

SURVEILLANCE BRIEF

Wisconsin Environmental Public Health Tracking Program

WISCONSIN INFLUENZA VACCINE UPDATE: 2019–2021

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SUMMARY: Influenza vaccines are annual vaccines that help prevent severe influenza (flu) infection. Early in the COVID-19 pandemic, there were increased efforts to vaccinate the general population for flu. This led to an overall increase in vaccination among Wisconsin’s population, but this trend did not occur among children aged 12 years and younger or among several rural counties’ populations. In addition, Black, American Indian/Alaska Native, and Hispanic populations in Wisconsin consistently have lower vaccination rates compared to the overall statewide vaccination rate and the recent trend of increased vaccination in Wisconsin was not reflected as strongly in these non-white communities.

BACKGROUND

According to Rothberg et al., in the U.S., there are more than 200,000 hospitalizations and 35,000 deaths per year from influenza, also called the “flu.”¹ Influenza vaccines protect against influenza infection, severe disease, and complications. New versions of the influenza vaccine are developed annually for disease variants projected to circulate that flu season. There are several options for influenza vaccination. Quadrivalent influenza vaccines provide immunization against four influenza strains, recombinant egg-free and nasal options are available for those with an egg allergy, and the live attenuated influenza vaccine includes weakened viruses administered by nasal spray. The live attenuated vaccine is only recommended for those 2–49 years of age who are not pregnant or immunocompromised, compared to other vaccines recommended for anyone over the age of 6 months.²

INFLUENZA PREVENTION

The primary prevention strategy against severe illness from influenza is vaccination. Pneumonia, pulmonary and cardiovascular disease, and infrequent neuromuscular issues are the most common complications that can arise from severe influenza infections.¹ According to the Centers for Disease Control and Prevention (CDC), during the 2019–2020 flu season, vaccination prevented 7.5 million flu cases, 105,000 flu hospitalizations, and more than 6,000 flu-related deaths. Older adults, very young children, and those with chronic health conditions are most at risk for complications.² These people must rely on the wider population to protect them from influenza infection and adverse outcomes because vaccinations may be less effective for older adults and those with underlying health conditions, and very young patients are ineligible to receive an influenza vaccine. There are also health equity concerns related to influenza outcomes. People who live in poverty are more likely to live in neighborhoods where they are

exposed to pollutants that exacerbate asthma and other respiratory diseases, which can worsen influenza disease.³ Because of these clear health inequities in the risk of complications due to influenza, it is important to understand influenza vaccine uptake across Wisconsin to better protect everyone during flu season.

VACCINATION AND ENVIRONMENTAL HEALTH

The Wisconsin Environmental Public Health Tracking Program compiles data on immunizations, including influenza vaccination coverage. Offering easy access to immunization data allows researchers to identify and better understand relationships between the environment and vaccine-preventable diseases, including the impact of immunizations. Dynamics of infectious diseases are related to the environments people live in, which makes prevention of these diseases an environmental health issue. For example, someone living in downtown Milwaukee may have more exposure to potential flu cases on a daily basis than someone living in a more rural area, simply because of their more densely populated environment. It is important to understand these relationships because changing dynamics of infectious diseases—especially during the COVID-19 pandemic—are increasingly important to researchers and the public.⁴ These dynamics will shift as climate change progresses, leading to increased temperatures and faster spread of infectious disease, according to Baker et al.⁵ Making these data available and understanding these changing dynamics will help researchers, public health professionals, and the public prepare for coming challenges.

PANDEMIC VACCINATION CHANGES

During the COVID-19 pandemic, increased marketing and education efforts encouraged people to get the influenza vaccine, as well as the COVID-19 vaccine. Nationally, an uptick in influenza vaccination occurred in the United States, but this trend was not seen across all demographic groups. People who are white and educated were more likely to receive a vaccine than others.⁶ During the 2021–2022 flu season, these increased marketing and education efforts were largely discontinued.

WISCONSIN VACCINATION TRENDS

Overall, the percentage of Wisconsinites who received a flu shot in the 2020–2021 season increased (Figure 1). However, this trend did not occur across all age groups. For children aged 12 years and younger, flu vaccine coverage decreased (Figure 2). However, this trend did not occur across all age groups and racial and ethnic groups and was not evident in all areas of the state. While the total vaccination coverage during the 2020–2021 flu season was 41%, less than 25% of Black and American Indian/Alaska Native Wisconsinites were vaccinated (Figure 3). Additionally, of the five Wisconsin counties with the highest flu vaccine coverage (Dane, Waukesha, Ozaukee, Door, and La Crosse) only Door County is not classified as an urban county as defined by the Wisconsin Interactive Statistics on Health (WISH)⁷ (Figure 4). This finding is consistent with a wider national trend of lower flu vaccination rates among rural communities.⁸ It should be noted that data completeness and quality may have been compromised during the COVID-19 pandemic due to limited public health resources.

Figure 1 shows that the overall vaccination coverage for influenza in Wisconsin increased from 42% during the 2019–2020 season to 43.7% (2020–2021 season). As a result, an additional 75,000 people obtained a flu shot during 2020–2021 who did not get one the prior season.

FIGURE 1. Flu Vaccination Coverage, Wisconsin, 2014–2015 through 2020–2021

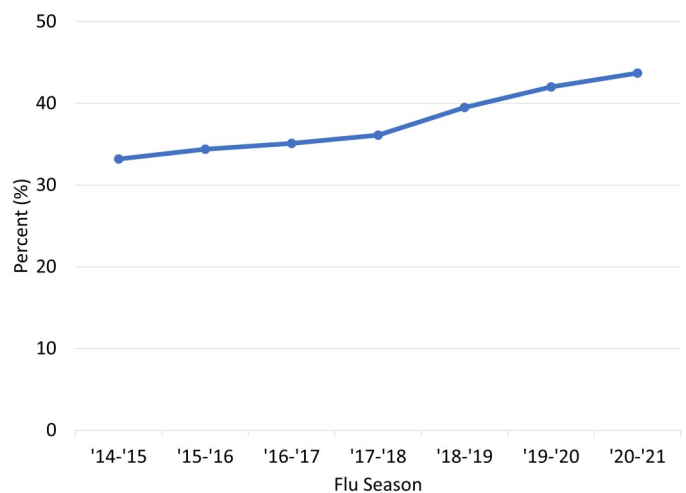


Figure 2 shows that statewide vaccination rates for children aged 0–4 and 5–12 years decreased between 2019–2020 and 2020–2021 flu seasons, while the rates increased for those aged 13–18 years.

FIGURE 2. Flu Vaccination Coverage by Age Group, Wisconsin, 2014–2015 through 2020–2021

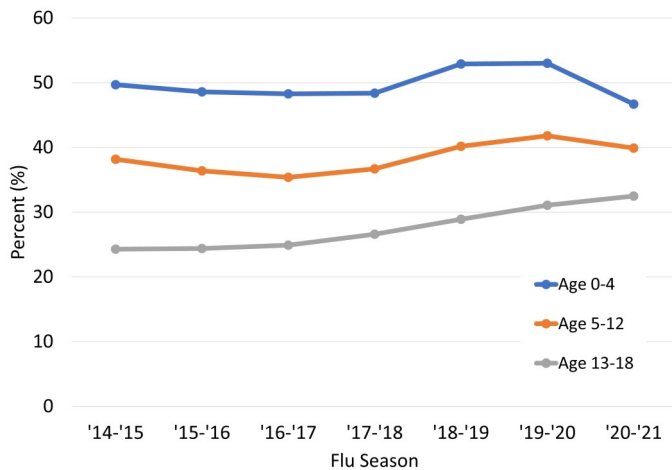
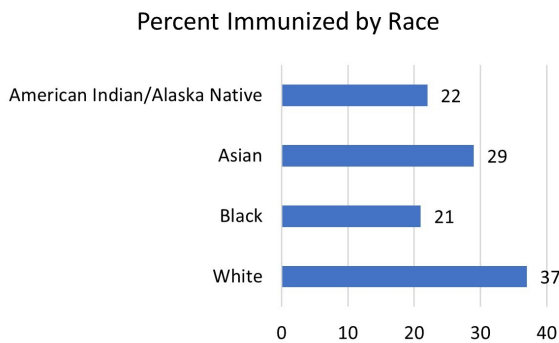


Figure 3 shows that while the statewide vaccine coverage was 41%, vaccine coverage for Black, American Indian/Alaska Native, and Hispanic Wisconsinites was significantly lower, ranging from 21%–23%.

FIGURE 3. Flu Vaccination Coverage by Race and Ethnicity, Wisconsin Weekly Respiratory Surveillance Report, 2020–2021⁹



Report, 2020–2021⁹

Figure 3 continues in the next column.

FIGURE 3, continued.

Percent Immunized by Ethnicity

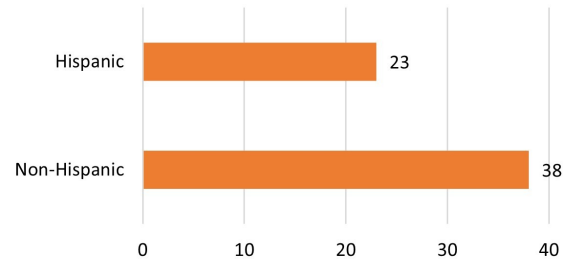
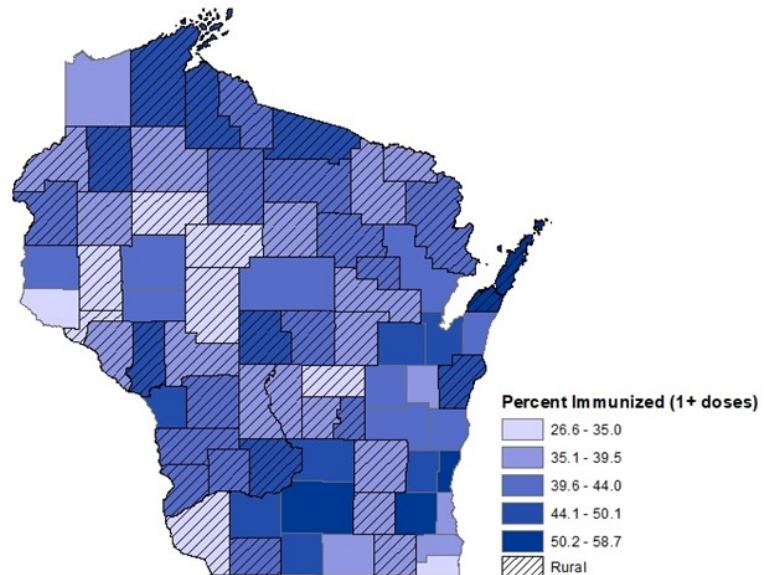


Figure 4 shows that rural counties in Wisconsin were more likely to be lower in vaccine coverage in the 2020–2021 season, while urban counties were more likely to have higher vaccine coverage in that same period.

FIGURE 4. Flu Vaccine Coverage by Urbanicity, Wisconsin, 2020–2021



These figures do not tell us the reason certain groups of Wisconsinites have lower vaccination rates. It is important to view the data in context. People in rural areas, people of color, and people who live in poverty are more likely to experience barriers to being vaccinated. These barriers can include access to a healthcare provider, healthcare coverage, time off work, transportation, and childcare responsibilities. There are also historical reasons for people in these communities to distrust public vaccination campaigns.

RECOMMENDATIONS

For local and tribal health departments

- Partner with stakeholders in Black, Hispanic, American Indian/Alaska Native and rural communities to improve access to and uptake of flu vaccines in their communities.
- Partner with local pediatricians to help parents understand the benefits of flu vaccines for children.
- Reduce the barriers to vaccination. Partner with community organizations to provide workplace and community event vaccination, transportation services, and information about vaccination in several languages.

For Individuals: Get a flu shot for the annual flu season when it becomes available to you to help protect yourself and members of your community.



CONCLUSIONS

Promotion of seasonal flu vaccination increased the overall vaccination coverage in Wisconsin during 2019–2020 and 2020–2021 seasons, which was a public health success amidst a pandemic. However, there are still significant disparities in flu vaccine coverage in Wisconsin, with environmental and health equity implications among people of different ages, people living in rural and urban areas, and people belonging to different racial and ethnic groups. Improving access to vaccines in rural areas and fostering partnerships with Black, American Indian/Alaska Native, and Hispanic communities could help reduce disparities in immunization, and protect everyone against flu complications.

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ACKNOWLEDGEMENTS

The authors would like to thank Wendy Fall, Ashley Murphy, and authors of the Wisconsin Weekly Respiratory Surveillance Report for their contributions to this surveillance brief.

ABOUT TRACKING

The Wisconsin Environmental Public Health Tracking Program is a one-stop shop for environmental public health data on Wisconsin communities. Explore the data and resources by [visiting the Tracking Program web site](#).

FUNDING

The Wisconsin Environmental Public Health Tracking Program is funded by the Centers for Disease Control and Prevention.

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