testimonies of rural individuals impacted by COVID-19
  - How and where to find and access healthcare
- Modes of delivery:
  - Instructional videos
  - Social media videos featuring COVID-19 survivors in communities
  - Facebook
  - Visual cues at community and business locations
  - Posters at gathering places
  - Mailings

> *"[We need] clear guidelines from local decision makers such as [the] County Commissioner and local organizations and local opinion leaders."*

4. Improve housing options

Housing support and new options would help improve use of hygiene, social distancing, and self-quarantining (Topics BFG).

- Ensure adequate housing
- Provide hotel vouchers
- Make contracts with special housing units
- Create larger homes or new arrangements to allow social distancing, isolating when needed
- Offer help to care for others in the home
- Improve options for childcare

"[Use] empty spaces or hotels in conjunction with community health to provide supplies."

"Utilize home health professionals to assist in delivering food because they are often already going into these homes."

5. Improve transportation

Improving public transportation and providing additional transportation options would facilitate use of COVID-19 testing and healthcare in these populations (Topics DH).

6. Improve access to technology

Improving access to Internet technology and related devices would help address hygiene, social distancing, and healthcare access barriers (Topics ABH).

- Affordable technology
- Improve broadband availability and cell phone access
- Increase ability and access to use telehealth

"Better broadband would provide opportunities for telehealth, jobs, and education/training (to work from home)."

"Churches are doing virtual meetings. Our community is relying heavily on virtual doctor's appointments and we do not have good Internet service so…doctors are doing phone calls."

Other Ideas

These additional ideas represent separate potential solutions reported by multiple respondents, but not as frequently as the 6 key ideas described above.

- Topic B – Social Distancing
  - Improve options for working from home
  - Mandate option to work from home without fear of retaliation or job loss
  - Limit large community events
  - Enforce government/public health orders
- Topic C – PPE
  - Require masks in public
  - Have businesses require masks
  - Make sure masks/PPE are culturally appropriate in design
- Topic E – Contact Tracing
  - Conduct contact tracing visits at home
  - Reassure participants about how their information will be used
  - Don't force contacts to self-quarantine
- Topic G – Self-Quarantining
  - Increase social pressure to use self-quarantining when appropriate
- Topic H – Healthcare Access
  - Increase local options for care
  - Increase the number of local healthcare providers
  - Provide services at home, mobile treatment options
  - Adopt universal healthcare
  - Help individuals enroll in healthcare coverage, find healthcare
  - Increase availability of mental healthcare

"In some cultures certain fabric designs may be considered vulgar to be worn. Mask design should be culturally appropriate."

IV. Trusted Community Resources and Linkages

Respondents also identified many trusted community resources – including categories of organizations, individual organizations, and individual individuals. Categories of organizations most commonly included:

- For health information:
  - Local public officials and public health providers
  - Non-profit organizations
  - Public health departments
  - Clinics, hospitals, and medical centers
  - Personal physicians and PCPs
- For medical care:
  - Local public officials and public health providers
  - Public health departments
  - Clinics, hospitals, regional medical centers
- For social service information and resources:
  - Local public officials and public health providers
  - Non-profit organizations
  - Social service organizations
  - Churches
  - Shelters
  - Food pantries and soup kitchens
  - Health centers

Respondents responded positively to the idea of community partnerships, and provided examples of links between rural communities and Federally Qualified Health Centers (FQHCs), community health centers (CHCs), pharmacies, and specific pharmacists. CHCs were seen as especially important, particularly now when hospitals and health systems are overwhelmed.

- Some also note reservations, however, including:
  - Some FQHCs will not work with community health workers or certain programs
  - Many agencies are too small and lack resources

Final Recommendations to Minimize the Impact of COVID-19 on Rural Populations in Ohio

These recommendations reflect the data provided by respondents representing rural communities as well as additional context and insight provided by our panel of expert researchers, public leaders, and practitioners with expertise focused on rural communities.

1. **Center the COVID-19 response in the organizations and cultures of local communities, implementing public health activity through partnerships with trusted community groups, empowering local organizations to lead this work, and providing them with resources to do so.**

Immediate, COVID-19 specific, recommendations:

Build and support collaborative networks of trusted community organizations and resources to guide the COVID-19 response, including churches and worship centers, pharmacies, healthcare centers, nonprofit organizations, etc. Tailor approaches to each local community.

In communities particularly skeptical of official health information sources, build trust and explicit linkages between existing community organizations and local public health or Ohio universities, to establish a foundation for conveying accurate health information.

Develop and expand comprehensive programs that rest on community health workers and health navigators to function as key links between community members and state-, regional-, and local aspects of the COVID-19 response.

Utilize trusted community leaders and organizations to role model recommended public health strategies, spread essential information, distribute needed resources, provide appropriate testing, conduct contact tracing, and connect community members to necessary supports.

Engage with church and religious leaders, and faith-based organizations, to build support for public health strategies and disseminate information and resources.

Train and hire trusted and respected community members to be community health workers, run testing sites, and conduct contract tracing; solicit suggested names from families throughout communities using letters from respected local leaders (e.g.: mayors).

Develop tailored, community-specific educational messages and create community buy-in for public health strategies by collecting systematic input from local health departments, business leaders, and community members.

Make supplies available and distribute them through community-based sites and groups, including food pantries, social service agencies, churches, etc.

Work with community centers and local programs to incentivize (instead of requiring) the use of masks in public. Options include allowing access to merchandise discounts or certain community activities only with appropriate mask or PPE.

Recognize and directly address cultural and social norms about health and wellness.

- Increase social pressure to wear masks, use self-quarantining when appropriate.
- Conduct contact tracing visits at home and reassure participants about how their information will be used.
- Encourage, role-model, and incentivize behaviors such as mask-wearing and self-quarantining; do not mandate them.
- Ensure that masks and PPE are made in culturally acceptable designs.

Conduct community-based studies to understand challenges to engaging rural communities in the COVID response, including lack of trust in healthcare providers, priorities for community health and wellness, how to invoke community-protecting altruism in relation to mask wearing. Design interventions based on findings.

Address the growing numbers of Hispanic and non-English speaking rural settlers and provide them with culturally appropriate COVID materials.

Immediate recommendations to improve the health of communities:

Provide more substantial financial support for non-profit organizations; utilize corporate funding.

Facilitate formation of mutual aid associations to deliver food, groceries, pick up medicines, etc.

Support resiliency within rural communities by creating clearly defined local disaster plans, and capacity to cope with and recover from natural disasters

2. **Explicitly address economic injustice and its widespread health and social impacts by directly improving access to resources to support disease prevention, COVID-19 response, and necessities of daily living.**

Immediate, COVID-19 specific, recommendations:

Facilitate ready access to masks (and directions for use), disinfecting/cleaning supplies, and other essential supplies through free distribution and affordable retail availability.

- Distribute supplies to households through community distribution sites, with food boxes at schools, and through home delivery methods.
- Gather donations of supplies; utilize volunteers to help with collection, distribution, and delivery.
- Ensure that PPE is available and delivered to caregivers, vulnerable groups who are isolating or quarantined.

Increase availability and accessibility of testing in community sites.

- Open more testing sites within communities, at local pharmacies, workplaces, schools, and through fire and EMS departments.
- Offer testing at home, drive-up sites, and mobile units.
- Increase access by loosening criteria for testing and ensuring it is free to patients.
- Increase availability and accessibility of testing in community sites.

Provide consistent contact tracing to follow up positive tests, using trusted community-based contact tracers and ensuring confidentiality of information.

Improve availability and accessibility of healthcare to ensure that individuals testing positive can be linked to COVID-related care.

- Create options for in-home and mobile treatment when healthcare facilities are not accessible.
- Utilize community health workers and patient navigators to connect patients to appropriate care and ensure it is free or covered at no cost to patients.
- Increase availability and access to telehealth appointments through Federally Qualified Health Centers and other safety-net providers; ensure that patients can tell telehealth calls are coming from their providers so they will answer the phone.
- Increase availability and access to mental health care and substance use disorder services.

Provide financial assistance to secure childcare and other caregiving help when individuals must isolate or self-quarantine.

Improve broadband availability and cell phone access, to increase accessibility of remote work arrangements, telehealth, and social connections.

- Ensure that these technologies are affordable or available through free programs. Pre-install COVID-related information and community contacts on free cell phones or tablets.
- Establish central hotspots for free Internet connections.

Immediate recommendations to improve the health of communities:

Integrate COVID-19 mobile testing with other mobile testing units that already work in rural communities. [1]

Improve local healthcare infrastructure by increasing the number of free clinics, local healthcare providers, and facilities that can care for mental health.

Utilize widespread community health worker and navigation programs to help individuals find primary healthcare, enroll in health insurance coverage.

Establish mobile health clinics operated by local residents to provide basic medical assistance and social check-in services.

Increase compensation in job areas where employee shortages are most severe.

1 The Ohio State University's Center for Cancer Health Equity, for instance, operates mobile testing units that already conduct mammograms and lung cancer testing, and that could integrate COVID-19 testing capacity as well.

Recommendations to create a social context for long-term health and wellness:

Expand scope of practice and credentialing for pharmacists, nurse practitioners, physicians assistants, paramedics, and other ancillary providers so they can bill insurance and be reimbursed for services; they could thereby help fill the national shortage in primary care, deliver testing through pharmacies and EMS, and triage and connect individuals to appropriate care.

Adopt universal health insurance.

Establish free clinics and free prescriptions, particularly in small communities.

Ensure ongoing access to mental health care and substance use treatment.

Improve technological infrastructure in rural areas, through state and national programs.

Raise the mandatory minimum wage to a living wage.

Address social determinants of poor health in rural areas: lack of access to good-paying jobs, poor access to healthy food, few educational opportunities, lack of access to healthcare, affordable housing, public transportation.

Resource and utilize local community businesses and organizations, instead of outside businesses, to organize and implement these changes.

3. **Improve employment and public policies to reduce the spread of COVID-19 in workplaces and improve engagement of communities coping with the impacts of the pandemic.**

Immediate, COVID-19 specific, recommendations:

Enforce government and public health orders throughout communities.

Require employers to allow employees who can work from home to do so without fear of retaliation or job loss.

Limit large community events in rural communities.

Enlist local business owners to require the use of masks by employees and customers.

Work with community centers and programs to incentivize the use of masks in public; this approach may be more socially acceptable and effective than requiring them.

Immediate recommendations to improve the health of communities:

Ensure that workers have access to paid sick leave when necessary.

Recommendations to create a social context for long-term health and wellness:

Support economic and social linkages between urban, peri-urban, and rural organizations.

Strengthen regional development planning and informational exchange.

4. **Reduce the substantial COVID-19 transmission risks associated with dense living conditions by increasing access to affordable housing and creating new options for isolation and self-quarantine.**

Immediate, COVID-19 specific, recommendations:

Create larger home or new arrangements to allow individuals to social distance, isolate, and quarantine as needed.

Create free, community-specific housing options for those who need to self-quarantine and isolate or cannot do so in their own homes. Possibilities for achieving this include: offering vouchers for hotel rooms or temporary housing arrangements; creating make-shift housing in abandoned areas; creating temporary housing units in National Guard armories.

Provide arrangements for childcare and other caregiving that must continue occurring when an individual needs to isolate or self-quarantine.

Immediate recommendations to improve the health of communities:

Ensure adequate housing in all communities.

5. Improve access to COVID-safe, affordable transportation.

Immediate, COVID-19 specific, recommendations:

Provide financial support for community agencies providing transportation to healthcare sites and other social services.

Create financial incentives to bring rideshare companies into rural areas.

Enhance public transportation networks to allow individuals safe methods to get to locations to procure needed supplies, as well as testing and healthcare sites. [1]

1 Build on pilot transportation programs (such as through Muskingum Valley Health Centers) that have already experimented with methods of funding and deploying vehicles and transportation networks. For information about this example program, see: https://www.mvhccares.org/

6. Increase and improve the dissemination of high-quality, culturally connected, COVID-related education throughout communities.

Immediate, COVID-19 specific, recommendations:

Strongly enhance the provision of information from trusted local sources while decreasing distribution of information from official and generic sources; this will fill the large informational gaps that exist and help ease "safety fatigue".

Develop culturally-relevant educational materials that cover a broad range of COVID-related topics, including: the reality and severity of COVID-19; how to use social distancing even with extended family; the idea that social distancing and mask wearing are intended to protect others, not limit individuals' rights; why PPE is important and how to obtain and use it; how to make masks; the importance and safety of COVID testing; how to get a test, including without insurance; the process and purpose of contact tracing; the importance of isolation and quarantine and how to do it at home; how and where to find and access healthcare; accurate information to dispel false information and misinformation.

Use a range of modes to deliver this educational information, including instructional videos, social media videos, Facebook, flyers/signs/posters at businesses and community gathering sites, household mailings.

Launch a public mailer campaign that uses simple language to explain basic COVID-19 information, dispel myths, review safety precautions, and clarify the benefits of utilizing these precautions.

Involve community members (including trusted leaders such as church leaders, teachers, and nurses) in every stage of developing and disseminating educational campaigns, and ensure that they are represented in all campaigns.

Feature pictures, videos, and words of local community members in all educational materials; include testimonials of rural individuals impacted by COVID-19.

Make community members aware that testing and contact tracing information is confidential, and that assistance is available for individuals; take steps to increase public confidence in these provisions.

Address the growing number of Latinos/Hispanics and non-English speaking rural settlers with culturally-appropriate COVID-19 educational materials.