Massachusetts Department of Public Health



**COVID-19** **Vaccination** **Uptake** **Among** **Pregnant** **and** **Postpartum** **People** **in** **Massachusetts,** **December** **1,** **2020** **–** **March** **31,** **2022**

**Key** **Takeaways** **for** **Healthcare** **Providers**

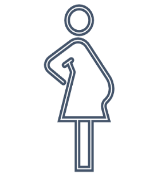
Center for Birth Defects Research and Prevention

Healthcare Providers are Trusted Messengers

•The following data are tailored for providers, giving background and context on vaccination uptake among pregnant people in MA.

•Healthcare providers play a critical role in counseling and recommending their patients to get vaccinated against COVID-19.

Background



• COVID-19 vaccination is recommended for people who are pregnant, recently pregnant, or might become pregnant in the future.

• Despite these recommendations, studies suggest that COVID-19 vaccine uptake is lower among pregnant people compared with non-pregnant people.

Sources:

1. <https://www.cdc.gov/coronavirus/2019ncov/vaccines/recommendations/pregnancy.html>

2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9145279/3>.

3. <https://www.sciencedirect.com/science/article/pii/S2211335522000201>

Methods

* We estimated vaccination uptake (receipt of >1 doses of COVID-19 vaccine) among pregnant and postpartum people in MA.

• To identify pregnant people, we relied upon MA vital records (birth certificates & fetal death certificates). Thus, we were limited to identifying those with completed deliveries (during December 1, 2020 – March 31, 2022).

• We linked\* data from MA vital records and MA Immunization Information System (MIIS) COVID-19 vaccination to identify pregnant people with and without receipt of one or more doses of COVID-19 vaccine as of May 23, 2022.

\*We used probabilistic and deterministic linkages; this process and the inability to ascertain vaccinations that were not in MIIS may lead to an undercount of vaccinations among pregnant people.

**COVID-19** **Vaccine** **Timeline** **of** **Events** **in** **MA**

***12/15/2020****:* Phase 1 of vaccine roll out



***2/18/2021***: Pregnancy now a priority condition for vaccination eligibility

***7/30/2021***: ACOG recommends pregnant people get vaccinated

***8/13/2021***: Boosters and third doses available‡

***2/1/2021***: Phase 2 of vaccine roll out

***4/19/2021***: Phase 3 of vaccine roll out

***8/11/2021*:** CDC recommends all pregnant people get vaccinated

***9/29/2021***: CDC issues HAN urging COVID-19 vax for pregnant people

**Phase** **1**

• December 15, 2020: Clinical and non-clinical health care workers doing direct and COVID-facing care

• December 28, 2020: Long term care facilities, rest homes and assisted living facilities

• January 11, 2021: First responders

• January 18, 2021: Congregate care settings

• January 21, 2021: Home-based health care workers, health care workers doing non-COVID-facing care

**Phase** **2**

• February 1, 2021: People 75+

• February 18, 2021: People 65+, People with 2 or more certain medical conditions **(including** **pregnancy)**, People who live or work in low income and affordable senior housing

• March 11, 2021: K-12 educators, K-12 school staff, and childcare workers

• March 22, 2021: People 60+, Workers in certain categories

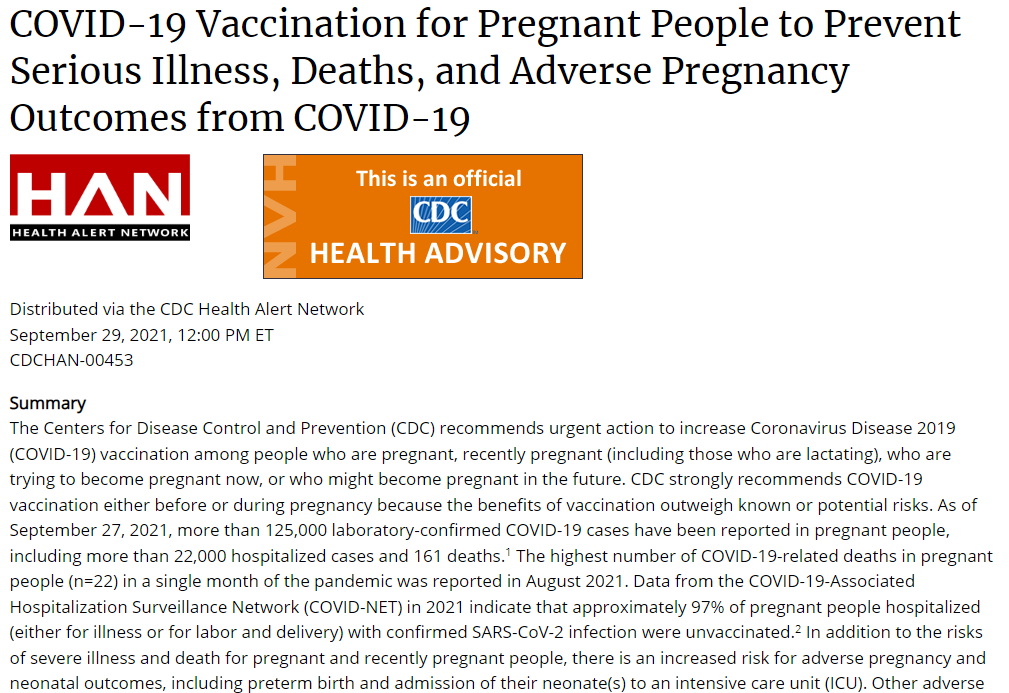
• April 5, 2021: People 55+, People with 1 or more certain medical conditions **(including** **pregnancy)**

**Phase** **3**

• April 19, 2021: People aged 16 and older can get vaccinated

• May 12, 2021: People aged 12 and older can get vaccinated

‡ Pregnant people eligible for boosters.



To read the full Health Alert, visit: <https://emergency.cdc.gov/han/2021/han00453.asp>

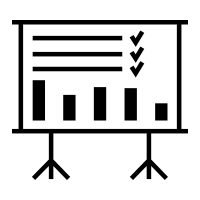
Contextualizing the Data

• In this analysis, we present racialized data, or data that are grouped into socially constructed race/ethnicity categories that are often used to perpetuate and support systems of privilege and oppression.

• Differences in vaccination uptake by race/ethnicity reflect structural and institutional racism which drive barriers to healthcare access, medical mistrust, and marginalization in communities of color.

• For more granular information on each race/ethnicity grouping presented, see Appendix A for further disaggregated data.

<https://www.mass.gov/doc/racial-equity-data-road-map-pdf/download>

Results

1. Among people who delivered between May 1, 2021– March 30, 2022 (n=66450)\*, **37%** received >1 doses of COVID-19 vaccine before or during pregnancy.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Month of Delivery | May 2021 | Jun 2021 | Jul 2021 | Aug 2021 | Sep 2021 | Oct 2021 | Nov 2021 | Dec 2021 | Jan 2022 | Feb 2022 | Mar 2022 | Weighted Avg. |
| Proportion Vaccinated (Receipt of one or more doses) Before or During Pregnancy | 22.0% | 26.2% | 28.8% | 30.7% | 34.5% | 40.6% | 41.9% | 43.9% | 47.4% | 49.8% | 50.6% | 37.3% |

Data Source: Massachusetts Immunization Information System, Bureau of Infectious Diseases and Laboratory Sciences (current through May 23, 2022) & Registry of Vital Records and Statistics (current through March 31, 2022)

Analyses conducted by Massachusetts Department of Public Health COVID-19 Pregnancy Surveillance Team

\*Data are restricted to May 1, 2020 - March 31, 2022 because vaccinations were not widely available in MA until April 16, 2021.

2. However, among people who delivered between May 1, 2021 – January 2022\*(n=55339), an additional 17% went on to get vaccinated after delivery.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Month of Delivery | May 2021 | Jun 2021 | Jul 2021 | Aug 2021 | Sep 2021 | Oct 2021 | Nov 2021 | Dec 2021 | Jan 2022 | Weighted Avg. |
| Proportion Vaccinated (Receipt of one or more doses) After Delivery | 31.1% | 25.7% | 22.9% | 20.4% | 16.1% | 12.0% | 8.4% | 6.4% | 3.4% | 16.7% |

Data Source: Massachusetts Immunization Information System, Bureau of Infectious Diseases and Laboratory Sciences (current through May 23, 2022) & Registry of Vital Records and Statistics (current through March 30, 2022)

Analyses conducted by Massachusetts Department of Public Health COVID-19 Pregnancy Surveillance Team

\*Data are restricted to this time period for this point estimate to ensure that everyone had the opportunity (at least a 2-month window) to get vaccinated after delivery.

3. COVID-19 vaccination uptake before or during pregnancy has **increased** over time but plateaued after completed deliveries as of October 2021.

Vaccine Timing by Month of Delivery

N=5073

**1%**

**3%**

**5%**

**4%**

**46%**

**3%**

**51%**

Dec-20

N=5063

**43%**

**1%**

**50%**

Jan-21

N=4981

**37%**

**12%**

**3%**

**48%**

Feb-21

N=5927

**23%**

**24%**

**7%**

**46%**

Mar-21

N=5898

**18%**

**20%**

**16%**

**46%**

Apr-21

N=6345

**18%**

**13%**

**22%**

**47%**

May-21

N=6410

**15%**

**11%**

**26%**

**48%**

Jun-21

N=6523

**12%**

**11%**

**29%**

**48%**

Jul-21

N=6542

**10%**

**10%**

**31%**

**49%**

Aug-21

N=6453

**9%**

**8%**

**34%**

**49%**

Sep-21

N=6125

**7%** **5%**

**40%**

**47%**

Oct-21

N=5835

**5%** **4%**

**39%**

**50%**

Nov-21

N=5681 **3%**

**5%**

**39%**

**50%**

Dec-21

N=5470

**2%** **6%**

**41%**

**49%**

Jan-22

N=5193

**1%** **9%**

**41%**

**49%**

Feb-22

N=5938 **1%**

**12%**

**38%**

**48%**

Mar-22

**No** **Vax** **Reported** **Vax** **During** **Preg** **Vax** **Before** **Preg** **Vax** **Recently** **After** **(6** **wks)** **Delivery** **Vax** **Later** **than** **6wks** **After** **Delivery**

Vax: receipt of 1 or more dose(s) of COVID-19 vaccine.

Vaccination Before or During Pregnancy by Race/Ethnicity\*

**67%**

4. Vaccination uptake before or during pregnancy was **lowest** among pregnant people who identified as **non-Hispanic** **(NH)** **American** **Indian/Alaska** **Native** **(AI/AN)** (n=459), **Hispanic** (n=19457)**,** **NH** **Black** (n=9832)**,** **or** **NH** **Other/Unknown** (n=2025).

**56%**

**38%** **38%**

**NH** **Asian/NHOPI\*\*** **33%** **34%**

**NH** **White** **32%** **30%** **NH** **Other** **25%**

**NH** **AI/AN** **18%**

**Hispanic** **11%**

**NH** **Black** **11%**

May-July 2021 Month of Delivery January-March 2022

Data Source: Massachusetts Immunization Information System, Bureau of Infectious Diseases and Laboratory Sciences (current through May 23, 2022) & Registry of Vital Records and Statistics (current

T through March 31, 2022) For race/ethnicity, Hispanic was top-coded over all groups followed by American Indian/Alaska Native, Black, Asian/NHOPI, White, then Other/Unknown

\*\*NHOPI: Native Hawaiian or Other Pacific Islander

5. Vaccination uptake before or during pregnancy was **lowest** **among** **those** **who** **preferred** **to** **speak** **a** **language** **other** **than** **English**.

Vaccination Status by Preferred Spoken Language\*

Cape Verdean Creole N=212

|  |
| --- |
| 11% |
| 10% |
| 78% |

Portuguese N=1508

|  |
| --- |
| 9% |
| 18% |
| 73% |

Spanish N=3845

|  |
| --- |
| 11% |
| 19% |
| 70% |

Haitian Creole N=428

|  |
| --- |
| 18% |
| 16% |
| 66% |

English N=57206

|  |
| --- |
| 15% |
| 40% |
| 45% |

Other N=756

|  |
| --- |
| 23% |
| 37% |
| 40% |

No Vax Reported Vax Before or During Preg Vax After Preg

Vax: receipt of one or more 1 dose(s) of COVID-19 vaccine.

\*Data are restricted to May 1, 2020 - March 31, 2022 because vaccinations were not widely available in MA until April 16, 2021.

6. Vaccination uptake before or during pregnancy was lowest among those 24 years of age or younger.

Vaccination Status by Age\*

Less than 20 N=1231

|  |
| --- |
| 13% |
| 13% |
| 74% |

20-24 N=6180

|  |
| --- |
| 15% |
| 17% |
| 68% |

25-29 N=13864

|  |
| --- |
| 16% |
| 27% |
| 57% |

30-34 N=25654

|  |
| --- |
| 14% |
| 42% |
| 44% |

35-39 N=15826

|  |
| --- |
| 13% |
| 47% |
| 41% |

40+ N=3560

|  |
| --- |
| 13% |
| 45% |
| 43% |

**No** **Vax** **Reported** **Vax** **Before** **or** **During** **Preg** **Vax** **After** **Preg**

Vax: receipt of one or more dose(s) of COVID-19 vaccine.

\*Data are restricted to May 1, 2020 - March 31, 2022 because vaccinations were not widely available in MA until April 16, 2021.

7. Vaccination uptake before or during pregnancy was lower among those with public insurance compared with private insurance.

Vaccination Status by Insurance Type at Delivery\*

Private Insurance N=39714

|  |
| --- |
| 14% |
| 48% |
| 38% |

Public Insurance N=22813

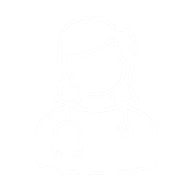
|  |
| --- |
| 15% |
| 21% |
| 64% |

**No** **Vax** **Reported** **Vax** **Before** **or** **During** **Preg** **Vax** **After** **Preg**

Vax: receipt of 1 or more dose(s) of COVID-19 vaccine.

\*Data are restricted to May 1, 2020 - March 31, 2022 because vaccinations were not widely available in MA until April 16, 2021.

Next steps you can take as a provider



• Recommend the vaccine to your patients, especially those who are pregnant, recently pregnant, or who might become pregnant in the future.

• In MA, vaccination uptake before or during pregnancy is lower among those who identify as non-Hispanic (NH) American Indian/Alaska Native, Hispanic, or NH Black, and those who prefer to speak a language other than English.

• For multilingual COVID-19 Materials, visit: <https://www.mass.gov/resource/>[multilingual-covid-19-materials](https://www.mass.gov/resource/multilingual-covid-19-materials) (includes “Pregnancy and the COVID-19 vaccine” FAQ flyer in 12 languages) or <https://www.pnqinma.org/patient-hub>

• Learn how to provide more culturally and linguistically appropriate maternal health care here: <https://thinkculturalhealth.hhs.gov/education/maternal-health-care>

• Stay up-to-date on the growing body of literature documenting the disproportionate impact of COVID-19 on pregnant people and the safety and efficacy of COVID-19 vaccination during pregnancy.

• LitCovid is a curated hub for tracking literature about COVID-19 (website: [LitCovid: Pregnancy](https://www.ncbi.nlm.nih.gov/research/coronavirus/docsum?text=pregnancy&sort=date%20desc&page=1))

Resources & Supports

• You can go to [VaxFinder.mass.gov](https://vaxfinder.mass.gov/) to search for a vaccine appointment in Massachusetts at locations including mobile pop-up clinics, health care, pharmacies, grocery stores, and local Boards of Health and [VaxAbilities.com t](https://vaxabilities.com/)o find disability-friendly vaccination events across Massachusetts.

• For more information on how Massachusetts is embedding equity into their COVID-19 vaccine roll-out, visit the [Vaccine Equity Initiative.](https://www.mass.gov/info-details/covid-19-vaccine-equity-initiative)

• Download the Perinatal Neonatal Quality Improvement Network (PNQIN)’s [Best Practices for COVID-19 Vaccination Document.](https://www.pnqinma.org/_files/ugd/fdc477_b38f044437124eb1be11db2b31f66a4b.pdf)

• See [PNQIN’s Communication Skills Training t](https://www.umassmed.edu/cipc/webinars-short-courses/short-courses/communication-skills-training-for-caregivers-discussing-covid-19-vaccination-during-pregnancy-and-post-partum/)ailored for providers counseling pregnant and postpartum patients regarding COVID-19 vaccination.

• **More** **MDPH** **Resources**

**Immunization** **Division** **Main** **Number**

For questions about immunization recommendations, disease reporting, etc. Phone: 617-983-6800 (24/7 MDPH Epi line)

Fax: 617-983-6840

Website: <https://www.mass.gov/topics/immunization>

**MIIS** **Help** **Desk** Phone: 617-983-4335 Fax: 857-323-8321

Email questions to: [miishelpdesk@mass.gov](mailto:miishelpdesk@mass.gov)

Website: <https://www.mass.gov/massachusetts-immunization-information-system-miis>

**MDPH** **Vaccine** **Unit** Phone: 617-983-6828

Email questions to: [dph-vaccine-management@mass.gov](mailto:dph-vaccine-management@mass.gov)

Website: <https://www.mass.gov/service-details/vaccine-management>

**COVID-19** **Email** **Box**

Email questions to: [COVID-19-Vaccine-Plan-MA@mass.gov](mailto:COVID-19-Vaccine-Plan-MA@mass.gov)

Acknowledgments

• Tommy Aluko

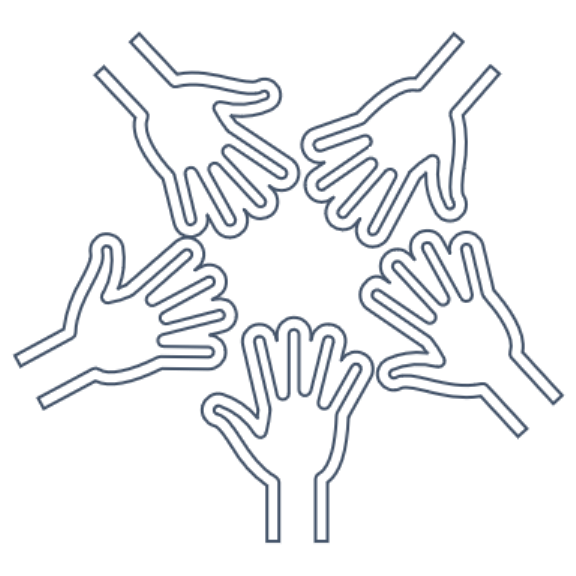
• Kathryn Ahnger-Pier

• Claudia Catalano

• Anne Marie Darling

• Megan Hatch

• Monina Klevens

• Susan Manning

• Eirini Nestoridi

• Michelle Reid

• Katie Stetler

• Mahsa Yazdy

Appendix A.1. Among those self-identified as **Hispanic/Latinx**, vaccination uptake\* was lowest among those who also identify as **Hispanic/Latina/Other**, **Guatemalan,** **or** **Brazilian**.

|  |  |  |
| --- | --- | --- |
| **Hispanic/Latinx** | **N** | **%** **Vaccinated** |
| Hispanic/Latinx Overall | 13826 | 36.0% |
| Colombian | 438 | 45.9% |
| White | 697 | 45.6% |
| Mexican American | 584 | 42.3% |
| American | 1633 | 41.8% |
| Dominican | 3110 | 38.0% |
| Honduran | 445 | 37.1% |
| Hispanic/Latina/White | 8714 | 36.9% |
| Hispanic/Latina/Black | 2348 | 36.2% |
| Other South American\*\* | 671 | 35.8% |
| Puerto Rican | 4352 | 35.2% |
| Salvadoran | 1131 | 33.7% |
| Hispanic/Latina/Other | 2232 | 31.6% |
| Guatemalan | 1196 | 31.4% |
| Brazilian | 1361 | 30.8% |

\*Vaccination uptake: receipt of one or more doses of COVID-19 vaccine before, during or after pregnancy among deliveries occurring between May 1, 2021 and March 31, 2022. \*\*Other South American includes those identifying with the following ethnicities/cultures: Argentinian, Bolivian, Ecuadorian, Peruvian, Uruguayan, and Venezuelan

Appendix A.2. Among those who self-identified as **American** **Indian** **or** **Alaska** **Native**, vaccination uptake\* was lowest among those who also identify as **Cape** **Verdean**, or **members** **of** **the** **Nipmuc** **Tribe** **or** **Cherokee** **Tribe.**

|  |  |  |
| --- | --- | --- |
| **American** **Indian** **or** **Alaska** **Native** | **N** | **%** **Vaccinated** |
| American Indian or Alaska Native Overall | 354 | 36.4% |
| Choctaw Tribe | 8 | 62.5% |
| Chippewa Tribe | 11 | 54.5% |
| Mi’kmaq Tribe | 28 | 50.0% |
| European | 86 | 44.2% |
| American | 173 | 41.6% |
| White | 190 | 41.1% |
| Portuguese | 31 | 38.7% |
| Other Tribe\*\* | 185 | 36.8% |
| Black | 75 | 33.3% |
| African American | 76 | 31.6% |
| Blackfoot Tribe | 58 | 31.0% |
| Cape Verdean | 26 | 30.8% |
| Nipmuc Tribe | 14 | 28.6% |
| Cherokee Tribe | 162 | 21.6% |

\*Vaccination uptake: receipt of one or more doses of COVID-19 vaccine before, during or after pregnancy among deliveries occurring between May 1, 2021 and March 31, 2022. \*Other Tribe includes those identifying with the following tribes: Chickasaw, Comanche, Creek, Lakota, Lumbee, Massasoit, Pequot, Potawatomi, and Wampanoag

Appendix A.3. Among those self-identified as **Asian/Native** **Hawaiian/Pacific** **Islander**, vaccination uptake\* was lowest among those who also identify as **Filipino**, **Laotian,** **or** **Black.**

|  |  |  |
| --- | --- | --- |
| **Asian** **or** **Native** **Hawaiian** **or** **Other** **Pacific** **Islander** | **N** | **%** **Vaccinated** |
| Asian/Native Hawaiian or Other Pacific Islander Overall | 5865 | 65.1% |
| Japanese | 157 | 72.0% |
| Asian Indian | 1763 | 68.4% |
| Cambodian | 430 | 67.4% |
| Chinese | 1507 | 66.7% |
| Middle Eastern | 74 | 66.2% |
| Vietnamese | 527 | 64.7% |
| Korean | 312 | 64.1% |
| American | 486 | 61.3% |
| European | 166 | 57.2% |
| White | 418 | 54.8% |
| Other Ethnicity\*\* | 63 | 52.4% |
| Filipino | 257 | 51.4% |
| Laotian | 60 | 46.7% |
| Black | 62 | 45.2% |

\*Vaccination uptake: receipt of one or more doses of COVID-19 vaccine before, during or after pregnancy among deliveries occurring between May 1, 2021 and March 31, 2022.

\*\*Other Ethnicity includes those identifying with the following ethnicities/cultures: Afghani, Bangladeshi, Burmese, French Canadian, Greek, Hmong, Italian, Kazakh, Kyrgyz, Māori, Nepalese, Pakistani, Polish, Sri Lankan, Taiwanese, Thai, Trinidadian, Ukrainian, and West Indian

Appendix A.4. Among those self-identified as **Black,** vaccination uptake was lowest among those who also identify as **Portuguese,** **Brazilian,** **or** **American** **Indian/Alaska**

**Native**.

|  |  |  |
| --- | --- | --- |
| **Black** | **N** | **%** **Vaccinated** |
| Black Overall | 7547 | 43.6% |
| African | 1360 | 55.8% |
| European | 184 | 47.3% |
| African American | 3283 | 44.7% |
| Caribbean | 474 | 42.4% |
| American | 560 | 41.4% |
| White | 567 | 41.3% |
| Haitian | 1458 | 40.7% |
| Hispanic/Latina/Black | 240 | 38.3% |
| Puerto Rican | 246 | 37.4% |
| Dominican | 96 | 35.4% |
| Portuguese | 128 | 34.4% |
| Brazilian | 110 | 33.6% |
| American Indian or Alaska Native | 84 | 33.3% |

\*Other Ethnicity includes those identifying with the following ethnicities/cultures: Bajan, Bermudian, French Canadian, Irish, Jamaican, Native American and West Indian

Appendix A.5. Among those self-identified as **White**, vaccination uptake\* was lowest among those who also identify as **African** **American**, **American** **Indian/Alaska** **Native,** **or** **Puerto** **Rican**.

|  |  |  |
| --- | --- | --- |
| **White** | **N** | **%** **Vaccinated** |
| White Overall | 39495 | 56.4% |
| European | 8640 | 63.2% |
| Other Ethnicity\*\* | 1004 | 62.2% |
| Middle Eastern | 907 | 58.7% |
| American | 28808 | 57.9% |
| Refused Ethnicity | 251 | 57.4% |
| African | 255 | 56.1% |
| Asian | 197 | 53.8% |
| Russian | 575 | 50.4% |
| Portuguese | 1692 | 47.6% |
| African American | 415 | 44.1% |
| American Indian or Alaska Native | 173 | 41.6% |
| Puerto Rican | 284 | 40.1% |

\*Vaccination uptake: receipt of one or more doses of COVID-19 vaccine before, during or after pregnancy among deliveries occurring between May 1, 2021 and March 31, 2022.

\*Other Ethnicity includes those identifying with the following ethnicities/cultures: Albanian, Armenian, Australian, Canadian, French Canadian, Greek, Irish, Italian, Jewish, Polish and Turkish

Appendix A.6. Among those who self-identified as belonging to **another** **or** **unknown** **race/ethnicity**, vaccination uptake\* was lowest among those who also identify as **Black,** **Cape** **Verdean,** **or** **Hispanic/Latina/Other**.

|  |  |  |
| --- | --- | --- |
| **Other/Unknown** **Race/Ethnicity** | **N** | **%** **Vaccinated** |
| Other/Unknown Race/Ethnicity Overall | 1840 | 50.7% |
| European | 344 | 66.6% |
| American | 372 | 61.8% |
| White | 1056 | 61.4% |
| Middle Eastern | 122 | 58.2% |
| Asian | 57 | 50.9% |
| Portuguese | 124 | 48.4% |
| African | 60 | 46.7% |
| African American | 57 | 38.6% |
| Hispanic Latina White | 67 | 37.3% |
| Black | 73 | 35.6% |
| Cape Verdean | 91 | 29.7% |
| Hispanic/Latina/Other | 47 | 25.5% |

\*Vaccination uptake: receipt of one or more doses of COVID-19 vaccine before, during or after pregnancy among deliveries occurring between May 1, 2021 and March 31, 2022.