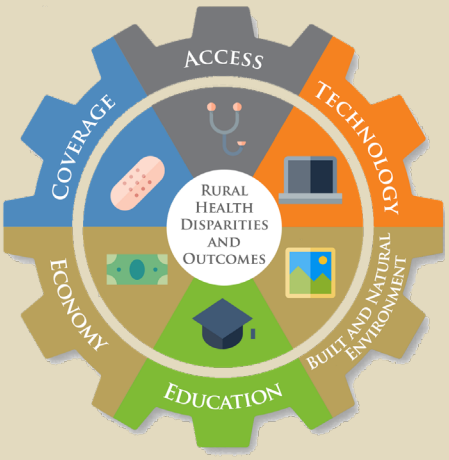
Making Connections: Rural Health and the Built and Natural Environment

There are a number of troubling population health trends that present challenges to rural health today. Persistent issues like higher rates of risky health behaviors, lower rates of health insurance coverage, and physician shortages are creating pressure on rural health systems to intervene in order to improve care, enhance quality of life, and decrease costs.



These trends weave together to tell a story based on the interplay of multiple factors and the resulting outcomes they produce. To better understand the big picture, it is important to recognize the relationships that exist between well-being and contributing factors both inside and outside of the traditional health care system.

The Georgia Health Policy Center (GHPC) has long-standing expertise in assisting rural communities to improve health and health care delivery in an effective and sustainable manner. GHPC created this series as a supplement to its *Understanding the Rural Landscape* learning module. This series explores the range of elements that influence rural health, with special emphasis on the unique challenges and innovative solutions emerging in rural communities. This installment of the series will specifically examine the relationship between rural health and the built and natural environment.

Background

Approximately 20% of people living in the United States reside in rural communities. There are varying definitions for how to define a rural area. According to the U.S. Census Bureau, rural is defined as all population, housing, and territory not included within an urbanized area or urban cluster. Thus, rural America includes a wide variety of locales, from densely populated small towns and neighborhoods on the border of urban areas to more sparsely populated frontier communities.[1]

As a result of geography, in rural communities access to health care facilities, other community services, and a built environment*[1,2] conducive to achieving physical activity can be more difficult. In general, the farther away these services and resources are from populations, the lower their use.[3]

**The built environment includes all physical surroundings in a community, including homes, buildings, streets, parks, open spaces, and infrastructure.*

Innovation: Providing Safe Places for Physical Activity

In Blackville, S.C., there are limited places for physical activity. Eat Smart Move More Barnwell County, a local community healthy eating and active living coalition, identified safety concerns at a local elementary school, where cars could drive through the playground area. The group worked to build a fence around the area to increase safety. They also worked with the local school district to adopt an Open Community Use Policy opening the school grounds to community members outside of school hours. As a result, community members gained access to safe space for physical activity, including playgrounds and tracks at the three district schools.[7]

[1] Ratcliffe, M., Burd, C., Holder, C., & Fields, A. (2016, December 8). *Defining rural at the U.S. Census Bureau: American community survey and geography brief*. Washington, DC: U.S. Department of Commerce.

[2] Centers for Disease Control and Prevention. (2011). *Impact of the Built Environment on Health*. https://www.cdc.gov/nceh/publications/factsheets/impactofthebuiltenvironmentonhealth.pdf

[3] Bushy, A. (2009). A landscape view of life and health care in rural settings. *Handbook for Rural Health Care Ethics: A Practical Guide for Professionals*. Hanover, NH: Dartmouth Medical School's Department of Community and Family Medicine.

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In rural areas the average distance traveled for medical or dental needs is 17.5 miles versus 8.3 miles for urban residents.[4] Many times rural residents have to make trade-offs when traveling long distances to access health care and community services. Additional expenses are incurred for travel to health care institutions that may not exist in their local community. The challenges related to geographic access are further compounded by the limited number of specialty providers practicing in rural communities (e.g., cardiologists, oncologists, psychiatrists).[5]

Additionally, geographic isolation, transportation barriers, and a built environment void of safe places for physical activity and affordable healthy foods contribute to poorer health outcomes and reduced access to health care services and providers, which ultimately contributes to health disparities seen in rural communities.[6]

Innovation: Cooperative Grocery Stores

When Wolbach, Neb., was faced with losing its only grocery store, the community came together to create a different kind of grocery store. FROGS (First Rural Organic Grocery Store) is a member-owned and operated food store and a joint venture with the Nebraska Food Cooperative. The store offers three levels of membership: Level 1 for community members who shop but don't have voting rights, Level 2 for those who pay a membership fee and receive store discounts and voting rights, and Level 3 for those who volunteer and receive store discounts in exchange. The cooperative focuses on providing natural foods at affordable prices and provides a market opportunity of local producers. FROGS provides affordable natural foods not only locally, but also to central Nebraska.[11]

The extent to which the built environment supports healthy behaviors in urban and suburban settings is well-documented. However, the distinct characteristics of the rural landscape; how the built environment influences rural health outcomes; and the unique barriers residents face in accessing healthy food options, basic medical care, and leisure-time physical activity are less often the focus of research.[8] Considering the impact of the built and unbuilt environment within a particular community can provide insight into the different challenges rural residents experience when it comes to health-related practices and outcomes.[9]

Rural Geography and Related Barriers to Access

The Built and Natural Environment Impacts Physical Activity

Common barriers to physical activity in rural areas include isolation, lack of transportation, lack of places for physical activity, climate, cost, safety concerns (e.g., high traffic speeds), the threat of dogs and wild animals, crime, lack of sidewalks, and lack of lighting.[7] Unlike urban areas, which have seen increases in built environment development, much of the land in rural areas is still relatively untouched. Instead, rural communities remain sparsely populated, and residents in these remote areas are faced with longer distances between neighbors, recreational facilities, schools, grocery stores, and hospitals. Urban and suburban built environment strategies that connect homes, schools, work, recreational facilitates, stores, and roads to increase economic development and promote physical activity are not always practical in rural areas. For rural areas with town centers, sidewalks and bicycle lanes in these areas have the potential to help reduce barriers to physical activity. However, these strategies may not be as effective in more dispersed rural communities where population sizes are small and travel distances make active transportation (walking, biking) impractical.[7] As an alternative to infrastructure changes, these dispersed, rural communities can focus on creating recreational opportunities through programs in existing communities and school facilities.[10]

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[4] U.S. Department of Transportation, Federal Highway Administration, 2001 National Household Travel Survey. Retrieved from https://nhts.ornl.gov.

[5] Chipp, C., Dewane, S., Brems, C., Johnson, M. E., Warner, T. D., & Roberts, L. W. (2011). If only someone had told me … : lessons from rural providers. *The Journal of Rural Health* 27(1), 122-130. http://doi.org/10.1111/j.1748-0361.2010.00314.x

[6] Frost, S. S., Goins, R. T., Hunter, R. H., Hooker, S. P., Bryant, L. L., Kruger, J., & Pluto, D. (2010, March-April). Effects of the built environment on physical activity of adults living in rural settings. *American Journal of Health Promotion* 24(4), 267-283.

[7] SC Department of Health and Environmental Control. (2016). Breaking Community Physical Activity Barriers though Open Community Use. Accessed http://www.scdhec.gov/library/CR-011555.pdf.

[8] Dixon, J. & Welch, N. (2000, October). Researching the rural-metropolitan health differential using the 'social determinants of health.' *Australian Journal of Rural Health* 8(5), 254-260.

The Built and Natural Environment and Access to Food

To decrease the prevalence of diet-related chronic disease, it is important that people have access to affordable, healthy foods that support a balanced, nutritious diet.[12] Many rural residents live in areas considered food deserts, with limited access to affordable, healthy foods. The U.S. Department of Agriculture defines rural food deserts as census tracts where at least 500 people or 33% of the population live more than 10 miles from a supermarket.[13] Larger retailers are unlikely to locate in rural communities due to the low population density and low purchasing power. The result is that major grocery stores or retailers are often located in the nearest city, town, or urban cluster, leaving many rural areas with limited options for fresh, affordable food. Ultimately, many rural residents end up relying on small grocery stores, gas stations, and convenience stores, which provide less nutritious food options. It is difficult for these small stores to offer healthy options due to factors including delivery costs, inability to meet distributors' minimum order requirements, and being outside of the delivery area of distributors.[14] Rural communities are seeking to address these barriers to food access in a variety of ways, including through special financing, alternative grocery ownership models, farmers' markets, and food pantries.

The Built and Natural Environment and Access to Health Care

The geographic isolation, lack of specialty providers, and transportation barriers in rural communities contribute to reduced access to health care services and providers. Rural residents often forgo or postpone routine medical care because of long travel times to providers and lost time from work, leading to poorer morbidity and mortality outcomes.[15] Common barriers to rural transportation include infrastructure, geography, funding, political and public awareness, and socio-demographics.[12] These barriers disproportionately affect individuals with disabilities, individuals with low incomes, older adults, and those without access to a vehicle.

Innovation: Expanding Access to Behavioral Health in Schools

In Georgia, Jefferson and Jenkins counties are addressing mental health provider shortages and transportation challenges through telemedicine in the school setting. Most students in these counties are low-income and have poor health. Prior to the telemedicine clinic, students and parents would have to travel up to 50 miles to receive medication management services. The benefits of this program have been significant in eliminating transportation barriers, reducing student absenteeism, and addressing the child psychiatrist shortage. Because of this initiative, parents no longer must take time off work and arrange transportation for in-person appointments in another county.

Expanding on the original model, the board of education opened office space for the telemedicine program to address medication management services during the summer, a time that children often discontinue medication services. Increasing access to services throughout the summer successfully reduced the disruptions in medication services that typically occur during this time. The telemedicine program is a win for schools, students, families, and the community.

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[9] Perrin, A. J., Caren, N., Skinner, A. C., Odulana, A., & Perrin, E. M. (2016, December 5). The unbuilt environment: Culture moderates the built environment for physical activity. *BMC Public Health* 16, 1227.

[10] Hansen, A. Y., & Hartley, D. (2015, September). *Promoting active living in rural communities.* San Diego, CA: Active Living Research.

[11] https://www.ruralgrocery.org/resources/Cooperative_RGI_Case%20Study_FULL%20COLOR.pdf

[12] Bentzel, D., Weiss, S., Bucknum, M. & Shore, K. (2015). Healthy food and small stores: Strategies to close the distribution gap. Philadelphia: The Food Trust.

[13] Gallagher, M. (2011). USDA defines food deserts. Nutrition Digest 38(2). Retrieved from http://americannutritionassociation.org/newsletter/usda-defines-food-deserts.

[14] Bentzel, D., Weiss, S., Bucknum, M., & Shore K. (2015, December). *Healthy food and small stores: Strategies to close the distribution gap.* Philadelphia, PA: The Food Trust.

[15] Henning-Smith, C., Evenson, A., Corbett, A., Kozhimannil, K., & Moscovice, I. (2017, November). *Rural transportation: Challenges and opportunities.* Minneapolis, MN: University of Minnesota Rural Health Research Center.

IMPLICATIONS

The built and natural environment characteristics of rural communities result in barriers to accessing health care, safe places for physical activity, and healthy food. Innovative solutions that have been known to produce effective results include:

- sharing resources,
- centralizing services,
- leveraging existing resources, and
- building multisectoral partnerships.

Sharing resources across programs requires commitment from stakeholders to create policies that share liability and expenses across programs. Thus, creating strong community multisector partnerships is key to gaining community buy-in, effectively utilizing limited resources and creating policies to increase access to healthy options in rural communities.

Bringing together diverse partnerships including schools, school boards, businesses, faith communities, recreation, town and county planners, public safety, and health care providers can give rise to sustainable change. For example, consolidating available services to a centralized, already frequented community location, such as a school, is a way rural communities are addressing long travel distances and limited community resources. Similarly, using vehicles across programs is a cost-effective means to increase transportation services.[12]

Recommended strategies for creating more access to fresh, affordable foods in rural communities can build from effective corner store initiatives. Engaging small food retailers such as dollar stores and convenience stores in community health initiatives is critical to gaining their support for providing healthier food options. Additionally, partnerships can establish or leverage funding mechanisms that provide startup costs for healthy food retail options.

More research is needed to consider the implications of the physical rural settings on health disparities, behaviors, and outcomes. Exploration of these rural factors can inform future program design and delivery, funding, and policy. Due to the unique context and makeup of rural communities, there is not a one-sized approach. Therefore, innovations to improve rural health should be participatory and build on the underlying strengths, experiences, and preferences of rural populations.

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