IDENTIFYING HEALTH CENTERS IN AREAS WITH LOW RATES OF VACCINE CONFIDENCE AND HIGH RATES OF UNVACCINATED OR INCOMPLETE VACCINATION (COVID-19)

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Key Findings

- Counties in the southeastern United States (U.S.), including Georgia and Alabama, the Dakotas, and West Virginia are correlated with low vaccine confidence and high rates of unvaccinated people.
- The Health Center Program has a strong presence in these counties, including 102 awardees serving almost 2 million patients, and is well-positioned to support vaccination rates.

Overview

While increasing numbers of U.S. adults and teenagers are vaccinated, COVID-19 vaccination rates vary significantly by racial/ethnic group, age, and geographic location.[1] COVID-19 vaccine confidence[2] plays a key role in achieving herd immunity and curbing the pandemic. Health centers funded by the Health Resources and Services Administration (HRSA) have played a major role in administering COVID-19 vaccinations and have the potential to vaccinate even larger numbers of people, particularly vulnerable populations.[3] Targeted health education outreach on vaccine confidence in areas with low COVID-19 vaccination rates and low vaccine confidence could assist the U.S. in achieving herd immunity and overcoming the COVID-19 pandemic.

Objective

This research aims to: (1) identify U.S. counties with high rates of COVID-19 vaccine hesitancy and high rates of unvaccinated or incomplete vaccination, (2) explore demographic and socioeconomic characteristics of these counties, and (3) identify health centers located in these areas for targeted vaccine outreach.

Data Sources and Methods

This research uses vaccine hesitancy data from the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (ASPE, May 7, 2021);[2] COVID-19 vaccination rates (% of population fully vaccinated for COVID-19) from the Centers for Disease Control and Prevention (CDC, September 9, 2021);[1] the location of Health Center Program (HCP) awardee service delivery sites;[4] and data on Health Center Program awardees from HRSA (2020).[5] Authors used geospatial methods and geographic information systems (GIS) to identify priority counties based on low COVID-19 vaccination rates and low vaccine confidence and health centers within these areas.

Results

Three geographic clusters of priority counties

Priority counties are located in the southeastern U.S., particularly Georgia and Alabama, West Virginia, and the Dakotas.

Identifying Health Centers in Areas with Low Rates of Vaccine Confidence and High Rates of Unvaccinated or Incomplete Vaccination (COVID-19)

Compared to counties with low vaccine hesitancy that are surrounded by counties with high complete COVID-19 vaccination rates, priority counties have higher rates of poverty and larger percentages of racial and ethnic minorities (particularly Black populations).

Health centers are well-positioned to address vaccine hesitancy and increase vaccination rates

A total of 102 Health Center Program awardees, serving almost 2 million patients across 800 health center delivery sites, are located within priority counties.

Table 1. Mean Characteristics of Priority Counties

	Priority County (n=277)	Low Hesitancy/High Complete Vaccination Rate Surrounding Counties (n=425)	All (n=2,825)
% Complete COVID-19 Vaccination Rate (as of 9/9/2021)	22.8	54.6	39.2
% COVID-19 Vaccine Hesitancy (as of 5/7/2021)	24.3	16.0	19.8
% Black	18.5	5.1	9.1
% Minority	24.3	15.1	16.5
% Hispanic	5.1	10.4	9.2
% Poverty	19.1	11.9	15.5
% Uninsured	12.2	6.6	9.9
% Unemployed	6.1	4.8	5.3
% HS Educated	37.3	29.4	34.1
% Age 65+	17.9	18.1	18.3

Identifying Health Centers in Areas with Low Rates of Vaccine Confidence and High Rates of Unvaccinated or Incomplete Vaccination (COVID-19)

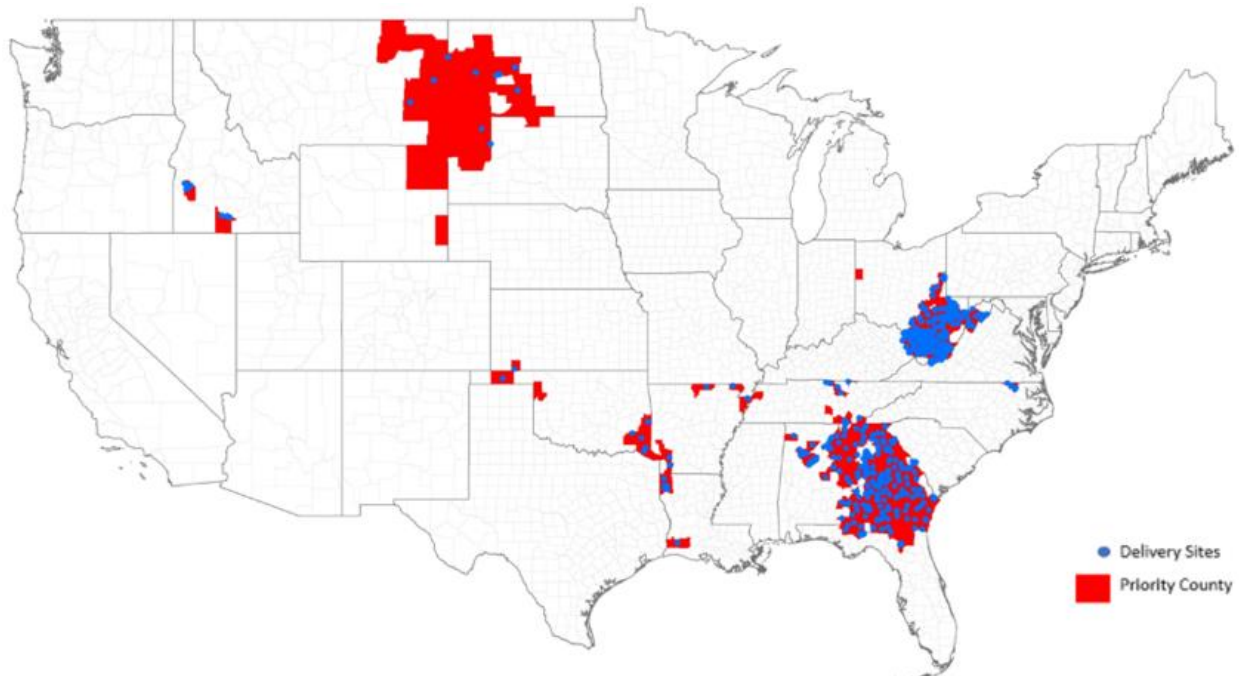**Figure 1. Priority Counties: High Rates of COVID-19 Vaccine Hesitancy and High Rates of Unvaccinated People**

> **Figure 1 shows that health centers are well-positioned to address vaccine hesitancy and increase access to vaccinations in most priority counties.**

Discussion

This research identified parts of the southeastern U.S., particularly Georgia and Alabama, the Dakotas, and West Virginia as having clusters of counties with high rates of COVID-19 vaccine hesitancy and high rates of unvaccinated or incomplete COVID-19 vaccinations. Additionally, more than 100 Health Center Program awardees serve nearly 2 million patients in these areas. Nationally, as of September 2021, more than one-half of U.S. adults are vaccinated, but younger adults, racial and ethnic minorities, and populations in several states have much lower vaccination rates.[1] Lower COVID-19 vaccination rates are associated with limited vaccine access and lower vaccine confidence,[6] and research indicates the need to focus outreach to racial and ethnic minorities and other vulnerable populations.[7] Given the significant role of health centers in administering COVID-19 vaccinations in these populations, targeting health centers in areas with low rates of vaccine confidence and low vaccination rates supports strategic planning, optimizes finite resources, and better assists health centers in creating culturally competent outreach addressing vaccine confidence.

Next Steps

- Future research should incorporate data from the Health Center COVID-19 Vaccine Program to explore the potential impact of the program and associations with vaccine hesitancy.

Additional Details on Data Sources and Methods

We included U.S. counties for which data on COVID-19 vaccination and COVID-19 vaccine hesitancy are available (n=2,825), which excludes Texas, New Mexico, and Puerto Rico. We utilized a bivariate Local Moran's I using GeoDa software to identify clusters of counties with high rates of COVID-19 vaccine hesitancy that are surrounded by counties with high rates of unvaccinated or incomplete vaccinations (this includes people who have received one dose but are not fully vaccinated) resulting in a list of priority counties. We then used geographic information systems (GIS) to overlay health center service delivery sites within priority counties. We identified Health Center Program awardees that had at least one service delivery site located within a priority county. Finally, we used the bivariate Local Moran's I to identify counties with low vaccine hesitancy surrounded by counties with high complete vaccination rates and compared their characteristics to priority counties.

Limitations

The measures used to identify priority counties are fluid, meaning that vaccine hesitancy and COVID-19 vaccination rates can shift based on the emergence of new strains, as well as how communities are impacted across geographic space. We used the most recent data available for the analysis, understanding that changes could and were likely to happen after the analysis was completed.

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Key Definitions and Acronyms

Geographic Information Systems (GIS): A computer system used to store, analyze, and display data with a spatial component.

Local Moran's I: A spatial analysis technique used to identify areas with concentrations of high or low values for an indicator.

Authors and Acknowledgements

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