



## Pediatric vaccination rates in rural America

*Authors: Cynthia Calixte, MD, MPH, Nitika Moibi, MPP, Andrea Stephenson Royster, MBA, MHS, FACHE*

### Introduction

Vaccines as a primary preventative strategy are only effective when administered routinely with high adherence rates to guidelines recommended by the Centers for Disease Control (CDC). Over the past several years, there has been a considerable reduction in immunization rates among some populations, including rural communities. Data show that vaccination rates in rural communities lag considerably compared to larger suburban and urban areas. While these disparities exist across the life span, the gaps are most prevalent among children. Moreover, the problem has intensified in rural areas following concerns about COVID-19 vaccinations. The impact of declining vaccination rates on rural communities is alarming. Efforts to increase uptake should be prioritized to avoid community outbreaks of preventable diseases and improve health status and quality of life for rural residents, particularly children and adolescents.

### Analysis

Primary prevention strategies aim to stop disease and illness before they occur. When effectively implemented, these strategies result in considerable economic savings and improved quality of life. Vaccinations, which have existed since the smallpox vaccine was developed in 1796, are one globally successful example of a primary prevention strategy. While vaccines are administered to children and adults, most vaccines are administered to children, and they are essential to the health and well-being of children and adolescents.

Unfortunately, many children in rural communities have not completed the recommended series for certain vaccines or are completely unvaccinated. According to the CDC's annual national child immunization survey, by two years of age, children in non-metropolitan areas in the U.S. had lower vaccination rates compared to children living in metropolitan areas. Among children born in 2016 and 2017, those living in non-metropolitan areas were 6.3 and 9.7 percentage points behind their metropolitan counterparts for the completion of the rotavirus and influenza vaccine series, respectively. Moreover, 2 percent of children living in non-metropolitan areas were completely unvaccinated, as compared to 1.1 percent in metropolitan areas.

Variations in vaccination rates between rural and urban children may further exacerbate differences in health outcomes. Rural communities already experience significant disparities in health status, which manifest as higher rates of disease and illness, higher mortality rates, and lower life expectancy. Additionally, residents in rural communities often grapple with serious structural barriers, such as challenges accessing health services. For example, about two-thirds of health professional shortage areas are located in rural communities. Transportation is another challenge for rural residents, with many areas presenting few, if any, options for those without personal vehicles. Further, rural communities are less likely to adopt preventive health behaviors, including vaccination.

Vaccine uptake is a complex issue, as several factors contribute to lower vaccination rates in rural communities. The impact, though, is much clearer and easier to understand. In communities with lower immunization rates, there is a higher incidence of infectious disease outbreaks, including the re-emergence of diseases that were previously considered eradicated. These diseases present serious and significant challenges for rural communities, whose residents are at greater risk of disease, illness, and



even death, and force an already strained health care system to assume additional and unnecessary burden.

## Policy recommendation framework

A comprehensive, multi-faceted approach is needed to increase rural vaccination rates. The efficacy of the solutions depends on thoughtful understanding of the potential root causes of declining vaccination rates and responsive, evidence-based strategies. Penchansky and Thomas (1981) offer a holistic framework that can be used to better understand and address key aspects of access to vaccinations. Policymakers are encouraged to use this adapted framework to evaluate current and future immunization policies, bills, and laws to address pediatric vaccinations.

### '5As of vaccine access' policy framework:

- **Availability:** The ability of rural residents to be reached by, or to reach, recommended vaccines. Factors include: driving distance to the closest site that dispenses vaccines; availability of alternative/non-traditional vaccination settings (pop-up clinics at libraries, pharmacies); and stocks of vaccines on site.
- **Affordability:** The ability of rural residents to afford vaccination under their insurance coverage. Another dimension of this is the clinical time spent by providers in imparting vaccine counseling to patients, and the need to reimburse for this effort. Affordability also refers to coverage/parity in reimbursement for different providers who can dispense vaccinations.
- **Acceptability:** The degree to which rural residents accept, question, or refuse vaccinations. A dimension of this also refers to goodness of “fit” or concordance between the provider and the patient.
- **Awareness:**<sup>1</sup> The degree to which rural stakeholders (residents, providers, and the broader community) have knowledge of the need for and availability of recommended vaccines, along with an understanding of their benefits and risks. This element includes appropriate consideration for context and health literacy.
- **Activation:**<sup>1</sup> The degree to which rural populations are nudged towards greater demand for vaccinations. It is critical to act on the awareness or latent knowledge of the benefits of vaccinations among rural residents.

## Recommended actions

It will take combined federal, state, and local action to make considerable strides in improving vaccination coverage and reducing the disparity in rural communities, including:

- Allocate federal and/or state resources for the development of local action plans when immunization rates in rural communities are disparately lower than county, state, or national rates. (*Affordability*)
- Allocate permanent and sustainable funding for the CDC’s Office of Rural Health. This will ensure rural considerations are included and even prioritized in the agency’s efforts. The CDC is the

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<sup>1</sup> The original framework includes 5As of access as availability, accommodation, acceptability, affordability, and accessibility. The authors of this paper adapted this model to modify accommodation and accessibility with two additional components of access to vaccinations in rural areas – activation and awareness.



nation's preeminent public health body charged to protect us from health, safety, and security threats. Any cuts to funding will undermine core public health investments including the nation's vaccine progress. *(All 5As)*

- Allocate appropriate funding to ensure the sustainability of the Vaccines for Children program. *(Availability, Affordability, Awareness, Activation)*
- Encourage and support the development of vaccine action plans by states and local public health departments. These plans should identify barriers to immunization in their respective communities and propose strategies and policy solutions to address those challenges. Vaccine action plans should: 1) prioritize those who have missed vaccinations, particularly during the COVID-19 pandemic; 2) promote vaccine confidence in rural areas to bolster interest in vaccines; 3) ensure community resiliency by investing in community health workers and other trusted partners in rural areas. *(Access, Acceptance, Awareness, Activation)*
- Encourage states to collect immunization data on more of a disaggregated level, standardize data collection, and modernize the vaccine reporting system for benchmark purposes and progress plans. Include other factors such as demographic data and rurality to promote vaccine equity. *(Awareness, Activation)*
- Incentivize rural providers such as pharmacists, dentists, and community paramedics to routinely integrate the administration of pediatric immunizations as appropriate and in alignment with relevant scopes of practice (per state laws). *(Availability, Affordability)*
- Advocate for parity in coverage and reimbursement among insurance companies, regardless of the provider type administering the vaccinations. *(Access, Acceptance)*
- Expand rural access to vaccine supply through CDC leadership of collaboration with pharmacies, vaccine manufacturers, and community-based organizations to build capacity and ensure rural communities have access to needed vaccines. *(Access)*

## Conclusion

Vaccines are safe and effective at preventing serious and potentially life-threatening diseases, yet vaccination rates in rural areas are declining. Access to vaccine supply, health care provider shortages, structural barriers, and vaccine confidence are all factors that impact rural vaccination rates. Successful strategies focusing on the “5As” of vaccine access will result in considerable cost savings to the already burdened rural health care system, but most importantly they may prevent unnecessary illness and save lives in rural communities.



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