

Ohio Medicaid Assessment Survey Brief: Vaccine Receipt and Hesitancy/Resistance Among Adults and Parents/Caregivers in Ohio in 2023

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Key Takeaways:

- Nearly half of Ohio adults are hesitant/resistant to the COVID-19 vaccine.
- Among adults ages 65+, one-in-five are hesitant/resistant to the pneumonia vaccine.
- Among adults ages 50+, one-in-three are hesitant/resistant to the flu and shingles vaccines.
- Hesitancy/resistance for the COVID-19 vaccine is highest among White adults, whereas Black and Hispanic adults tend to be the most hesitant/resistant to other adult vaccines.
- Adults living in rural counties tend to have the lowest vaccine receipt and the highest vaccine hesitancy.
- There is generally less hesitancy/resistance among parents/caregivers toward the flu vaccine for the children in their household, as compared to the COVID-19 vaccine.
- There is lower hesitancy/resistance for early childhood vaccines (chicken pox, MMR, Polio, DTaP) as compared to vaccines that are administered to older children (COVID-19, HPV, flu).
- Parents/caregivers of Asian children are generally the least hesitant/resistant to childhood vaccines, while parents/caregivers of children living in rural non-Appalachia counties are the most hesitant/resistant to childhood vaccines.

Introduction

As of May 2022, the Ohio Covid Survey found an estimated 24.7% (90% CI: 21.8%-27.7%) of the Ohio adult population was hesitant or resistant to receiving a COVID-19 vaccine.¹ This was nearly 18 months following the first administration of COVID-19 vaccines to adults in Ohio in December 2020.² More than half (57.9%, 90% CI: 51.7%-64.1%) of caregivers reported that none of their children ages 5 to 17 years old were vaccinated for COVID-19 during this same period.¹ Vaccine hesitancy or resistance can arise from various factors, and attitudes toward different vaccines can be interrelated; this presents public health concerns about Ohioans' future vaccine behaviors considering their hesitancy or resistance to taking a COVID-19 vaccine for themselves or their children.

¹ Ohio Covid Survey dashboard: <https://grcapps.osu.edu/app/ocs>

² <https://governor.ohio.gov/media/news-and-media/covid19-update-12142020>

Some of the reasons from literature for an increase in hesitancy/resistance toward non-COVID-19 vaccines (e.g., influenza, pneumonia, shingles) that has seemingly been accentuated by COVID-19 vaccine hesitancy and resistance are (1) increased suspicion or distrust of the public health system, public health authorities, and public health prevention;³ and (2) misinformation churn relating to COVID-19 and influenza vaccines.⁴ While the 2023 OMAS did not collect information about reasons for vaccine hesitancy or resistance, it did survey both adults and caregivers about their and their children's receipt of vaccines and current hesitancy or resistance to receiving those vaccines. In this brief, we use this data to (1) examine the prevalence of vaccination and hesitancy/resistance by demographic groups and county type among adults and parents/caregivers in Ohio in 2023 and (2) explore variation in the demographic profile of adults and parents/caregivers who are hesitant/resistant regarding other vaccines, including adult vaccines (flu, shingles, and pneumonia) and child vaccines (flu, polio, MMR, HPV, DTaP, and chickenpox).

Methods

This brief uses data from the 2023 Ohio Medicaid Assessment Survey (OMAS). The OMAS is a repeated cross-sectional random probability survey of non-institutionalized Ohio adults 19 years of age and older and proxy interviews of children 18 years of age and younger. It provides health status and health system-related information about residential Ohioans at the state, regional, and county levels, with a concentration on Ohio's Medicaid, Medicaid-eligible, and non-Medicaid populations. The 2023 OMAS used a combination of an address-based sampling (ABS) frame and a list frame of Medicaid enrollees and collected surveys by phone, web, and paper. The most recent iteration, the 2023 OMAS, was fielded from September 2023 – January 2024 and had a sample size of 39,626 and an eligibility-adjusted response rate of 24.0%.

The target population for the 2023 OMAS was all residents of Ohio. To ensure estimates are representative of this population, the 2023 OMAS survey weights were adjusted to account for any potential non-response bias. Additionally, poststratification adjustments were made to ensure that the final weights align with population totals from the 2020 5-year American Communities Survey and 2023 Ohio Medicaid enrollment data. See the 2023 methodology report for full details (<https://grc.osu.edu/OMAS/2023Survey>).

To see additional demographic information and estimates for the Ohio population represented by the 2023 OMAS, please see the [OMAS Series Dashboard](#). This interactive tool provides fast, real-time results for a data-driven view of Ohio's health and healthcare landscape.

Descriptive statistics are reported in the figures and tables in the chartbook. No statistical testing was conducted, and we present 90% confidence intervals only as an indication of the precision of the estimate. Estimates from OMAS are reported in this brief only when the data are sufficient for calculating and presenting reliable estimates. We define a reliable estimate as one where the size of the unweighted subpopulation of interest is greater than 30 individuals and the coefficient of

³ Myroniuk et al. 2022; Green et al. 2023; Wang & Liu 2022; Shon et al. 2021

⁴ Lyu et al. 2022; Taylor et al. 2020; Ecker et al. 2022; van der Linden 2022

variation for the estimate is less than 0.3. Estimates with low precision are either hidden from view or are replaced with N/A.

This brief is descriptive in nature, and any differences observed between groups should not be used to draw conclusions about underlying causes. The findings presented do not account for important factors that might influence any observed differences (e.g. income, education level, general health status, etc.). Therefore, the findings in this brief cannot be used to conclude that group differences are due to group membership as there are many factors that may be driving these findings, and this analysis was not designed to be able to control for them.

For further details about the 2023 OMAS methodology, questionnaire, and access to the dashboard, please visit: grc.osu.edu/OMAS/2023Survey.

Variable Definitions

- *Adults*: 19 years old or older as identified in OMAS.
- *Children*: 18 years old or younger as identified in OMAS.
- *Caregiver*: an adult (19 years old or older) who gave proxy responses for a randomly selected child (ages 18 years old or younger) living in their household. Most of these caregivers identified themselves as the child's parent (84.21%).
- *Adult vaccine hesitancy/resistance*: a response of "somewhat hesitant" or "very hesitant" when asked "Currently, how hesitant are you to receive the [VACCINE NAME] vaccine?" This is asked of all adults, regardless of whether they report having ever received that vaccine, as past vaccine receipt does not necessarily indicate future receipt in cases where repeated vaccination is recommended.
- *Caregiver vaccine hesitancy/resistance*: a response of "somewhat hesitant" or "very hesitant" when asked "Currently, how hesitant are you about the children in your household receiving the [VACCINE NAME] vaccine?" This is asked of all caregivers, regardless of whether they report having ever gotten their indexed child vaccinated for that illness, as vaccine receipt for one child in the household does not necessarily indicate future receipt for other children in the household. Past vaccine receipt also does not necessarily indicate future receipt in cases where repeated vaccination is recommended.

Results

Adult COVID-19 Vaccine Receipt and Hesitancy/Resistance

While nearly three-quarters (71.8%) of Ohio adults have ever received a COVID-19 vaccine, there is substantial variation by age (Figure 1), race/ethnicity (Figure 2), education (Figure 3), and county type (Figure 4). Older adults ages 65 and older (87.9%), Asian adults (83.0%), adults with a 4-year college degree or more (87.2%), and adults living in metropolitan areas (76.5%) are the most likely to have ever received a COVID-19 vaccine. In comparison, younger adults ages 19-44 years (61.3%), Black adults (64.7%), adults with up to high school but no diploma (50.1%), and adults living in rural Appalachian areas (61.6%) are the least likely to have ever received a COVID-19 vaccine. These demographic patterns vary somewhat when examining vaccine attitudes rather than behaviors.

While younger adults (54.0%), adults with up to high school but no diploma (56.1%), and adults living in rural Appalachian areas (61.4%) are the most likely to report being somewhat or very hesitant to receive a COVID-19 vaccine, white adults (51.1%) are the most likely racial/ethnic group to be vaccine hesitant/resistant to the COVID-19 vaccine. There were no substantial differences in COVID-19 vaccine receipt or hesitancy/resistance found when comparing by gender or working status. Medicaid-enrolled adults ages 19-64 years old have the lowest prevalence of receiving a COVID-19 vaccine and the highest prevalence of being hesitant or resistant, compared to adults potentially eligible for Medicaid and adults not potentially eligible for Medicaid (Figure 5).

Figure 1: Prevalence of COVID-19 Vaccine Receipt and Hesitancy/Resistance Among Ohio Adults by Age, 2023

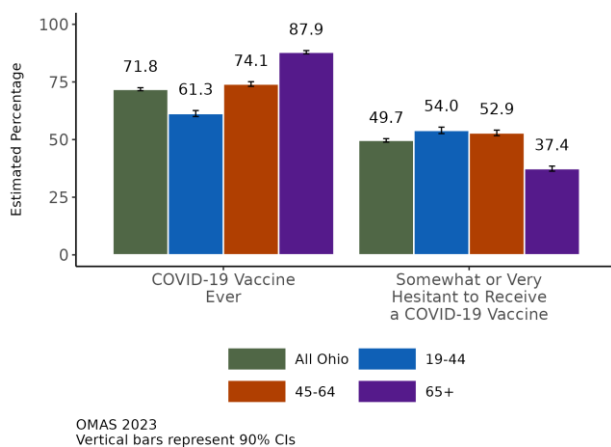


Figure 3: Prevalence of COVID-19 Vaccine Receipt and Hesitancy/Resistance Among Ohio Adults by Education Level, 2023

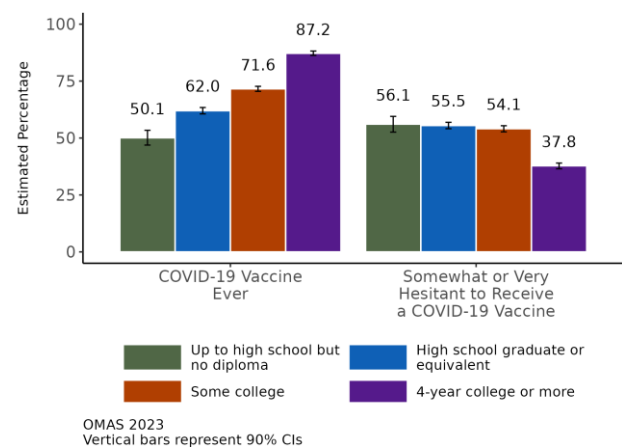


Figure 2: Prevalence of COVID-19 Vaccine Receipt and Hesitancy/Resistance Among Ohio Adults by Race and Ethnicity, 2023

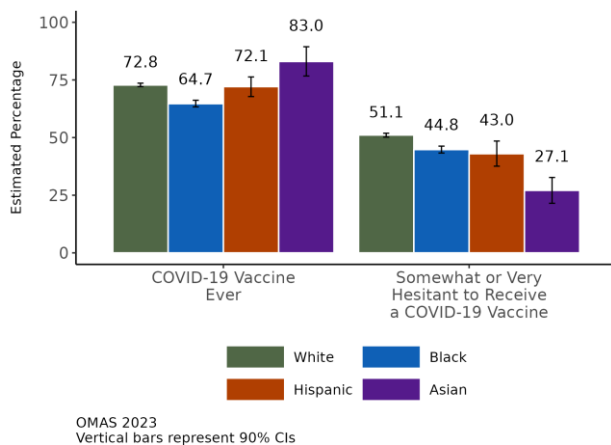
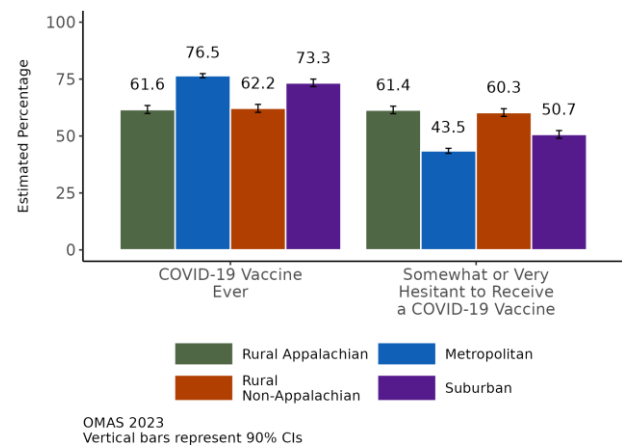
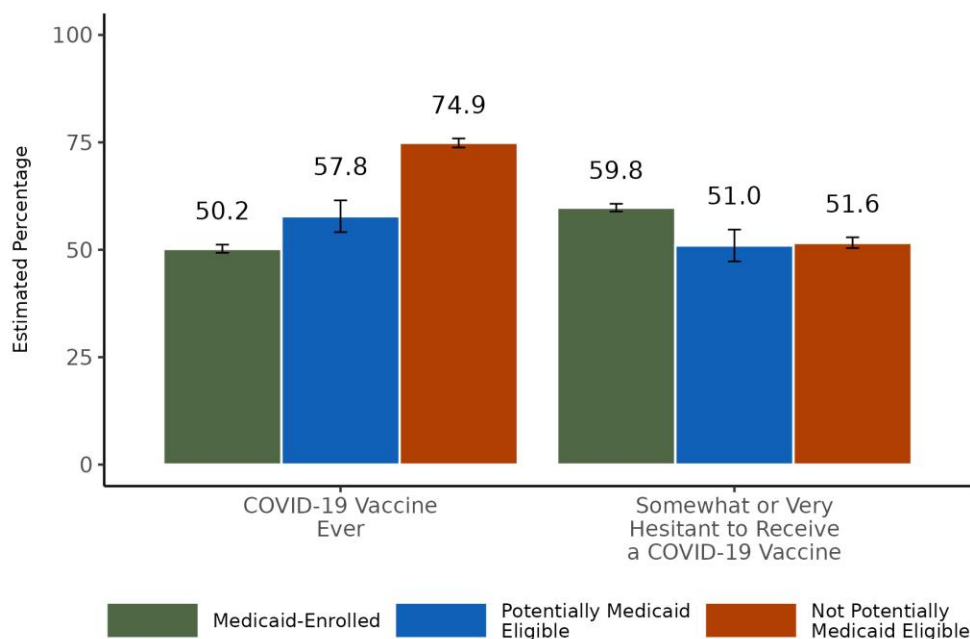


Figure 4: Prevalence of COVID-19 Vaccine Receipt and Hesitancy/Resistance Among Ohio Adults by County Type, 2023



Note: Observed group differences should not be used to draw conclusions about underlying causes - see Methods for more guidance.

Figure 5: Prevalence of COVID-19 Receipt and Hesitancy/Resistance Among Ohio Adults Ages 19-64 Years by Medicaid Status, 2023



OMAS 2023
Vertical bars represent 90% CIs

Note: Observed group differences should not be used to draw conclusions about underlying causes - see Methods for more guidance.

Adult Vaccine Receipt and Hesitancy/Resistance for Flu, Shingles, and Pneumonia Vaccines

While rates of vaccine receipt for pneumonia among adults ages 65 or older (75.2%) are similar to those of COVID-19 vaccine receipt (71.8%), the prevalence of ever receiving a shingles vaccine among adults ages 50 or older (49.1%) and receiving a flu vaccine in the last 12 months (48.5%) are considerably lower (Table 1). When comparing the prevalence of vaccination by racial/ethnic groups, Hispanic adults are the least likely to have gotten a flu vaccine in the last 12 months (38.8%), a pneumonia vaccine (59.9%), or a shingles vaccine (47.9%). Asian adults are the most likely to have gotten a flu vaccine (56.7%) or a shingles vaccine (56.2%), but White adults are the most likely to have gotten a pneumonia vaccine. For all three types of vaccines, prevalence of vaccination is positively correlated with education level, which is a pattern that held for COVID-19 vaccinations as well. Household income is similarly correlated, with the largest gap in vaccine receipt between adults at the lowest FPL levels and adults at the highest FPL levels observed for the flu vaccine, followed by the shingles vaccine. The distribution of receipt of the pneumonia vaccine by income is narrower. Rates of flu vaccination are double among adults with a college degree or higher, as compared to adults with less than a high school degree. Adults living in suburban and metropolitan counties in Ohio have the highest prevalence of receiving a shingles (53.4% and 51.5%), pneumonia (79.0% and 75.8%), and flu (50.1% and 52.9%) vaccine, while adults in rural Appalachian and rural non-Appalachian counties generally have the lowest prevalence. This pattern is consistent with receipt of the COVID-19 vaccine by county type. Receipt of a flu vaccine in the last 12 months is associated with age, with older adults (71.2%) having double the prevalence of flu vaccination of younger adults

(36.0%). Finally, flu and shingles vaccination prevalence is lower among Medicaid-enrolled adults as compared to those potentially eligible for Medicaid and those not potentially eligible for Medicaid. The difference in prevalence between Medicaid-enrolled and not potentially Medicaid eligible adults is most pronounced for the flu vaccine (18-percentage point difference as compared to a 10-percentage point difference for the shingles vaccine).

Table 1: Prevalence (90% confidence interval) of receipt of adult vaccinations among Ohio adults aged 19 and older in 2023 by demographic characteristics

Subgroup	Last 12 months Flu Vaccine	Ever Shingles Vaccine (age 50+)	Ever Pneumonia Vaccine (age 65+)
All Ohio	48.5 (47.8-49.3)	49.1 (48.2-50.0)	75.2 (74.2-76.2)
Race/ethnicity			
White	50.3 (49.4-51.1)	50.1 (49.1-51.1)	76.6 (75.6-77.6)
Black	40.3 (38.9-41.8)	41.7 (39.4-43.9)	66.0 (62.6-69.4)
Hispanic	38.8 (34.1-43.5)	47.9 (41.1-54.8)	59.9 (49.0-70.8)
Asian	56.7 (50.3-63.2)	56.2 (46.5-65.9)	63.3 (49.0-77.6)
Education			
< HS grad	31.4 (28.4-34.3)	33.5 (29.8-37.3)	65.2 (60.0-70.4)
HS grad/GED	39.2 (37.9-40.6)	44.1 (42.5-45.7)	73.6 (71.8-75.3)
Some college	46.5 (45.2-47.7)	46.6 (45.1-48.2)	74.8 (73.1-76.4)
≥ College	64.2 (62.9-65.4)	60.4 (58.8-62.0)	79.7 (78.0-81.3)
County type			
Rural Appalachian	38.7 (37.1-40.2)	39.3 (37.6-41.1)	72.1 (69.9-74.2)
Rural, non-Appalachian	39.8 (38.2-41.5)	44.2 (50.1-52.9)	70.9 (68.6-73.2)
Metropolitan	52.9 (51.8-53.9)	51.5 (42.2-46.1)	75.8 (74.3-77.3)
Suburban	50.1 (48.4-51.7)	53.4 (51.5-55.3)	79.0 (77.0-81.0)
Household Income			
0-138% FPL	34.8 (33.4-36.1)	39.8 (37.9-41.6)	68.3 (65.7-70.9)
138-250% FPL	44.2 (42.5-45.9)	47.3 (45.4-49.3)	75.0 (73.0-77.0)
250-400% FPL	52.4 (50.8-54.0)	50.6 (48.6-52.6)	77.2 (75.4-79.1)
400% or more FPL	59.4 (58.1-60.8)	54.0 (52.5-55.5)	77.3 (75.5-79.0)
Medicaid Status (Ages 19-64 for flu and 50-64 for shingles)			
Medicaid-Enrolled	29.4 (28.6-30.2)	29.4 (27.9-30.9)	
Potentially Med Eligible	32.4 (29.3-35.6)	33.2 (28.6-37.9)	
Not Potentially Med Eligible	47.9 (46.7-49.1)	39.3 (37.7-40.9)	
Age Group			
19-44	36.0 (34.8-37.3)		
45-64	48.4 (47.2-49.6)		
65+	71.2 (70.2-72.2)		

Note: Observed group differences should not be used to draw conclusions about underlying causes - see Methods for more guidance.

Table 2 shows the prevalence of vaccine hesitancy/resistance for flu, shingles, and pneumonia vaccines. Black adults stand out as being more hesitant/resistant to the flu vaccine (41.8%) than other racial/ethnic groups, while their prevalence of hesitancy/resistant to the shingles or pneumonia vaccines are comparable to the prevalence for Hispanic adults (Table 2). White adults have the second highest prevalence of hesitancy/resistance to the flu vaccine (34.3%), but the lowest

prevalence of hesitancy/resistance to the pneumonia vaccine. Similarly to vaccine receipt, hesitancy/resistance for adult vaccinations is correlated with education level, with the most educated adults expressing the least hesitancy/resistance. Very similar patterns hold for stratifications by household income. Adults living in suburban and metropolitan counties have the lowest prevalence of hesitancy/resistance to adult vaccinations, while adults living in rural counties have the highest prevalence. About twice as many younger adults (40.3%) are hesitant/resistant to receiving the flu vaccine, as compared adults ages 65 or older (21.3%). Finally, shingles hesitancy/resistance is similar between Medicaid-enrolled adults and those potentially eligible for Medicaid (43.6% and 42.7% respectively), with the lowest hesitancy/resistance to the shingles vaccine among adults 50 years and older who are not potentially eligible for Medicaid (34.1%). In comparison, hesitancy/resistance to the flu vaccine is elevated among Medicaid-enrolled adults (48.0%) as compared to potentially Medicaid-eligible adults (41.8%) and not potentially Medicaid-eligible adults (35.6%).

Table 2: Prevalence (90% confidence interval) of hesitancy/resistance for adult vaccinations among Ohio adults aged 19 and older in 2023 by demographic characteristics*

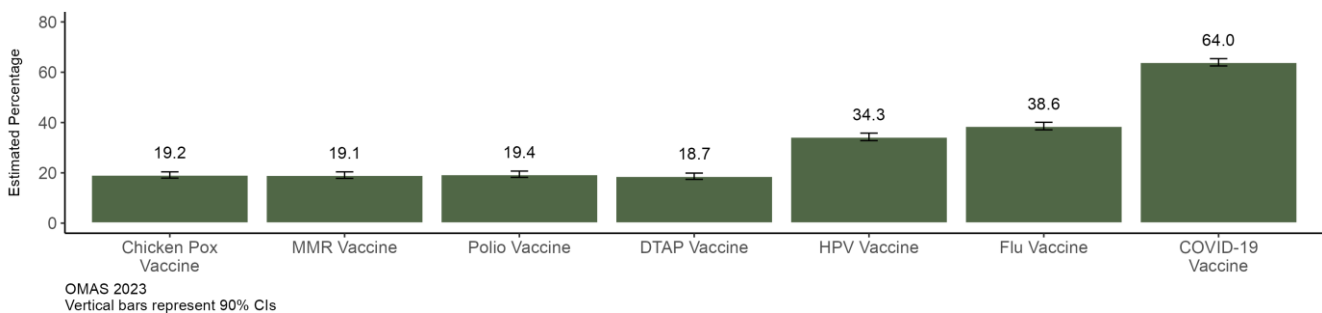
Subgroup	Hesitant/Resistant to Flu	Hesitant/Resistant to Shingles (age 50+)	Hesitant/Resistant to Pneumonia (age 65+)
All Ohio	35.1 (34.4-35.8)	31.7 (30.9-32.5)	18.9 (18.1-19.8)
Race/ethnicity			
White	34.3 (33.5-35.1)	30.6 (29.7-31.5)	17.6 (16.7-18.5)
Black	41.8 (40.3-43.3)	38.8 (36.6-40.9)	27.4 (24.5-30.3)
Hispanic	32.4 (27.8-37.0)	39.9 (33.4-46.3)	24.1 (16.0-32.2)
Asian	23.4 (17.6-29.1)	21.2 (13.7-28.6)	---
Education			
< HS grad	46.6 (43.4-49.8)	39.8 (35.9-43.7)	23.7 (19.7-27.7)
HS grad/GED	41.3 (39.9-42.7)	36.9 (35.4-38.4)	21.7 (20.1-23.2)
Some college	38.0 (36.7-39.3)	33.1 (31.7-34.6)	20.0 (18.5-21.5)
≥ College	23.2 (22.1-24.2)	22.3 (21.0-23.7)	12.9 (11.6-14.2)
County type			
Rural Appalachian	42.9 (41.3-44.6)	38.2 (36.4-40.0)	23.0 (21.0-25.0)
Rural, non-Appalachian	42.0 (40.1-43.8)	34.1 (32.2-35.9)	21.2 (19.3-23.2)
Metropolitan	31.6 (30.6-32.6)	30.5 (29.3-31.7)	18.0 (16.7-19.2)
Suburban	34.2 (32.5-35.8)	28.2 (26.5-29.9)	16.9 (15.1-18.6)
Household Income			
0-138% FPL	42.8 (41.3-44.2)	39.1 (37.4-40.9)	25.3 (23.1-27.5)
138-250% FPL	38.1 (36.5-39.9)	36.0 (34.2-37.9)	21.9 (20.0-23.7)
250-400% FPL	34.4 (32.8-36.0)	31.6 (29.8-33.3)	18.1 (16.4-19.8)
400% or more FPL	27.7 (26.5-28.9)	25.5 (24.2-26.9)	14.1 (12.8-15.3)
Medicaid Status (Ages 19-64 for flu and 50-64 for shingles)			
Medicaid-Enrolled	48.0 (47.1-49.0)	43.6 (42.0-45.2)	
Potentially Med Eligible	41.8 (38.3-45.3)	42.7 (37.8-47.6)	
Not Potentially Med Eligible	35.6 (34.4-36.8)	34.1 (32.6-35.7)	
Age Group			
19-44	40.3 (39.0-41.6)		
45-64	38.2 (37.0-39.4)		
65+	21.3 (20.4-22.2)		

Note: Observed group differences should not be used to draw conclusions about underlying causes - see Methods for more guidance.

Caregiver Hesitancy/Resistance for Childhood Vaccines

Vaccine hesitancy/resistance is highest for the COVID-19 vaccine, where nearly two-thirds of caregivers expressed hesitancy for that vaccination (Figure 6). The next closest vaccine was flu, where over one-third (38.6%) expressed hesitancy/resistance, followed by HPV (34.3%). For all other vaccines (the early childhood vaccines), less than 20% of parents or caregivers expressed hesitancy/resistance.

Figure 6: Prevalence (90% confidence interval) of vaccine hesitancy/resistance for childhood vaccines among caregivers in Ohio in 2023



Note: Observed group differences should not be used to draw conclusions about underlying causes - see Methods for more guidance.

Table 3 displays vaccine hesitancy/resistance for early childhood vaccines by child demographics and county type. For all vaccines, hesitancy/resistance was highest for the parents or caregivers of Black children (range 25.0% to 26.4%) and lowest for Asian children (range 11.7% to 14.9%). Vaccine hesitancy/resistance was highest among the parents and caregivers of children in the lowest income category (range 25.7% to 26.3%) and lowest in the highest income category (range 9.8% to 10.5%). Vaccine hesitancy/resistance was considerably higher among parents and caregivers of children living in rural non-Appalachian counties (range 22.9% to 25.65) and lowest in Appalachian counties (range 16.0% to 17.0%). Caregiver education is correlated with vaccine hesitancy/resistance for early childhood vaccines, with about three-in-ten caregivers with less than a high school diploma being hesitant/resistant, as compared to about one-in-eight caregivers with a college degree or more education. Caregivers of Medicaid-enrolled children have the highest prevalence of hesitancy/resistance to early childhood vaccines (about one-in-four), while prevalence of hesitancy/resistance is lower for caregivers of children who are potentially Medicaid-eligible, and even lower for those who are not potentially Medicaid-eligible. Generally, rates of vaccine hesitancy/resistance to early childhood vaccines are consistent across vaccine type.

Table 3: Prevalence (90% confidence interval) of vaccine hesitancy and resistance for early childhood vaccines among Ohio caregivers in 2023 by demographic characteristics

Subgroup	Hesitant/Resistant to Chicken Pox	Hesitant/Resistant to MMR	Hesitant/Resistant to Polio	Hesitant/Resistant to DTaP
All Ohio	19.2 (17.9-20.4)	19.1 (17.8-20.4)	19.4 (18.2-20.7)	18.7 (17.4-19.9)
Child Race/Ethnicity				
White	17.0 (15.5-18.6)	16.6 (15.1-18.2)	17.0 (15.5-18.6)	16.2 (14.6-17.7)
Black	25.3 (22.4-28.2)	26.2 (23.2-29.2)	26.4 (23.5-29.4)	25.0 (22.1-27.9)
Hispanic	21.5 (17.3-25.7)	22.3 (18.0-26.7)	22.6 (18.2-26.9)	22.5 (18.1-26.8)
Asian	14.9 (9.5-20.3)	12.5 (7.4-17.6)	11.7 (6.8-16.7)	13.4 (8.2-18.6)
Caregiver Education				
< HS grad	28.9 (23.7-34.1)	29.6 (24.4-34.9)	31 (25.7-36.3)	29.8 (24.6-35.1)
HS grad/GED	24.4 (21.7-27.1)	24.1 (21.4-26.8)	25.6 (22.9-28.4)	23.9 (21.2-26.5)
Some college	20.0 (17.7-22.3)	20.3 (17.9-22.6)	20.1 (17.8-22.4)	19.7 (17.4-22.1)
>= College	13.5 (11.6-15.4)	13.2 (11.2-15.1)	12.9 (11-14.8)	12.5 (10.7-14.4)
County Type				
Rural Appalachian	16.0 (13.2-18.7)	16.3 (13.4-19.2)	16.2 (13.4-18.9)	17.0 (14.1-19.9)
Metropolitan	18.4 (16.6-20.1)	19.1 (17.4-20.9)	18.9 (17.1-20.6)	18.1 (16.4-19.9)
Rural, non-Appalachian	25.6 (22.1-29.2)	23.2 (19.9-26.6)	25.2 (21.8-28.6)	22.9 (19.6-26.3)
Suburban	19.3 (16.0-22.5)	18.0 (14.9-21.1)	19.4 (16.2-22.6)	18.3 (15.2-21.5)
Household Income				
0-138% FPL	25.8 (23.4-28.1)	25.8 (23.4-28.1)	26.3 (23.9-28.6)	25.7 (23.4-28.0)
138-250% FPL	18.7 (16.1-21.3)	18.5 (15.7-21.2)	18.1 (15.6-20.7)	17.6 (15.1-20.2)
250-400% FPL	18.1 (15.2-20.9)	16.9 (14.2-19.7)	18.4 (15.6-21.2)	16.2 (13.5-18.9)
400% or more FPL	9.8 (8.0-11.6)	10.5 (8.5-12.5)	10.3 (8.3-12.2)	10.0 (8.0-11.9)
Child Medicaid Status				
Medicaid-Enrolled	24.5 (22.4-26.7)	24.2 (22.1-26.3)	24.6 (22.5-26.7)	24.2 (22.1-26.3)
Potentially Med Eligible	20.0 (16.6-23.5)	21.0 (17.4-24.7)	20.1 (16.7-23.5)	19.3 (15.9-22.7)
Not Potentially Med Eligible	13.3 (11.7-14.9)	13.2 (11.5-14.8)	13.7 (12.1-15.4)	12.7 (11.1-14.3)

Note: Observed group differences should not be used to draw conclusions about underlying causes - see Methods for more guidance.

Prevalence of parent or caregivers' vaccine hesitancy/resistance towards other childhood vaccines was more varied (Table 4). With respect to race/ethnicity, parents or caregivers of Asian children were the least hesitant/resistant (range 21.9% to 32.8%). For HPV, hesitancy/resistance was similar across the remaining three race/ethnicity groups, with roughly one-third of parents or caregivers expressing hesitancy/resistance. For COVID-19, parents or caregivers of White children (65.9%) were the most hesitant/resistant, whereas parents or caregivers of Black children (43.0%) were most hesitant/resistant towards flu vaccine. Parents or caregivers of children in the highest income households were the least hesitant/resistant towards all three vaccinations (range 25.3% to 51.4%), as were caregivers with at least a college degree. The other income categories and education levels were similar with respect to hesitancy/resistance. Parents or caregivers of children living in rural non-Appalachian counties were again the most hesitant/resistant (range 46.8% to 74.3%) and parents in metropolitan counties the least (range 30.5). Finally, caregivers of a child enrolled in Medicaid had higher prevalence of hesitancy/resistance to the COVID-19 vaccine than caregivers of a child who was potentially Medicaid eligible or not potentially Medicaid eligible (70.4% vs. 62.6% and 57.6%, respectively). A similar pattern held for hesitancy/resistance toward the flu vaccine. There was much less variation in the prevalence of hesitancy/resistance to HPV vaccines by Medicaid status.

Table 4: Prevalence (90% confidence interval) of vaccine hesitancy and resistance for other childhood vaccines among Ohio caregivers in 2023 by demographic characteristics

Subgroup	Hesitant/Resistant to COVID-19	Hesitant/Resistant to HPV	Hesitant/Resistant to Flu
Child Race/Ethnicity			
White	65.9 (64.0-67.8)	35.0 (33.1-36.9)	37.8 (35.9-39.6)
Black	63.4 (60.4-66.5)	32.7 (29.6-35.7)	43.0 (39.7-46.2)
Hispanic	56.4 (50.3-62.6)	34.5 (29.1-39.8)	34.9 (29.5-40.3)
Asian	32.8 (25.6-40.0)	24.8 (17.6-32.0)	21.9 (15.5-28.4)
Caregiver Education			
< HS grad	66.5 (60.8-72.3)	33.5 (28.1-38.9)	44.9 (39.2-50.6)
HS grad/GED	72.6 (69.9-75.3)	33.1 (30.1-36.1)	45.9 (42.7-49.1)
Some college	69.7 (67.1-72.3)	37.9 (35.1-40.6)	44.6 (41.8-47.4)
>= College	53.6 (51.1-56.2)	32.3 (29.8-34.7)	28.1 (25.8-30.4)
County Type			
Rural Appalachian	73.4 (70.2-76.7)	32.4 (29.0-35.8)	43.3 (39.8-46.8)
Metropolitan	58.6 (56.5-60.8)	30.5 (28.5-32.6)	35.1 (33.0-37.2)
Rural, non-Appalachian	74.3 (70.9-77.7)	46.8 (42.9-50.7)	51.6 (47.8-55.4)
Suburban	64.7 (61.1-68.3)	37.9 (34.0-41.8)	35.3 (31.6-39.0)
Household Income			
0-138% FPL	69.2 (66.8-71.5)	35.6 (33.1-38.2)	45.2 (42.5-47.8)
138-250% FPL	68.7 (65.3-72.1)	35.9 (32.5-39.2)	43.2 (39.7-46.7)
250-400% FPL	64.6 (61.1-68.2)	37.4 (33.7-41.0)	37.3 (33.8-40.8)
400% or more FPL	51.4 (48.4-54.5)	28.9 (26.1-31.7)	25.3 (22.7-27.9)
Child Medicaid Status			
Medicaid-Enrolled	70.4 (68.3-72.6)	36.0 (33.7-38.4)	45.7 (43.3-48.1)
Potentially Med Eligible	62.6 (58.2-67.0)	35.4 (31.2-39.6)	41.3 (36.9-45.6)
Not Potent. Med Eligible	57.6 (55.3-59.9)	32.1 (30.0-34.3)	30.3 (28.2-32.4)

Note: Observed group differences should not be used to draw conclusions about underlying causes - see Methods for more guidance

Summary

There are higher rates of vaccine receipt for COVID-19 as compared to shingles (among adults ages 50 or older) or flu (in the last 12 months). However, for adults there are much higher rates of hesitancy/resistance to the COVID-19 vaccine (nearly half) than other vaccines (ranging from one-in-five for pneumonia to one-in-three for shingles and flu). Hesitancy/resistance for COVID-19 is highest among White adults, whereas Black and Hispanic adults tend to be the most hesitant/resistant to other adult vaccines. For all adult vaccines, adults living in rural Appalachian and rural non-Appalachian counties, as well as Medicaid-enrolled adults, tend to have the lowest vaccine receipt and highest vaccine hesitancy. Age and household income are positively correlated with receipt of COVID-19 and flu vaccines and negatively correlated with hesitancy/resistance toward these vaccines.

Parents or caregivers of Asian children are generally the least hesitant/resistant to vaccines, and parents or caregivers of children living in rural non-Appalachian counties are the most hesitant/resistant. For early childhood vaccines, caregivers of children living in Appalachian counties are the least hesitant/resistant, while for later childhood vaccines those in metro counties are the least hesitant/resistant. For all types of vaccines, household income and caregiver's education have an inverse association with hesitancy/resistance. Generally, there is less hesitancy/resistance among caregivers toward the flu vaccine as compared to the COVID-19 vaccine. Across the board, there is lower hesitancy/resistance for early childhood vaccines as compared to other childhood vaccines (e.g. COVID-19, HPV, flu vaccine), with the highest prevalence of caregiver hesitancy/resistance to the COVID-19 vaccine.

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