Systems for Action
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EVIDENCE BRIEF

SYSTEMS FOR ACTION

Multi-Sector Community Networks Are Losing Strength in Many Rural Areas, Reducing Capacity to Improve Population Health

WHAT'S THE PROBLEM BEING ADDRESSED?

Residents of rural America have lifespans nearly three years shorter than their city-dwelling peers, and this gap has grown larger in recent decades. One in five American households live in rural areas, which remain essential to the U.S. economy and society as dominant sources of the nation's food supply, energy, recreation, wildlife, and climate-stabilizing plant life. Just as in urban areas, the health problems faced by rural residents are caused and made worse by a constellation of social problems such as housing instability, food insecurity, lack of transportation, stress, loss of income, occupational risks, social isolation and discrimination. These social determinants of health (SDOH) can be more difficult to address in rural areas, where there are lower concentrations of taxpayers, businesses, and charitable organizations to support needed public infrastructure and social services. Rural communities are more likely to experience barriers to health care delivery such as longer distances to receive care and shortages of healthcare workers, and have higher rates of uninsured populations and poverty. Residents of rural areas also have higher rates of smoking, physical inactivity, and other risk factors for chronic disease.

SOLUTION TESTED

A growing body of research demonstrates that networks of community organizations, working together, can have profound effects on the health trajectories and social determinants of health experienced within American communities. Research by Raj Chetty and the Opportunity Insights program has found that people live longer lives and achieve greater economic mobility in communities served by stronger networks of social and civic institutions, particularly for low and moderate income households and racial and ethnic minority groups.

ABOUT S4A

Systems for Action (S4A) aims to discover and apply new evidence about ways of aligning the delivery and financing systems that support the Robert Wood Johnson Foundation's vision to build a Culture of Health. S4A seeks to identify system-level strategies for enhancing the reach, quality, efficiency, and equity of services and supports that promote health and well-being on a population-wide basis.

THE RESEARCH

The National Longitudinal Survey of Public Health Systems, or NALSYS, is a unique survey that has followed a nationally-representative cohort of local public health systems for over twenty years. NALSYS data has explored the health of rural communities and existing health inequities.

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Similarly, research from the National Longitudinal Survey of Public Health Systems has shown large reductions in deaths from preventable causes and slower growth in medical spending within communities that build stronger networks of health and social organizations collaborating on community health improvement initiatives.[1,2,3] These networks allow local institutions to pool resources, coordinate efforts, and reduce duplication in ways that expand aggregate community capacity to address unmet health and social needs. Collectively, this evidence indicates that health and social interventions are more likely to succeed when they are implemented through strong multi-sector networks.

COLLABORATION BETWEEN MEDICAL CARE, PUBLIC HEALTH AND SOCIAL SERVICES CAN

- *improve efficiency of resources*
- *reduce healthcare utilization*
- *reduce duplicative services*

Research also has identified a set of practices that help communities build strong multi-sector networks that work together on health improvement initiatives. These practices are now widely recommended by the National Academy of Medicine, the U.S. Department of Health and Human Services, the Public Health Accreditation Board, and others as "foundational public health capabilities" that every U.S. community should develop. They include regularly assessing health needs and risks in the community, engaging community stakeholders to establish goals and priorities for improvement, identifying evidence-based solutions to address priorities, educating the public and policy officials about health priorities and solutions, identifying and allocating resources to address health priorities, and regularly evaluating progress in implementing solutions.

Unfortunately, most of the existing research on multi-sector community networks and foundational public health capabilities focuses on urban settings. To identify pathways for improving rural health, this study compared the structure and function of community networks in rural versus urban settings, and tracked changes in these networks over time.

THE RESEARCH

This study followed a national cohort of more than 600 U.S. communities over time using data from the National Longitudinal Survey of Public Health Systems (NALSYS). The NALSYS survey asks local public health officials in each community to report information about an array of nationally-recommended public health capabilities that are implemented in their community, and about the types of community organizations that participate in implementing these capabilities. First collected in 1998, the NALSYS survey is currently fielded every two years and includes a large sample of rural communities that were added to the cohort in 2014.

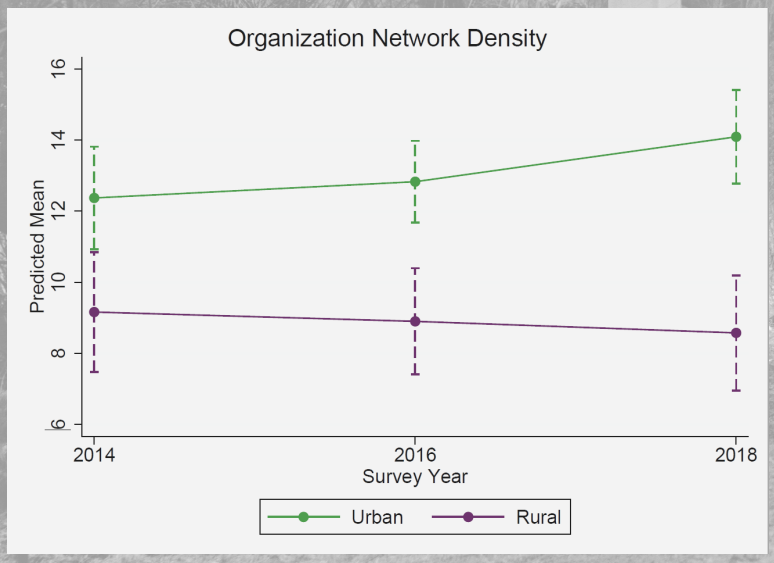
Using methods from the field of network analysis, the research team quantified the strength of public health system networks in each community at each time period from 2014 through 2018 based on NALSYS survey data. The study focused on three broad measures of network strength that previous studies have shown to influence health outcomes: (1) the scope of recommended public health activities implemented by the network; (2) the density of organizations participating in implementing these activities; and (3) a composite measure that combines scope and density into a single measure of network strength, also known as public health system comprehensiveness. These measures were used to assess the degree of change in network strength among rural communities between 2014 and 2018, compared to urban communities. Longitudinal models were used to determine whether rural-urban differences in network strength grew more or less pronounced over time, after adjusting for demographic, social and economic characteristics in each community.

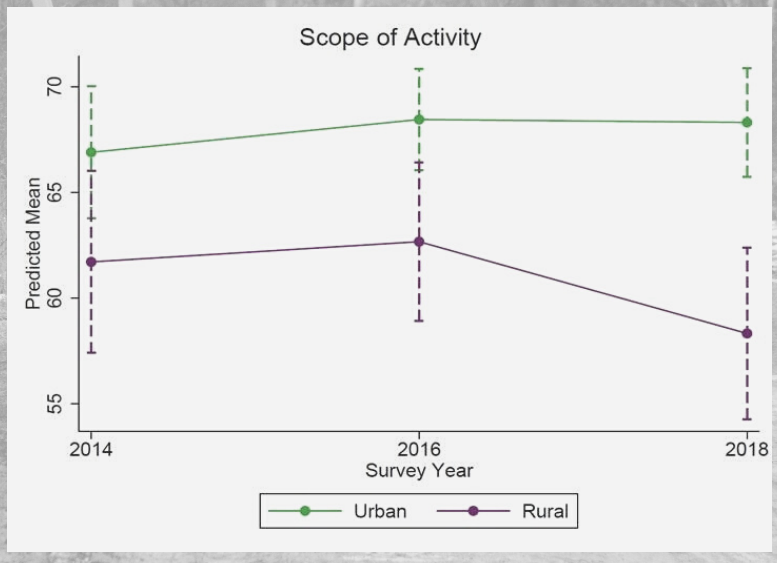
KEY FINDINGS

Community networks had significantly lower capacity in rural communities than in urban areas during the baseline year of 2014, and over time rural networks lost strength while urban networks grew stronger. Networks in rural communities implemented fewer recommended public health activities than did their urban counterparts in 2014, and this rural-urban disparity grew significantly wider by 2018. Capabilities declined by an average of 3.4 percentage-points in rural communities over this four-year period, while they increased by 1.4 percentage-points in urban communities.

Rural-urban differences in network density followed a similar pattern of widening gaps in strength. In 2014, network density was 3.2 percentage-points lower in rural than in urban communities, and by 2018 density fell by an average of 3.8 percentage points in rural communities while it grew by 1.7 percentage-points in urban areas.

Network participation by hospitals, health insurers, higher education institutions, and nonprofits all declined significantly in rural communities during the 2014-2018 period, while these sectors maintained or increased participation in urban networks. Rural community networks experienced reductions in density and activities during 2014-2018.[4]





RECOMMENDED ACTION

STRONGER WORKING RELATIONSHIPS BETWEEN HEALTH AND SOCIAL ORGANIZATIONS IN RURAL AREAS CAN INCREASE COLLECTIVE COMMUNITY CAPACITY TO IMPROVE HEALTH.

Findings from this study suggest that a hidden but growing factor is at work in contributing to rural-urban differences in health outcomes: fewer working relationships between the health and social service organizations that serve rural residents. The good news from this study is that targeted efforts to build network strength can produce outsized benefits for rural areas. In fact, cross-sector connectivity is likely to be a more feasible and lower-cost pathway to rural health improvement than purely medical strategies like recruiting more doctors or building new healthcare facilities.

At the local level, rural communities can pursue tangible steps to build network capacity even in low-resource environments, such as:

- Identify backbone institutions who are willing to convene and incubate collaborative health initiatives. These institutions may exist outside the health sector, such as the county agricultural extension agency or the rural economic development cooperative.
- Take stock of existing organizational resources in the community & the extent of their individual and collective engagement on health issues. Simple network surveys can help a community visualize their current patterns of connectivity and identify opportunities for improvement.
- Policy makers could also tailor initiatives for rural areas. This could be accomplished through exploring more efficient resource allocation for state and federal government funding that increase offerings of local public health activities and opportunities for collaboration in rural communities.
- Build and expand upon single-purpose networks and emerging health threats, such as those focused on opioid addiction, farmworker injury prevention, cancer control, water quality, or the COVID-19 pandemic. Small wins in one area can be used to strengthen engagement in longer-term, multi-purpose network collaboration.
- Plan for and respond proactively to changes in network participation such as those triggered by hospital closures, business relocations, leadership turnover, and the expiration of grant funding. Create succession plans and redundancies in network roles and responsibilities wherever possible.

Additionally, small and low-resource communities should consider regional approaches to network development and resource sharing that can engage more organizations across wider geographic areas that span multiple local government jurisdictions. Cross-jurisdictional sharing arrangements and mutual aid agreements used by neighboring public health agencies can provide a foundation for regional approaches to network development.[5]

At state and federal levels, policy makers should identify opportunities for providing enhanced funding and technical assistance to rural communities to support implementation of guideline-recommended public health capabilities and network development activities. The use of population-based funding formulas in many grant-in-aid programs may leave small rural communities with an insufficient base of resources to initiate and sustain collaborative health initiatives. Such programs may consider innovative financing strategies such as regional grant-sharing models, state and local matching requirements, consolidated funding from multiple categorical grant programs, and public-private partnership models to enhance resources available to support rural network development.

RESEARCH LIMITATIONS

The NALSYS survey relies on self-reported data by local public health officials. The results are limited by the knowledge and perspectives of the survey respondents, who may be unaware of small-scale and narrowly-targeted health initiatives that are not visible to public health leaders. As such, this study may offer somewhat conservative, lower bound estimates of network strength and capabilities. However, validation studies confirm that these officials are generally very reliable sources of information about community-wide health initiatives and capabilities implemented within the jurisdictions they serve.

Survey response rates were somewhat lower in rural than urban communities, which may introduce selection bias into the estimates of rural-urban differences. However, results from post-stratification and non-response adjustment analyses indicated that any selection bias, if present, is modest and likely to attenuate the observed differences between rural and urban communities (i.e. bias in the direction of the null hypothesis). For these reasons, this study is likely to provide conservative, lower-bound estimates of rural-urban differences in network strength.

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[3] Mays GP, Mamaril CB. Public health spending and Medicare resource use: A longitudinal analysis of u.S. Communities. Health Serv Res. 2017;52 Suppl 2:2357-77.
[4] Kelsey M. Owsley, Mika K. Hamer, and Glen P. Mays, 2020:The Growing Divide in the Composition of Public Health Delivery Systems in US Rural and Urban Communities, 2014–2018American Journal of Public H ealth 110, S204_S210, https://doi.org/10.2105/AJPH.2020.305801
[5] Center for Sharing Public Health Services. Spectrum of Cross-Jurisdictional Sharing Arrangements, 2019, https://phsharing.org/wp-content/uploads/2019/06/070119-CSPHS_Spectrum_of_Arrangements.pdf.