ANTENATAL COVID-19 VACCINATION UPTAKE IN WASHINGTON STATE

Washington State Department of HEALTH

Maham Choudry, MPH
Immunization Epidemiologist

Acknowledgements

Teal Bell

Perinatal Health Epidemiologist

Office of Family & Community Health Improvements (OFCHI)

Maya Bhatt

Epidemiologist

Center for Health Statistics

Sean Coffinger

Senior Epidemiologist

Center for Health Statistics

Acknowledgements

The Washington State Department of Health is committed to honoring Tribal and Indigenous data sovereignty in all our data products. We understand current data collection and analytic practices are not always inclusive or the best representation for people of different racial and ethnic backgrounds, including American Indians and Alaska Natives. We continue to engage partners and work as an Agency to improve both our data systems to capture more accurate data, and our data analyses practices to be more representative and inclusive of all groups.

Tribal and Indigenous Data

Background

- COVID-19 Infection during pregnancy may increase the risk of adverse pregnancy outcomes such as low birth weight, fetal distress, neonatal death or stillbirth as well as complications for the mother, including preeclampsia/eclampsia, admission to the intensive care unit and mechanical ventilation (Villar et al., 2021).
- Data show that receiving an mRNA COVID-19 vaccine during pregnancy reduces the risk of severe illness from COVID-19 for people who are pregnant.
- Vaccination during pregnancy or while breastfeeding builds antibodies that can help protect the baby.

Objectives

- **Assess COVID-19 vaccine uptake among pregnant people eligible for the vaccine**
- Identify characteristics associated with getting vaccinated vs not getting vaccinated during pregnancy
  - Age Group
  - Race/Ethnicity
  - Education Level
  - Women, Infants, Children Program(WIC)
  - Adequacy of Prenatal Care
  - Source of Payment for delivery
  - Marital Status at time of birth
  - TDaP and Flu uptake during pregnancy
- Explore initiation timing

Data Sources and Matching

- Birth Certificate Data provided by Center for Health Statistics
  - People who gave birth between March 17th, 2021, and December 31st, 2021
  - Multiple Births were deduplicated
- Birth Certificate records matched to immunization records in the Washington Immunization Information System (WAIIS)
  - Deterministic and Probabilistic Matching
- Race Ethnicity is self reported
- Adequacy of Prenatal Care defined using Kotelchuk Index
- Duration/Start of Pregnancy calculated using clinical gestation age, else by date of last menses

Population

- **Pregnant woman not vaccinated prior to pregnancy**
- Exclusion criteria:
  - people who received the vaccine prior to pregnancy
  - Women younger than 12, or older than 55
  - Pregnant people who were not eligible yet (12–15-year-olds who gave birth prior to May 12th)
  - Non-residents of WA
  - Adoptions

Measures

Vaccination uptake rate - the number of people who initiated or completed COVID-19 vaccination series during pregnancy in a certain group divided by all people eligible for vaccination in that group.

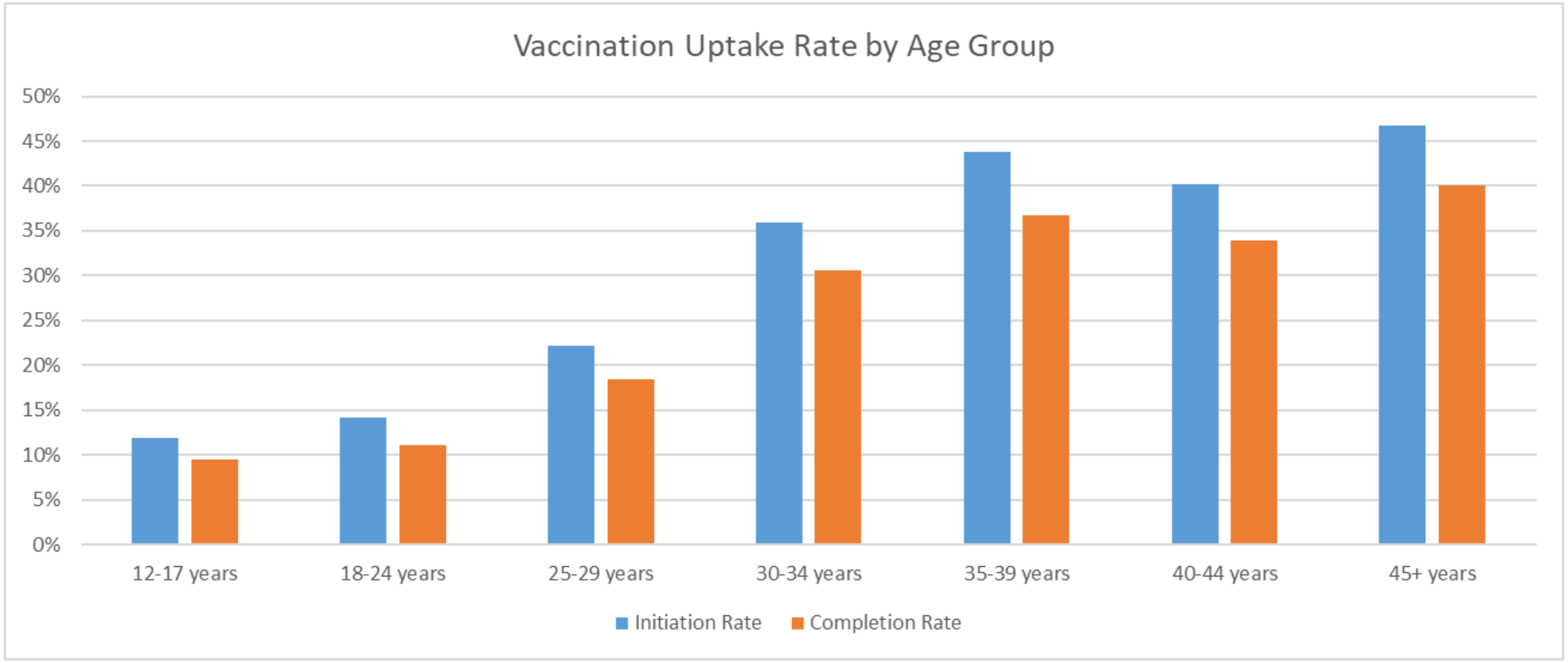
Total number of people eligible for vaccination – 64,637

Initiated Vaccination Series during Pregnancy – 19,389 – **30.0%**

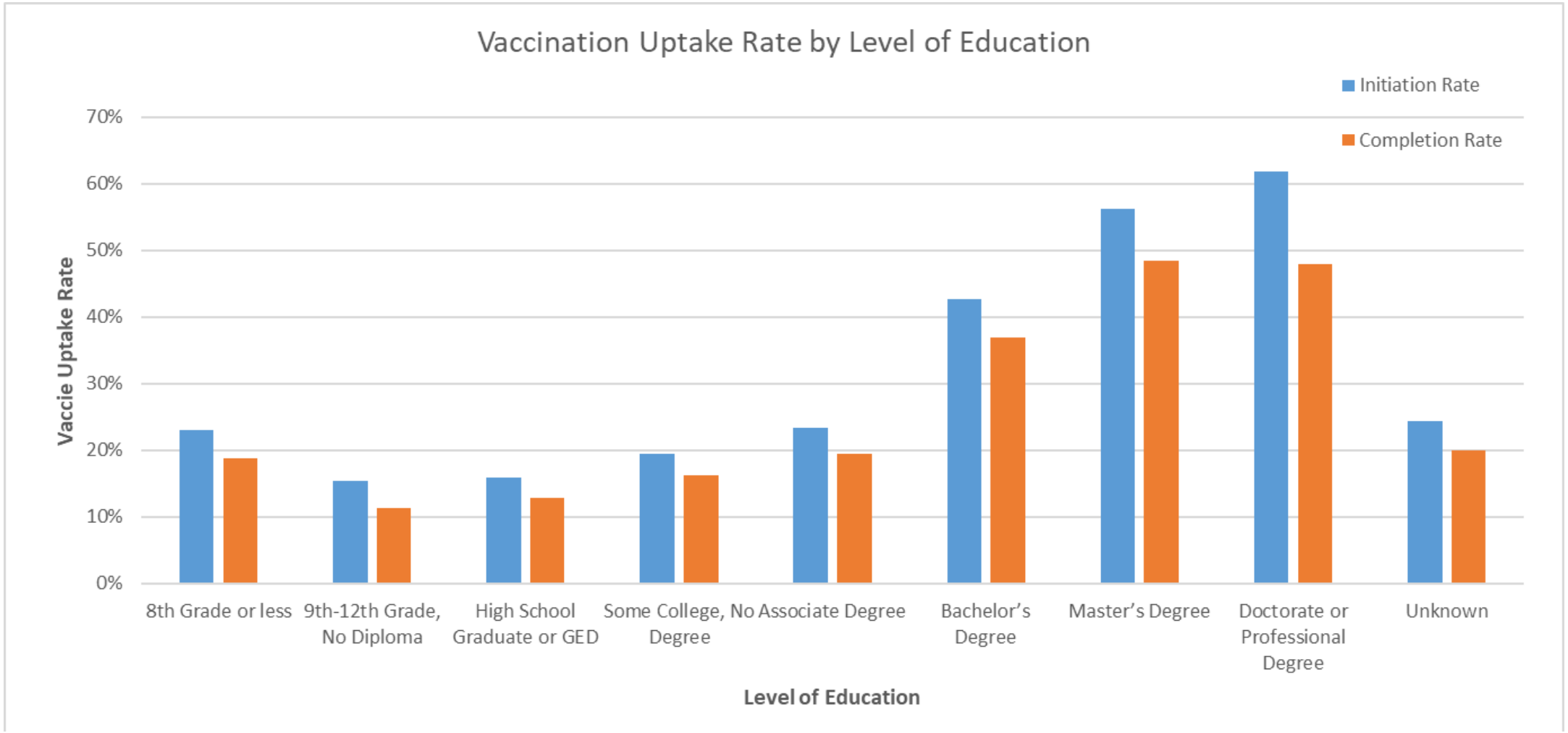
Completed Vaccination Series during Pregnancy – 16,274 – **25.2%**

Did not Initiate during Pregnancy – 45,248 – 70.0%

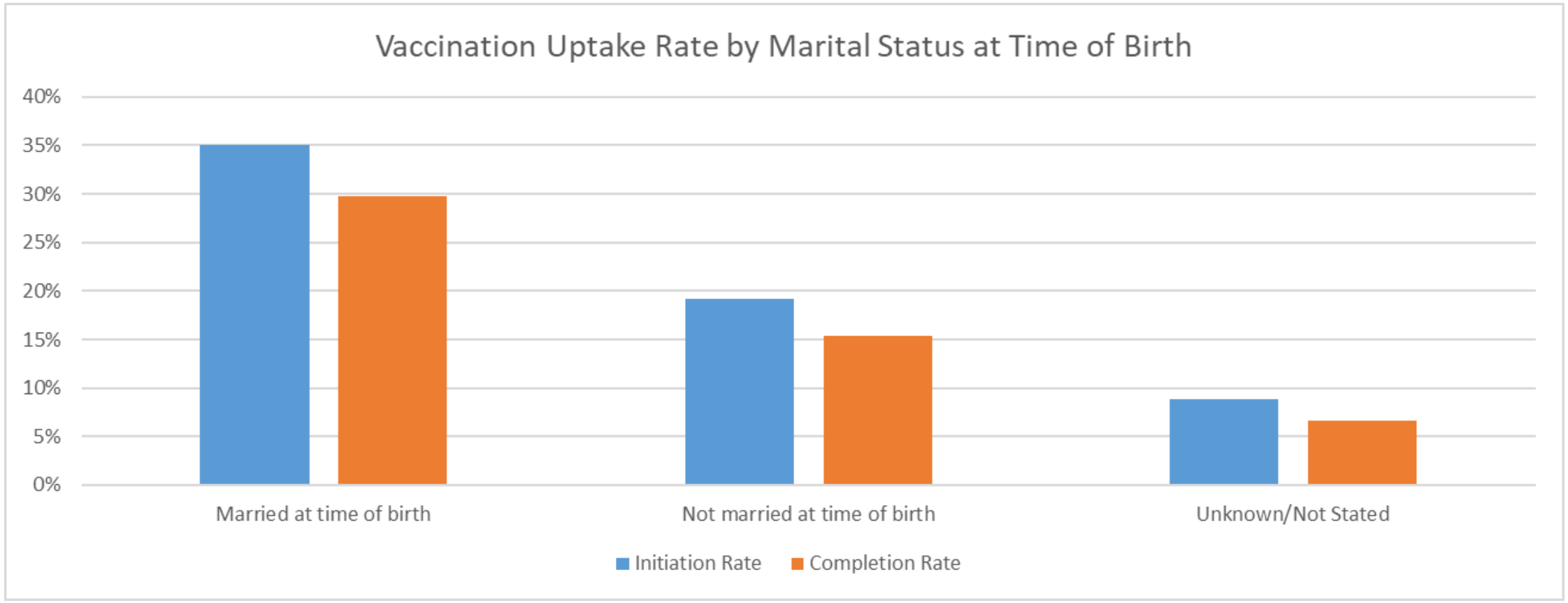
Descriptive Analysis



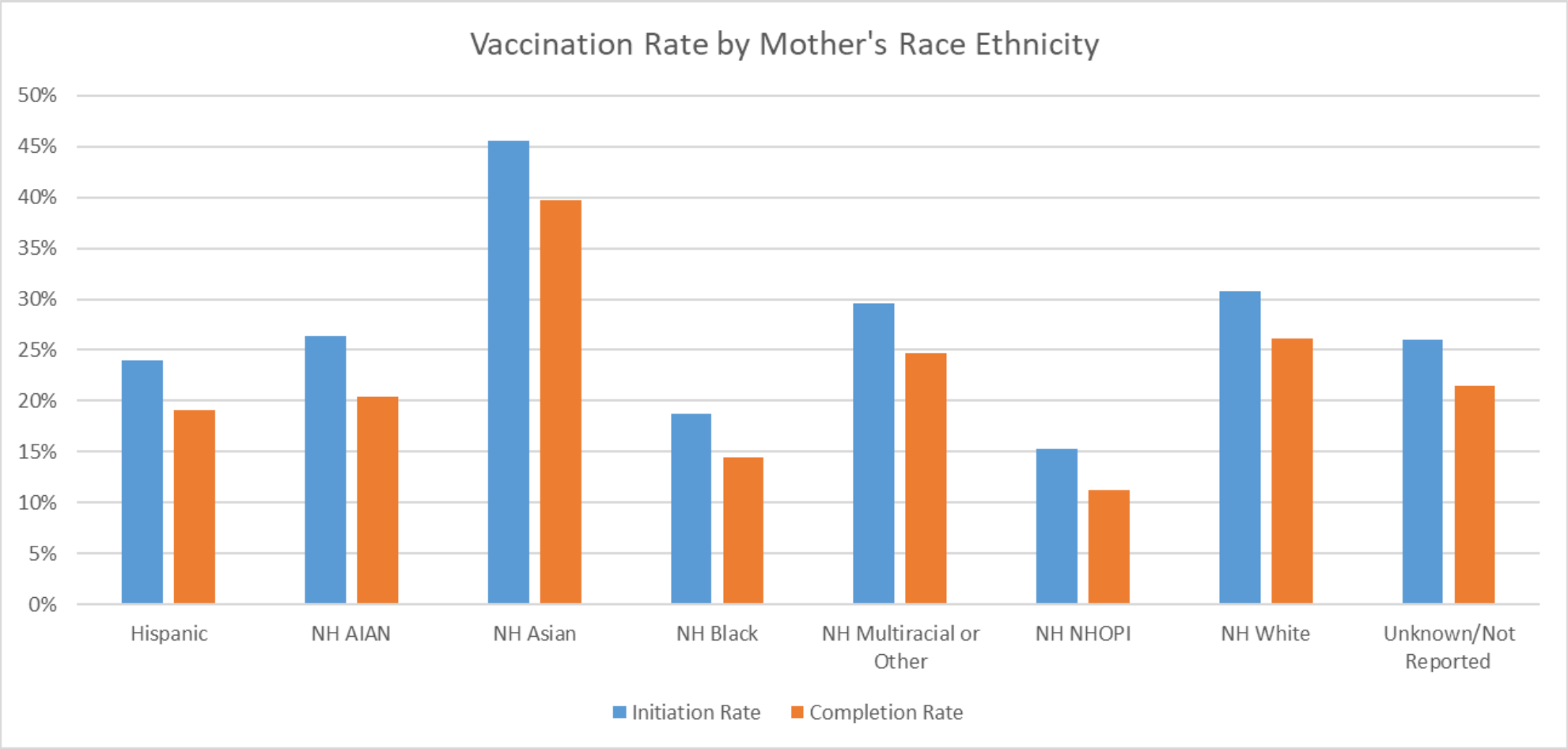
Pregnant people aged 30 and older had a 10-15% higher vaccination uptake rate compared to those who are younger. Pregnant people aged 12–24 had a COVID-19 vaccination uptake rate less than 15%.



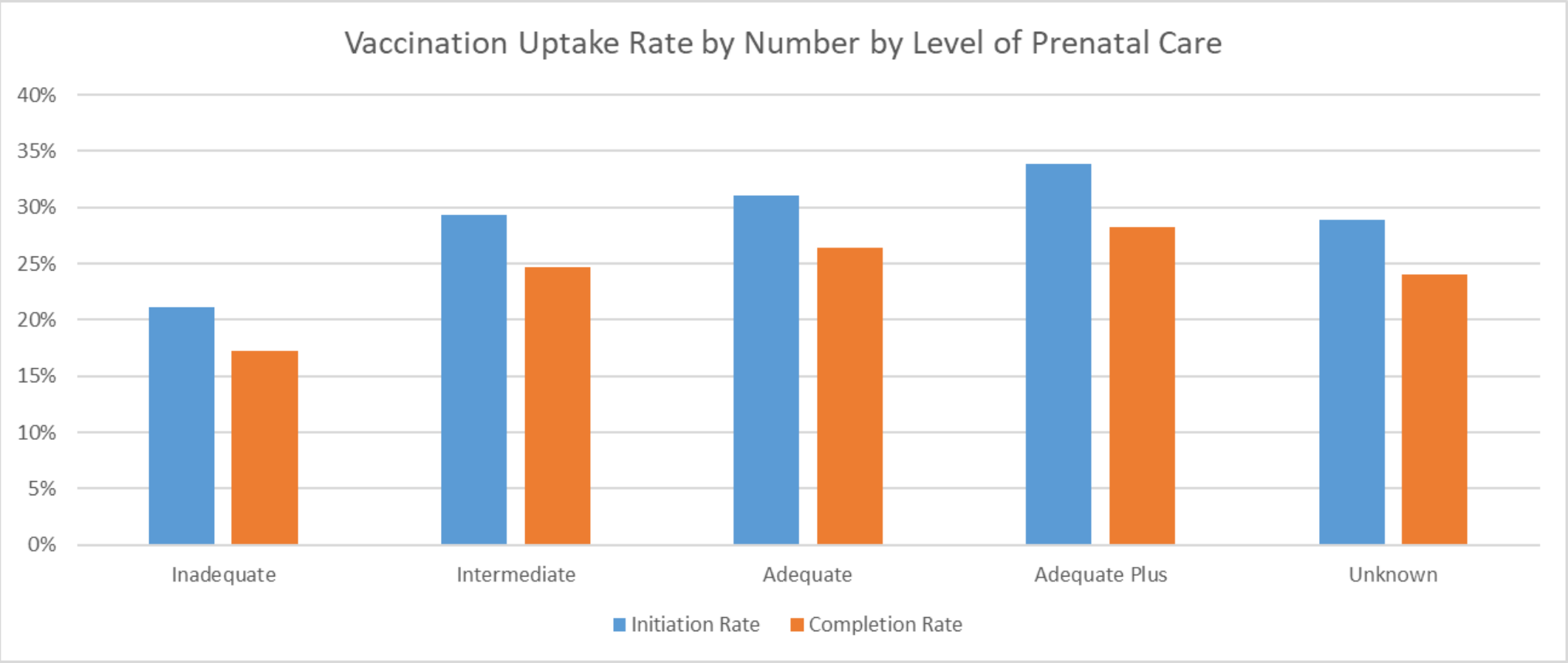
Pregnant people who were more educated had a significantly higher COVID-19 vaccination uptake rate, particularly those with a secondary education.



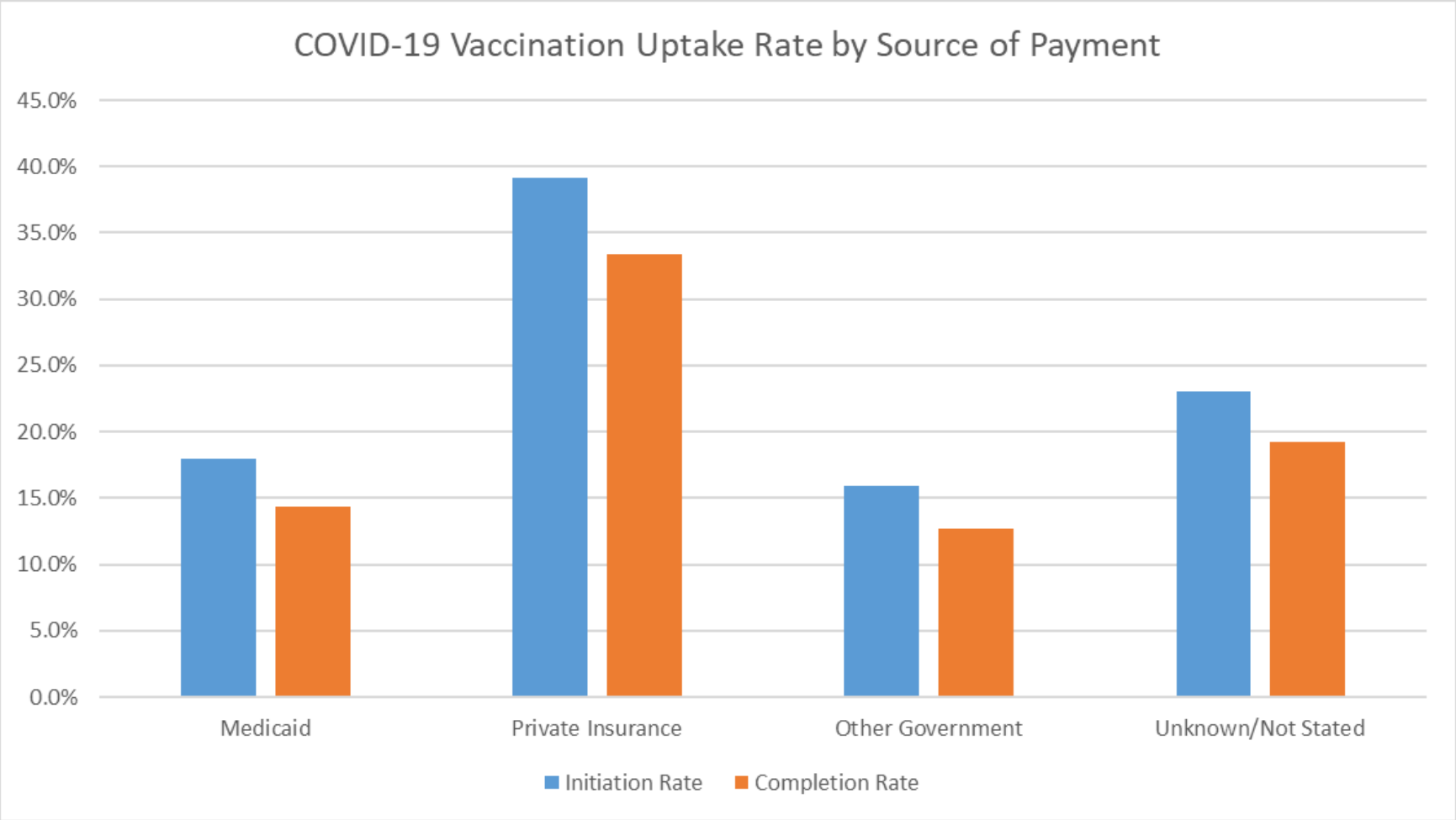
Pregnant people who were married at the time of birth had a 15% higher uptake rate of those who were not married at time of birth.



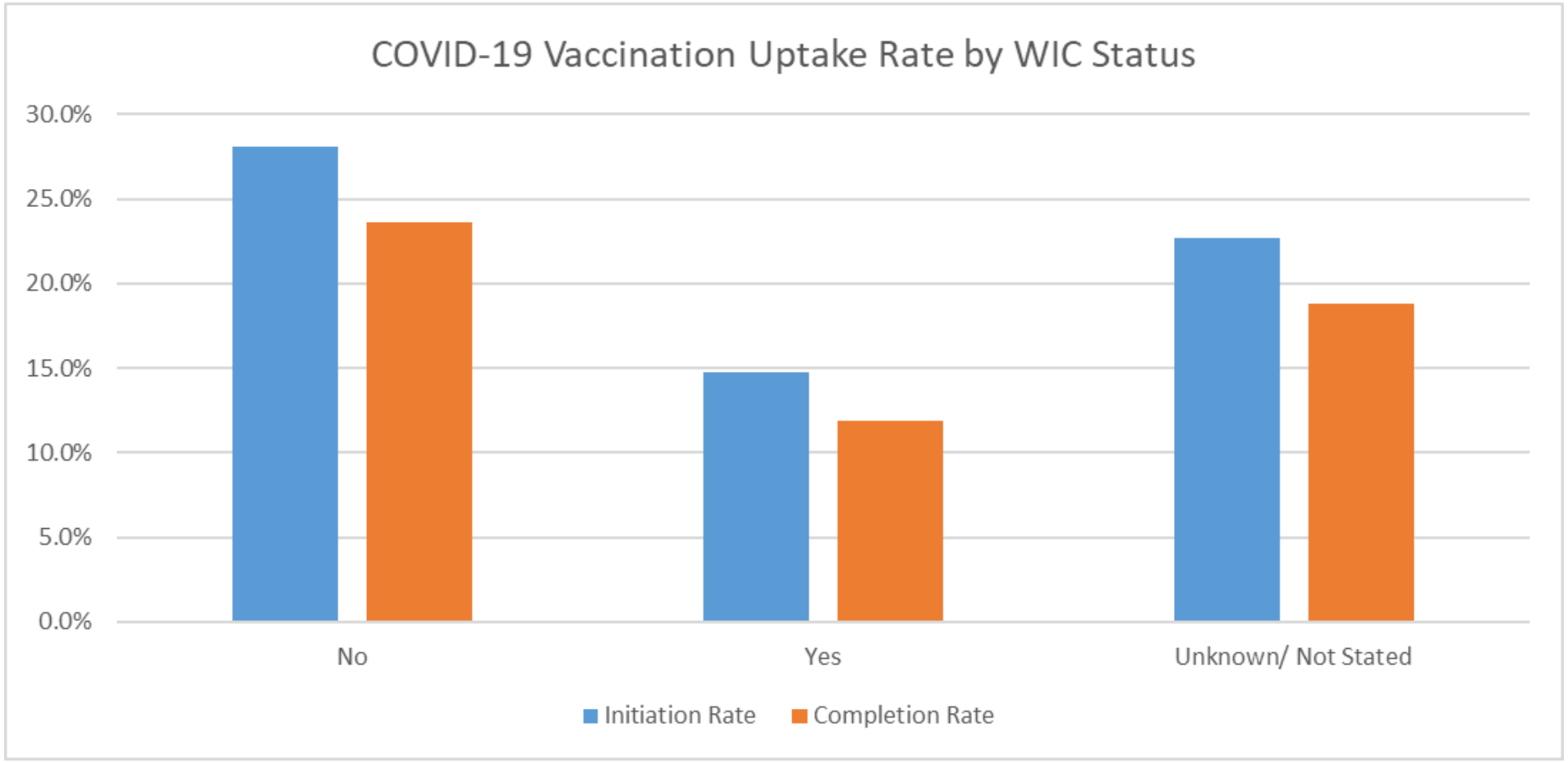
Pregnant people who were non-Hispanic Asian had the highest uptake rate compared to other race/ethnicity groups, followed by pregnant people who were non-Hispanic Multiracial or non-Hispanic White.



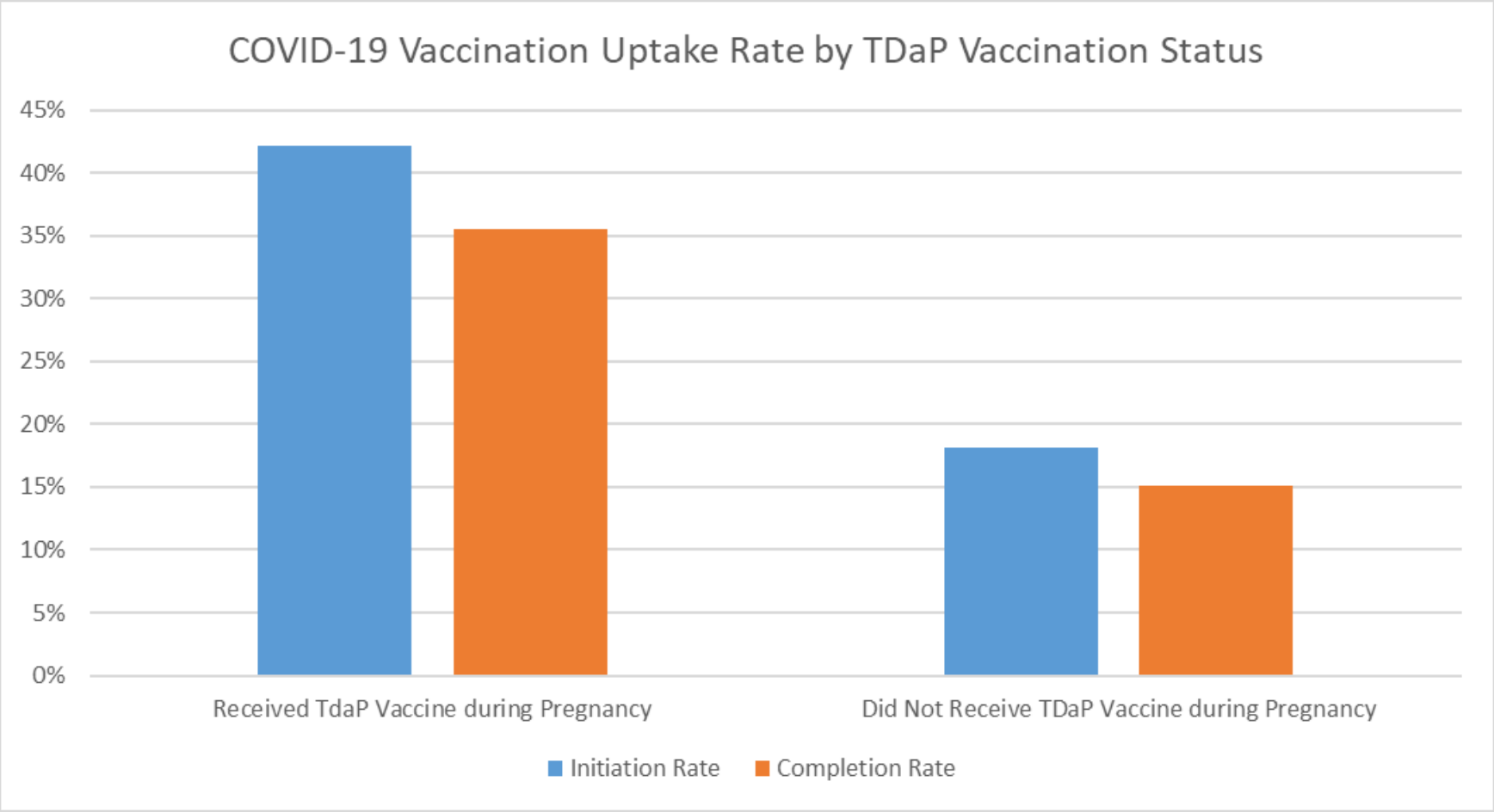
Pregnant people who had at least an intermediate level of prenatal care had a somewhat higher vaccination uptake compared to those with inadequate prenatal care.



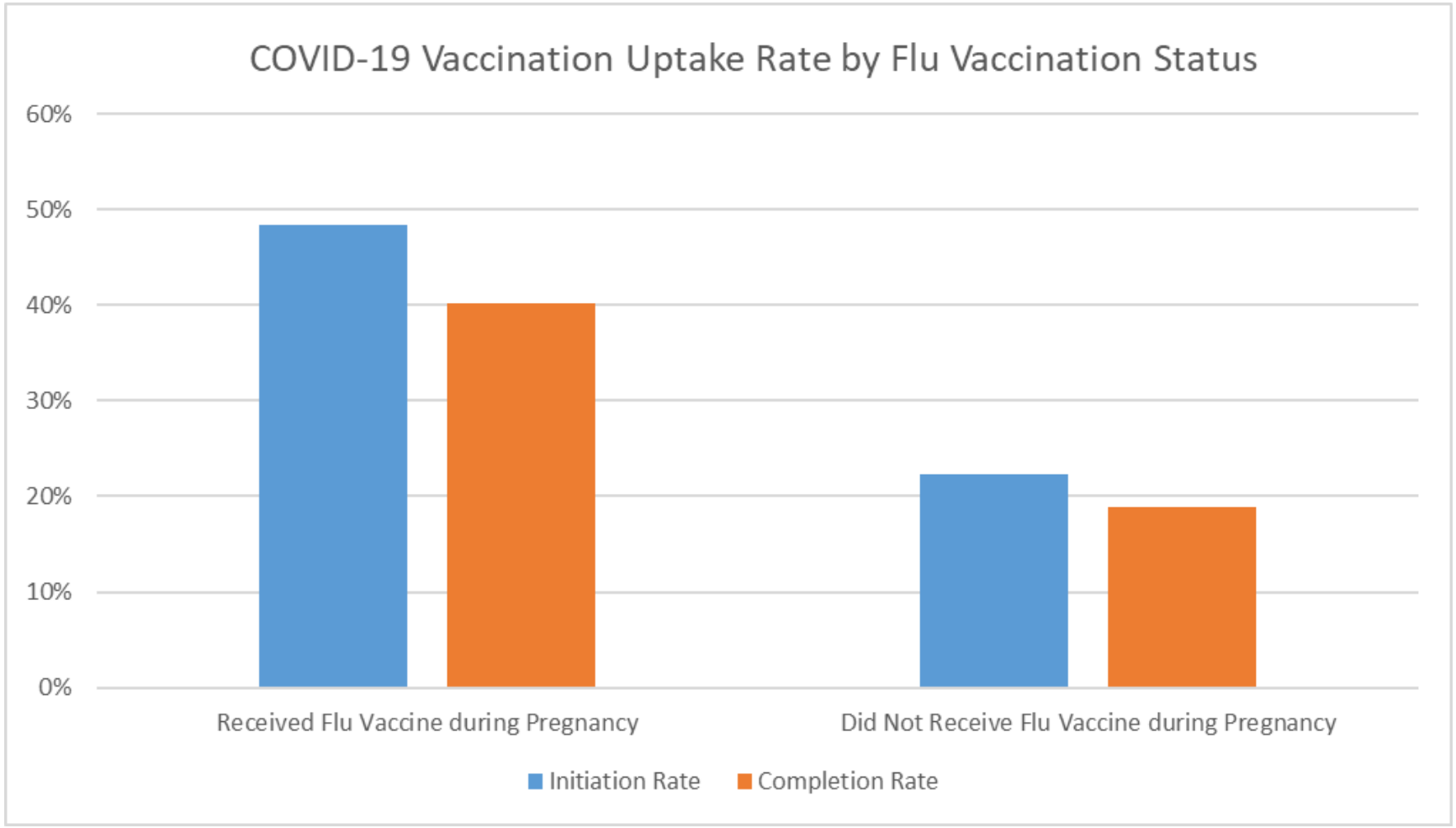
Pregnant people who paid for delivery with private insurance had double the uptake rate compared to those who used other sources of payment.



Pregnant people who were not utilizing WIC had almost double the uptake compared to those were.



People who received the TDaP vaccine during pregnancy had twice as high uptake rate for COVID-19 vaccination compared to people who did not receive a TDaP vaccine.



People who received the flu vaccine during pregnancy also had twice as high uptake rate for COVID-19 vaccination compared to people who did not receive a flu vaccine.

Regression Analysis

Regression Analysis

Multivariable logistical regression model to evaluate odds ratios (OR) and 95% confidence intervals (CI).

Outcome

- COVID-19 Vaccine Initiation

Covariates

- Age Group
- Race/Ethnicity
- Education Level
- Adequacy of Prenatal Care
- Delivery Source of Payment
- Marital Status at time of birth
- TDaP and Flu uptake during pregnancy

Regression Analysis

Age Group	aOR	95% CI
12-17 years	**0.52**	(0.38, 0.73)
18-24 years	**0.58**	(0.55, 0.64)
25-29 years	**0.70**	(0.67, 0.74)
30-34 years	REF	
35-39 years	1.28	(1.20, 1.33)
40-44 years	1.22	(1.09, 1.32)
45+ years	**1.65**	(1.18, 2.32)

Education	aOR	95% CI
8th Grade or less	1.26	(1.08 ,1.47)
9-12th Grade, No diploma	1.00	(0.91, 1.12)
High School Graduate or GED	REF	
Some College, No Degree	1.15	(1.08, 1.24)
Associate Degree	1.32	(1.21, 1.43)
Bachelor's Degree	**2.62**	(2.47, 2.82)
Master's Degree	**4.00**	(3.70, 4.32)
Doctorate or Professional Degree	**4.59**	(4.15, 5.20)

Regression Analysis

Race/Ethnicity	aOR	95% CI
Non-Hispanic Asian	1.16	(1.09, 1.23)
Non-Hispanic Black	**0.67**	(0.60, 0.74)
Non-Hispanic AIAN	**1.65**	(1.37, 1.98)
Hispanic	1.15	(1.08, 1.21)
Non-Hispanic White	REF	
Non-Hispanic NHOPI	0.79	(0.67, 0.99)
Non-Hispanic Multiracial	1.14	(1.04, 1.24)

Prenatal Care	aOR	95% CI
Inadequate	0.89	(0.84, 0.95)
Intermediate	0.99	(0.94, 1.06)
Adequate	REF	
Adequate Plus	1.16	(1.10, 1.22)
Unknown	1.17	(1.10, 1.25)

Regression Analysis

Source of Payment	aOR	95% CI
Medicaid	**0.69**	(0.65, 0.72)
Private Insurance	REF	
Other Government	**0.52**	(0.47, 0.57)

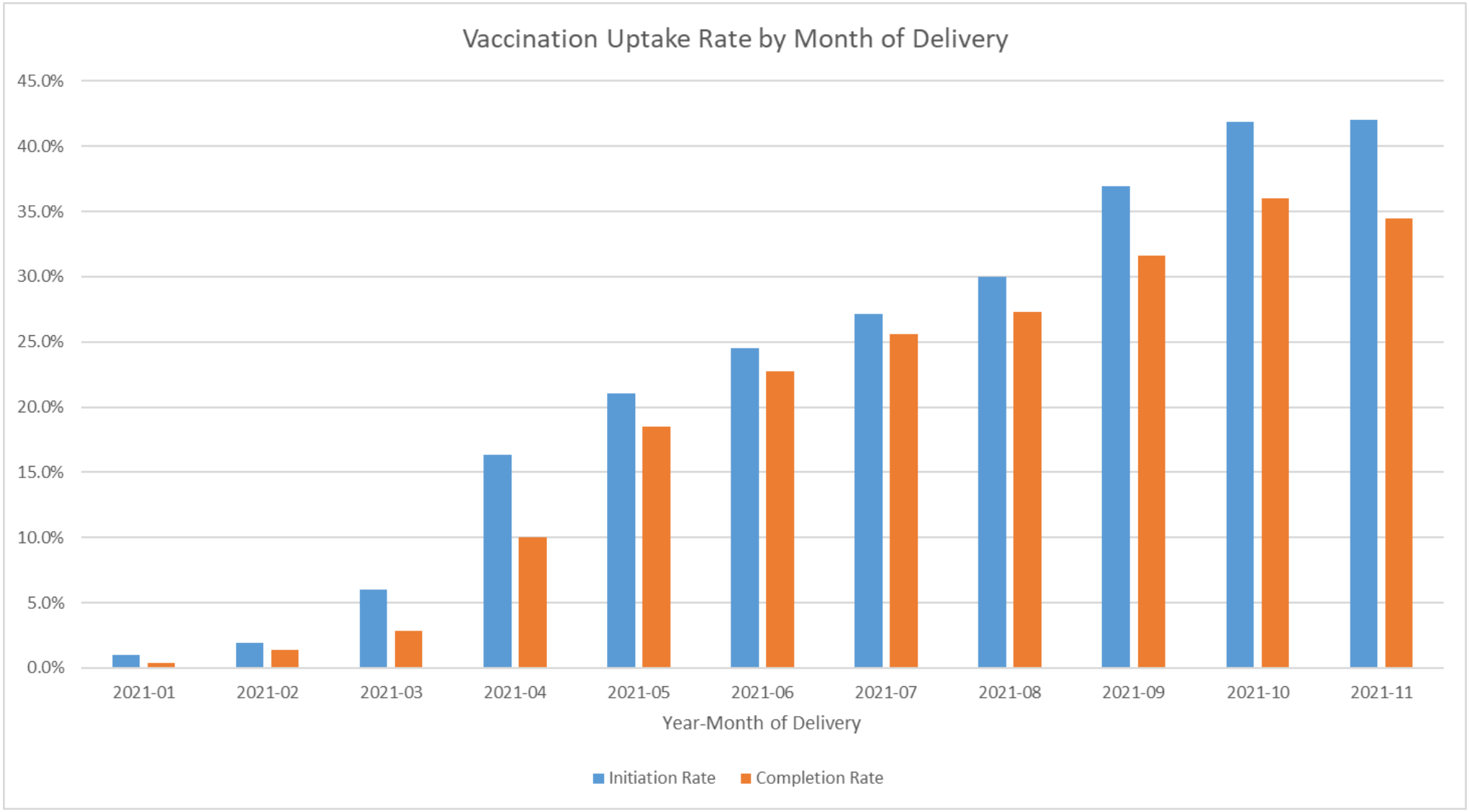
Marital Status	aOR	95% CI
Married at time of birth	REF	
Not married at time of birth	0.87	(0.83, 0.92)

TDaP Vaccination	aOR	95% CI
Yes	**2.47**	(2.36, 2.57)
No	REF	

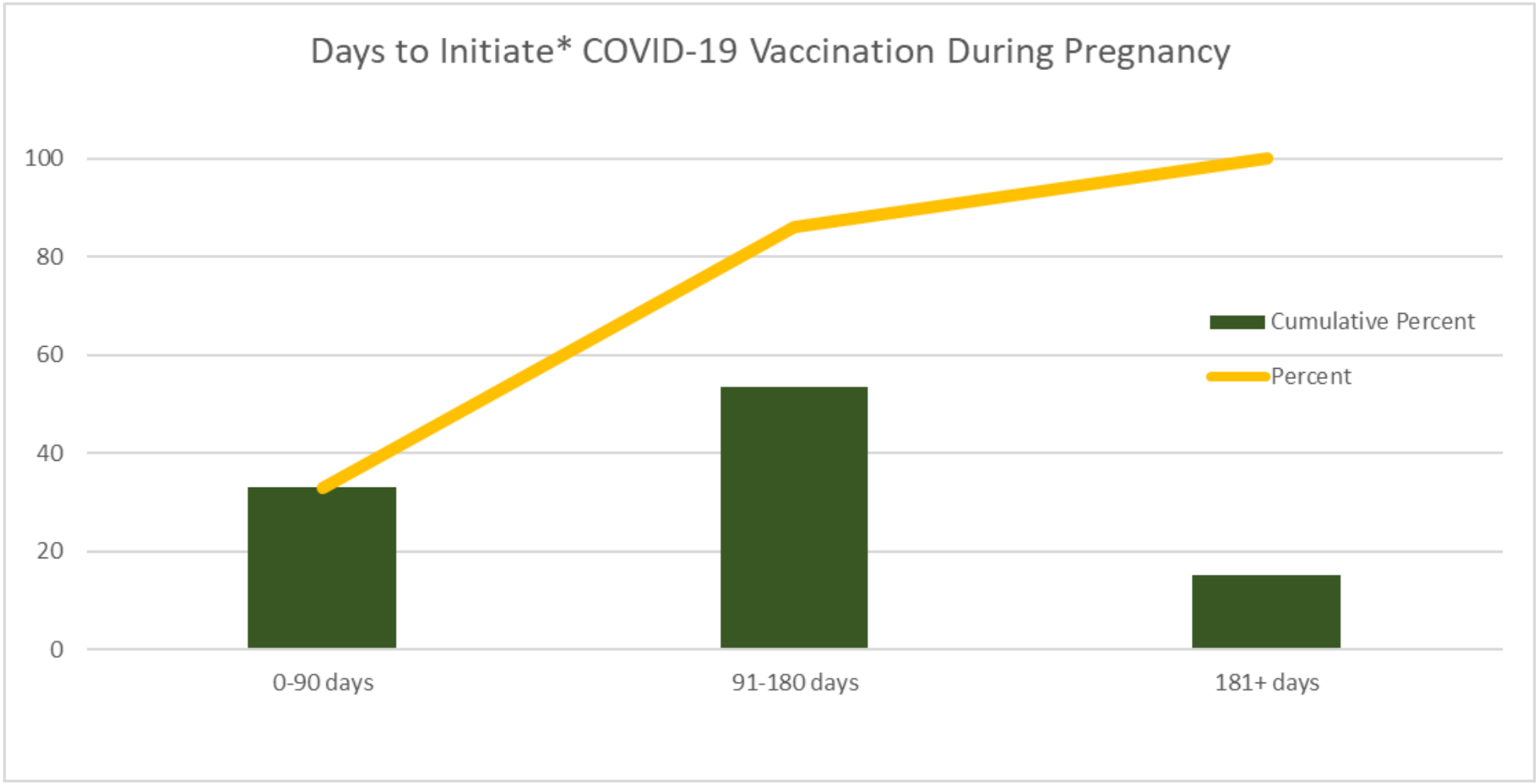
Flu Vaccination	aOR	95% CI
Yes	**2.18**	(2.08, 2.27)
No	REF	

Timing of Vaccine Initiation

December 14th, 2020, to December 31st, 2021

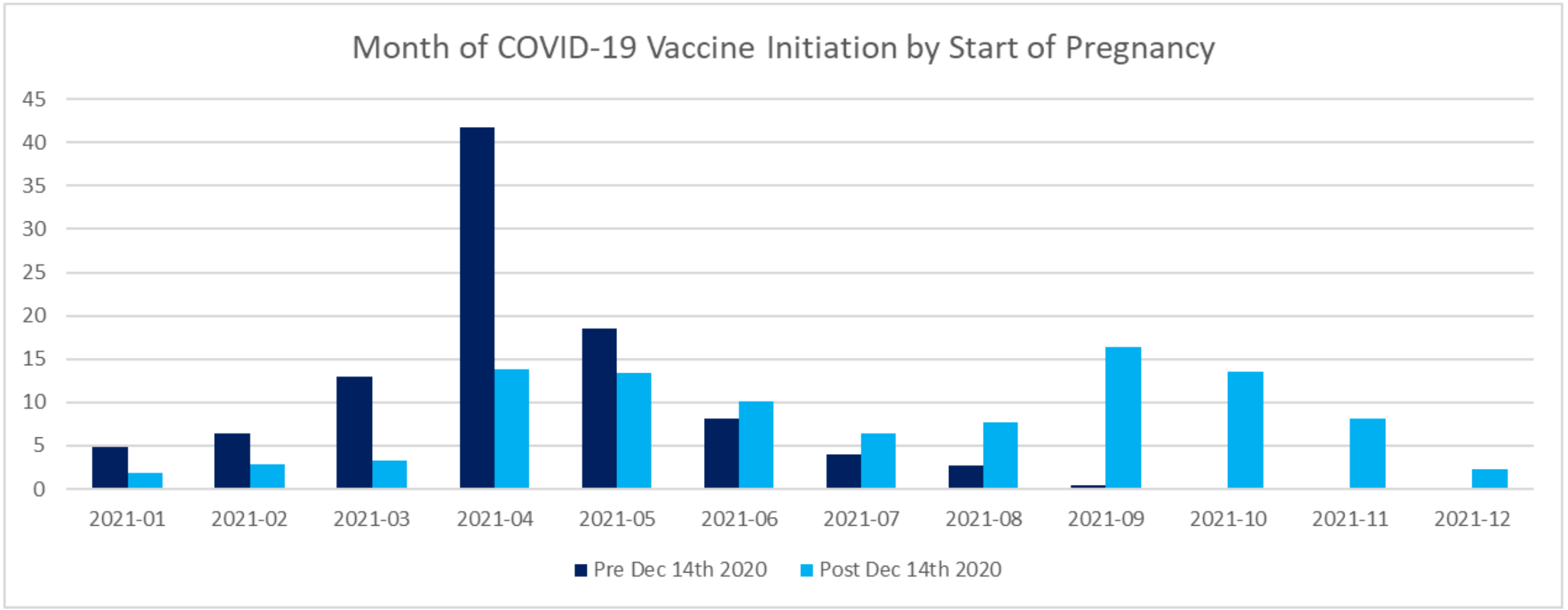


People who gave birth in the last quarter of 2021 had significantly higher uptake.



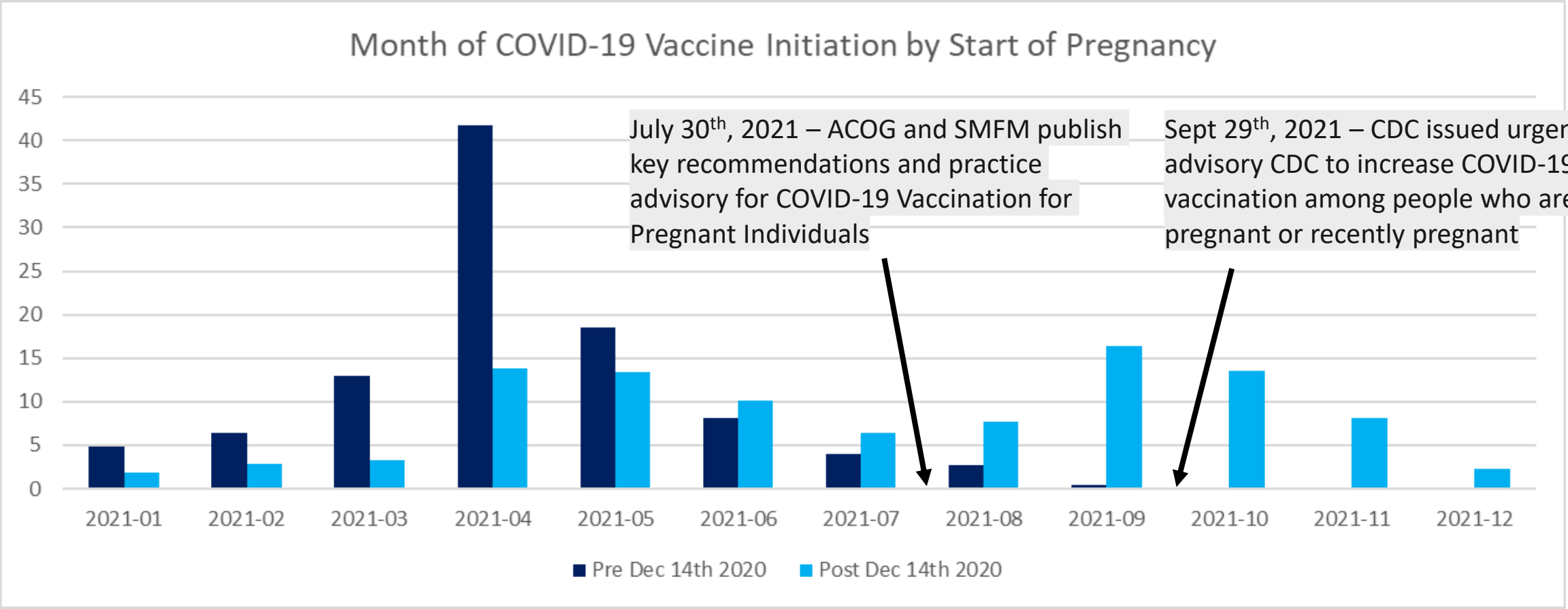
Of people who initiated COVID-19 vaccination while pregnant, 33% did so in the first 90 days, and an additional 50% initiated in the next 90 days.

* Time starts with vaccine availability (Dec 14th, 2020) or with start of pregnancy, whichever came after



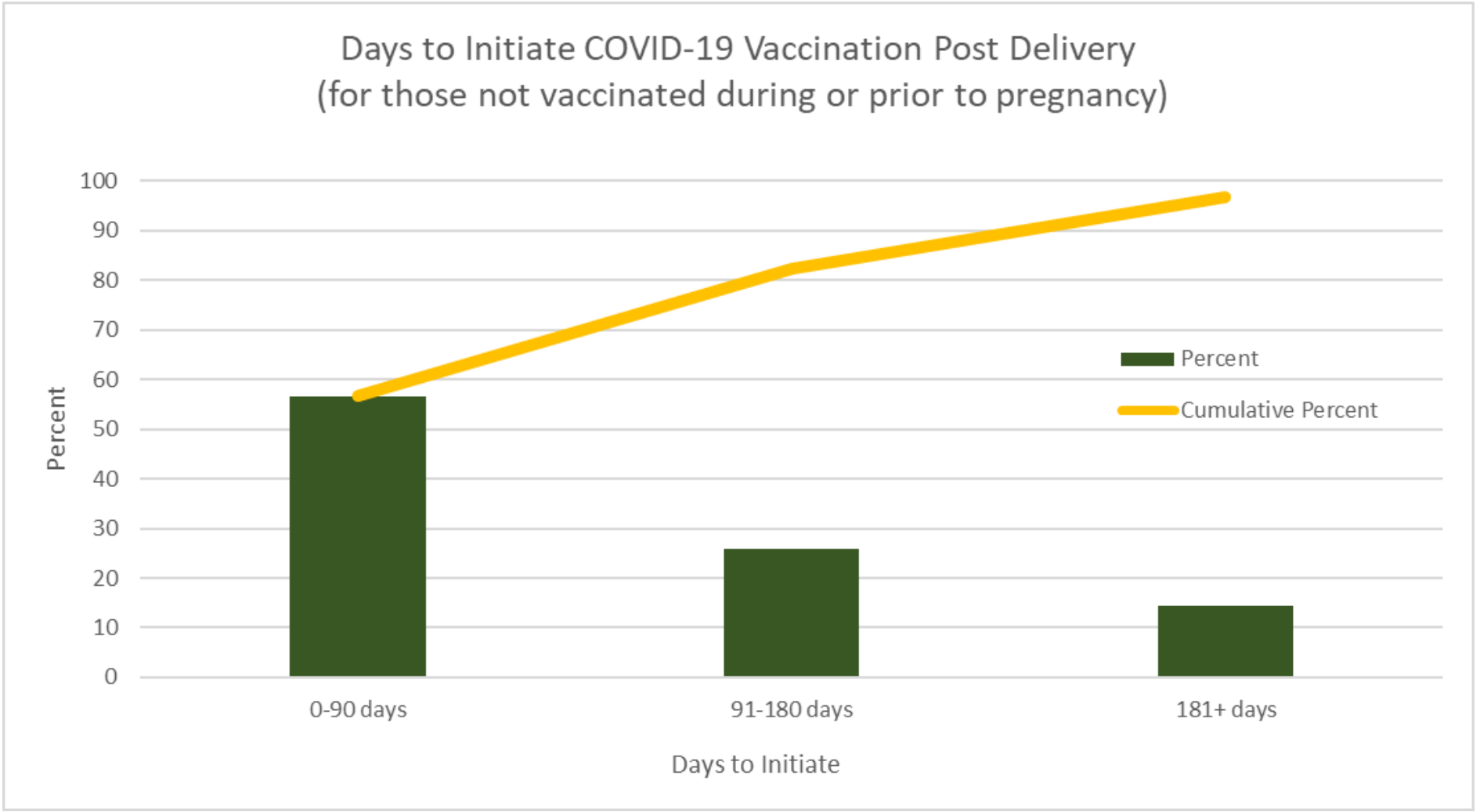
Of people who were pregnant prior to Dec 14th, 2020, over half initiated in March-April-May of 2020 immediately following expanded access to the vaccine.

Trends in initiation indicate accessibility was a barrier to vaccination, particularly in the early days of the vaccination campaign.



Of people who became pregnant after Dec 14th, 2020, there were 2 peaks in initiation, April-May 2021 and another in September 2021.

Clinical recommendations may also be a key factor in COVID-19 vaccination uptake during pregnancy.



24,988 people (30.0%) initiated after pregnancy. Over half these people initiated in the first 3 months following delivery, suggesting that **factors like vaccine hesitancy are limiting uptake during pregnancy.**

Key Takeaways

- Disparities in COVID-19 vaccination uptake are very apparent, particularly by age group, education, marital status and race/ethnicity
- Clinical Recommendations appear to influence uptake
- Many people appear to be hesitant to receive the vaccine during pregnancy based on the high immediate uptake post-delivery
- Vaccination during pregnancy or while breastfeeding is a path to providing protection for infants <6 months old

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