

Prenatal Vaccinations in California

2020-2021 Maternal and Infant Health Assessment Survey



Pertussis (Whooping Cough)

Young infants are at the greatest risk of serious pertussis disease, which can result in hospitalization or death.¹ The best way to protect young infants from pertussis is by immunizing the pregnant person with the Tdap (tetanus, diphtheria, pertussis) vaccine during the third trimester of **each** pregnancy. Transplacental transfer of antibodies during pregnancy protects young infants against pertussis during the critical period before they begin receiving the pertussis immunization (DTaP) series at 6-8 weeks of age.

Influenza (Flu)

Influenza immunization during pregnancy helps protect both pregnant persons and their infants from influenza and its complications.² Pregnant persons are more susceptible to severe influenza illness.³ Influenza during pregnancy can result in pre-term birth, low birth weight, and stillbirth of the infant.⁴ Infants of pregnant people immunized during pregnancy are less likely to be hospitalized for acute respiratory illnesses.⁵ Infants cannot receive their first dose of influenza vaccine until 6 months of age.

Immunization Recommendations for Pregnant Persons

The Centers for Disease Control and Prevention (CDC) recommends that all pregnant persons receive Tdap (tetanus, diphtheria, pertussis) and influenza immunizations.^{6,7}

Tdap Vaccine:

- Should be administered to pregnant persons at the earliest opportunity between 27-36 weeks gestation during **EACH** pregnancy, regardless of past Tdap immunizations.*^{8,9}

Flu Vaccine:

- Should be administered to persons who are pregnant, or plan to become pregnant, during a given influenza season as soon as the vaccine is available for that season.

CDPH is working with local health departments, Department of Health Care Services, health plans and other partners to improve prenatal immunization coverage and assist medical providers in California in establishing vaccination programs in prenatal clinics. Additional information, including provider tool kits, patient declination forms, educational materials, and prenatal immunization prescription pads may be found on the [EZIZ Prenatal Tdap web page](#).

Maternal and Infant Health Assessment (MIHA) Survey

MIHA is an annual population-based survey of California residents with a recent live birth. Immunization questions on the 2020 and 2021 MIHA surveys included self-reported receipt of Tdap and Influenza vaccines. Data for the 2020 and 2021 surveys are combined for this report and present responses for persons statewide, for the 35 California counties with the largest number of births, and for the 9 MIHA regions¹⁰ of California. Reports for prior survey cycles are available on the Pertussis Summary Report Webpage.¹

Summary of Findings

Among surveyed persons who gave birth in 2020-2021, self-reported Tdap immunization coverage during pregnancy was 65.1% and consistent with rates for persons who gave birth in 2019-2020.¹¹ Self-reported influenza vaccination coverage for 2020-2021 was 64.0%, below the Healthy People 2020 goal (80%). Significant disparities in perinatal vaccination for pertussis and influenza by race/ethnicity and prenatal insurance persist.

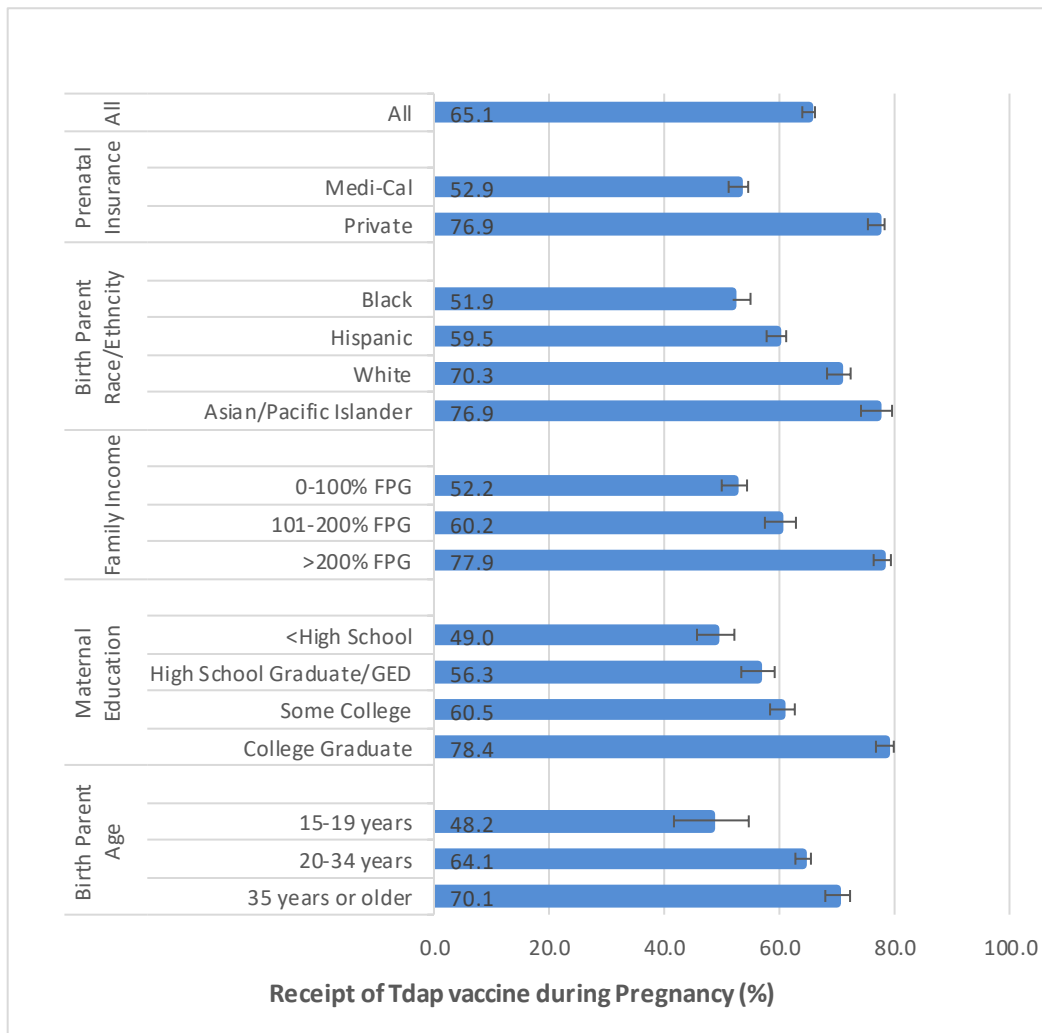
* Tdap vaccination of postpartum people and other care providers for cocooning does not provide direct protection to the infant and is no longer considered a priority strategy for preventing infant pertussis

Prenatal Tdap Immunization Coverage in California

Combining data from two years, the overall self-reported prenatal Tdap vaccine coverage in California among persons who delivered in 2020 or 2021 was 65.1%. Tdap immunization during pregnancy was:

- Lower among those insured by Medi-Cal (53%) than by private insurance (77%).
- Lower among Hispanic (59.5%) and Black (51.9%) persons compared to Asian (76.9%) or White (70.3%) persons.
- Lower among those with reported family incomes of 0-100% (52.2%) or 101-200% (60.2%) of Federal Poverty Guidelines (FPG) compared to those who reported incomes >200% of FPG (77.9%).
- Lower among those whose highest education level was less than high school (49.0%) or high school (56.3%) compared to those who graduated from college (78.4%)
- Lower among those who gave birth between 15-19 years of age (48.2%) compared to those who gave birth at 20-34 years (64.1%) or 35 years of age and older (70.1%)

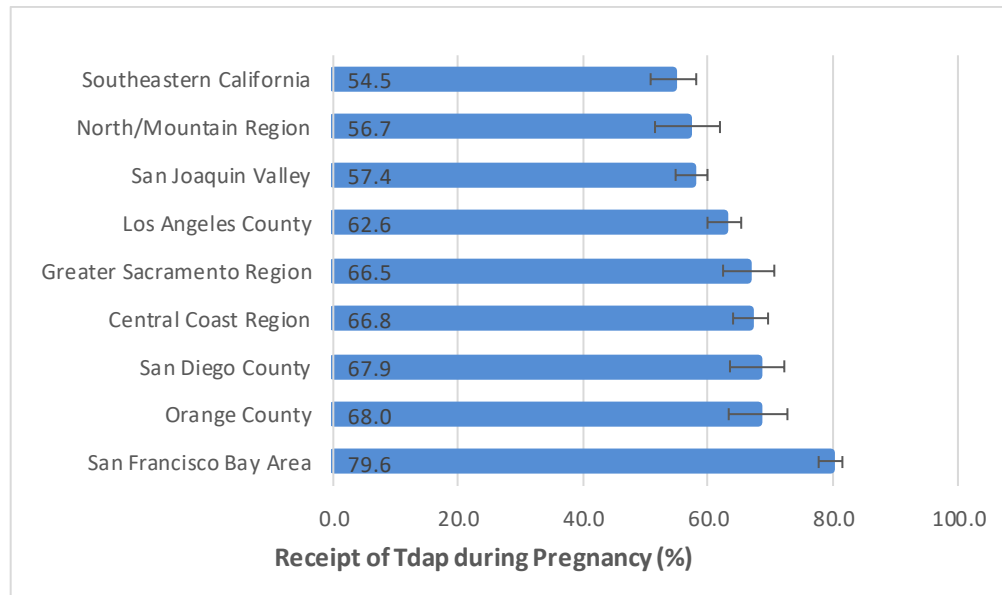
Figure 1. Proportion of persons in California with a recent live birth that received Tdap vaccine during pregnancy, by birth parent characteristics, Maternal and Infant Health Assessment (MIHA) Survey, 2020-2021.



Error bars reflect 95% confidence intervals.

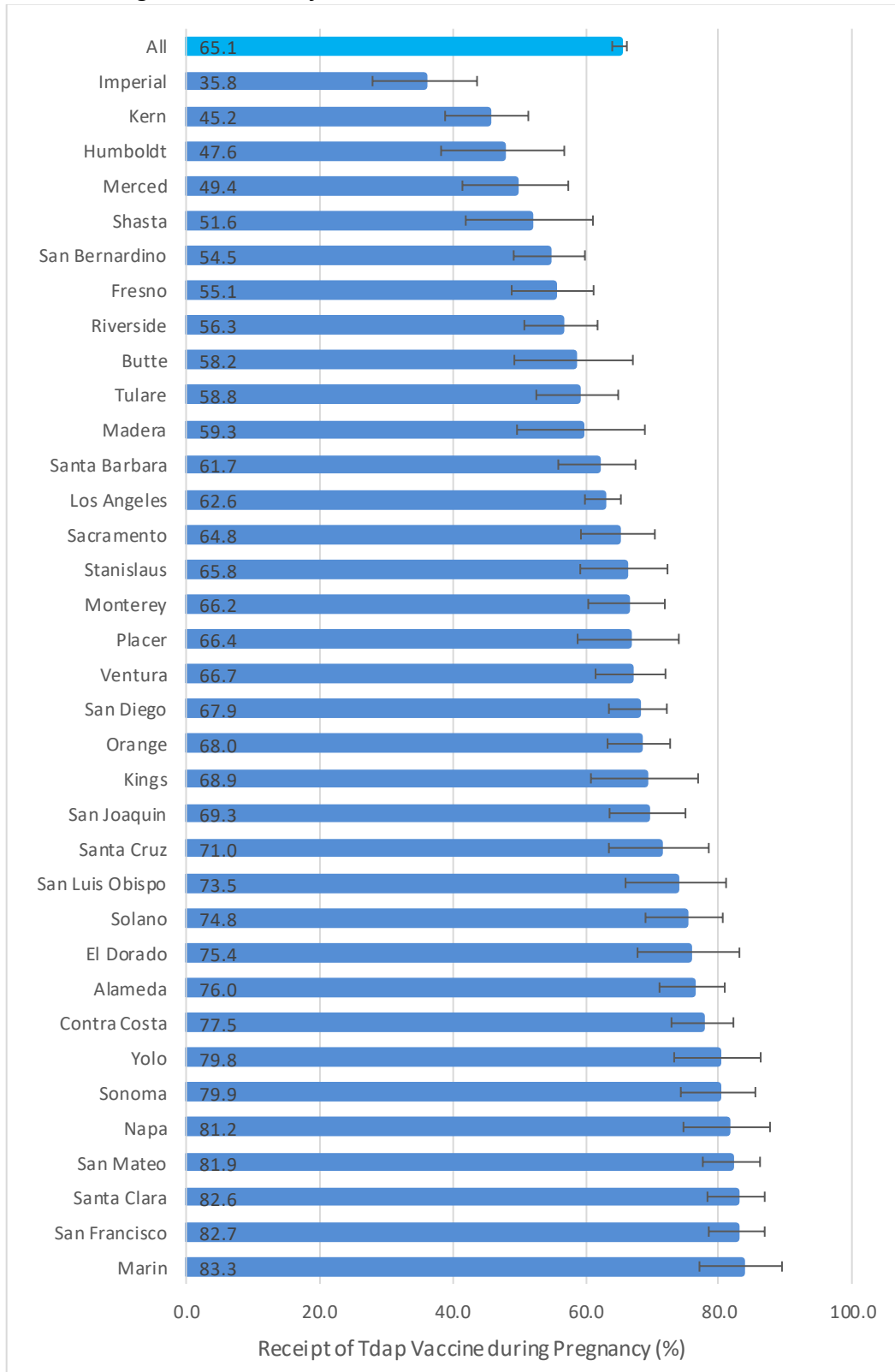
Receipt of Tdap vaccine during pregnancy varied geographically. Southeastern California¹⁰ had the lowest self-reported prenatal Tdap coverage (54.5 %) and the San Francisco Bay area had the highest coverage (79.6%) (Figure 2).

Figure 2. Proportion of persons with a live birth in 2020-2021 that received Tdap vaccine during pregnancy, by MIHA region.¹⁰



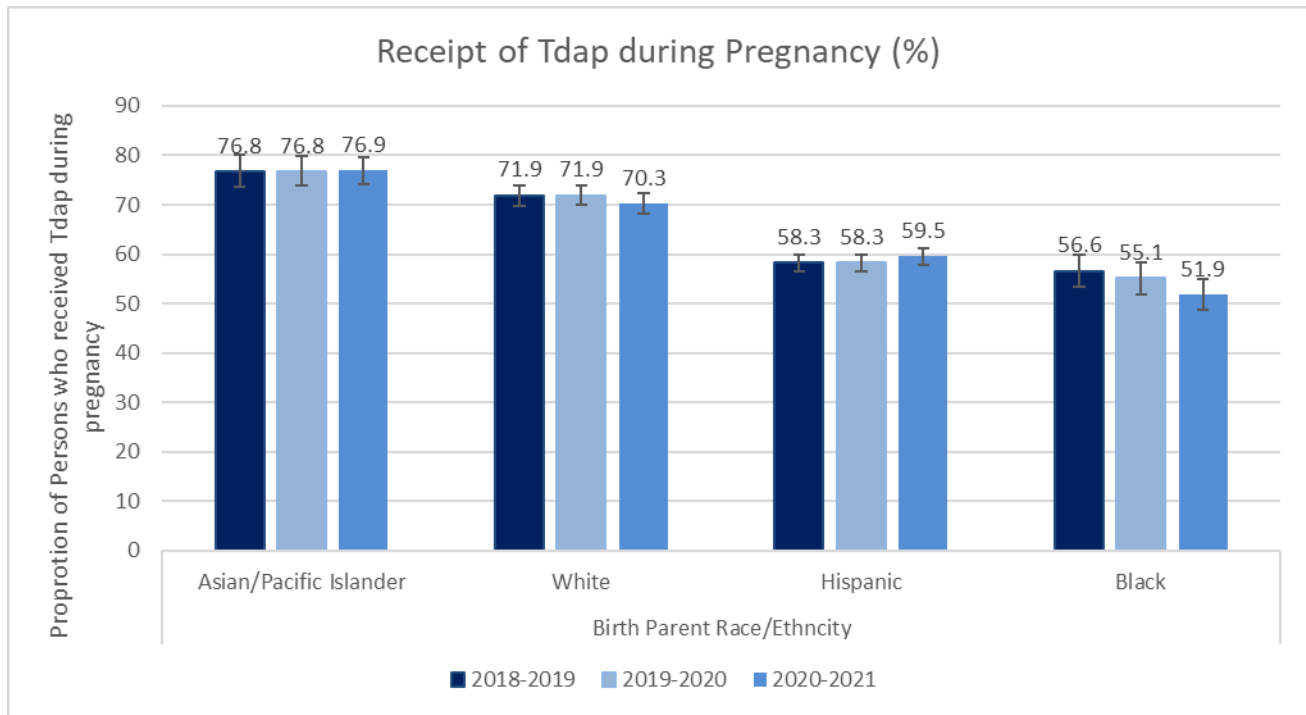
Error bars reflect 95% confidence intervals.

Figure 3. Proportion of persons with a live birth in 2020-2021 that received Tdap vaccine during pregnancy, in the 35 counties with the highest number of births.



Error bars reflect 95% confidence intervals.

Figure 4. Proportion of persons with a live birth in that received Tdap vaccine during pregnancy, 2018-2019, 2019-2020, and 2020-2021



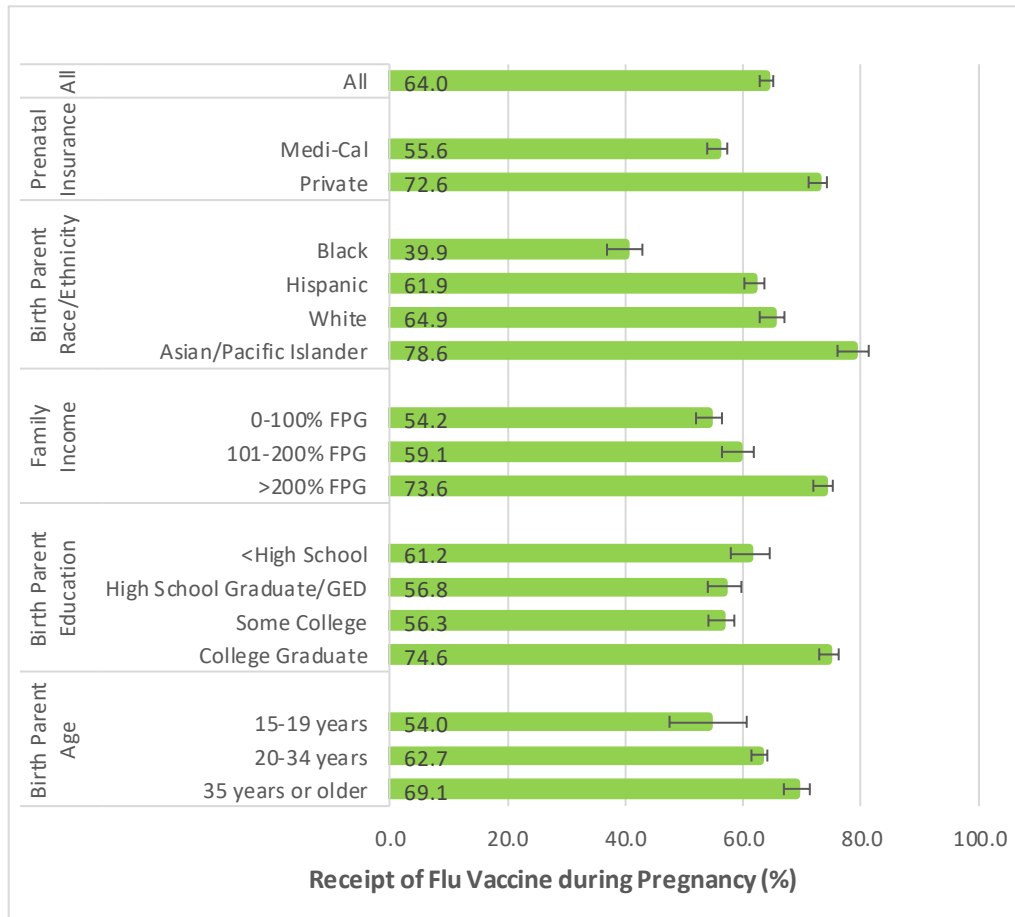
Error bars reflect 95% confidence intervals.

Prenatal Influenza Immunization Coverage in California

Combining data from two years, the overall, self-reported prenatal Influenza vaccine coverage in California among people who delivered in 2020 or 2021 was 64.0%. Influenza immunization during pregnancy was:

- Lower among those insured by Medi-Cal (55.6%) than by private insurance (72.6%).
- Lower among Black (39.9%) persons compared to White (64.9%), Hispanic (61.9%) or Asian (78.6%) persons.
- Lower among Black persons in 2020-2021 (39.9%) compared to 2019-2020 (46.5%).
- Lower among persons with reported family incomes of 0-100% Federal Poverty Guideline (FPG) (54.2%) and 101-200% (59.1%) compared to those who reported incomes >200% of FPG (73.6%).
- Lower among persons whose highest education level was high school (61.2 %) compared to those who have graduated college (74.6%).
- Lower among persons who gave birth between 15-19 years of age (54.0%) compared to those who gave birth at 35 years of age and older (69.1%).

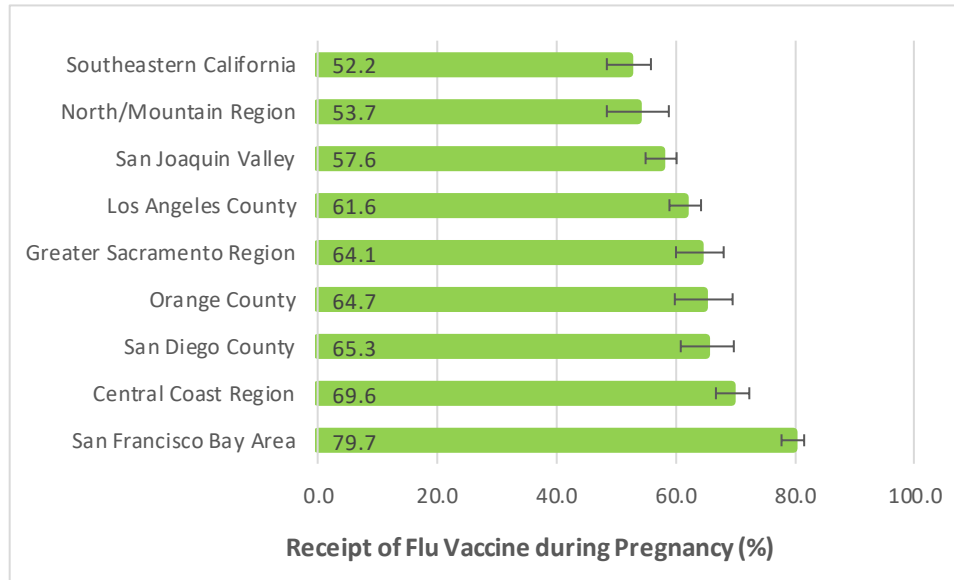
Figure 5. Proportion of persons in California with a recent live birth that received influenza vaccine during pregnancy, by birth parent characteristics, Maternal and Infant Health Assessment (MIHA) Survey, 2020-2021.



Error bars reflect 95% confidence intervals. Family Income expressed as percentage of Federal Poverty Guideline (FPG).

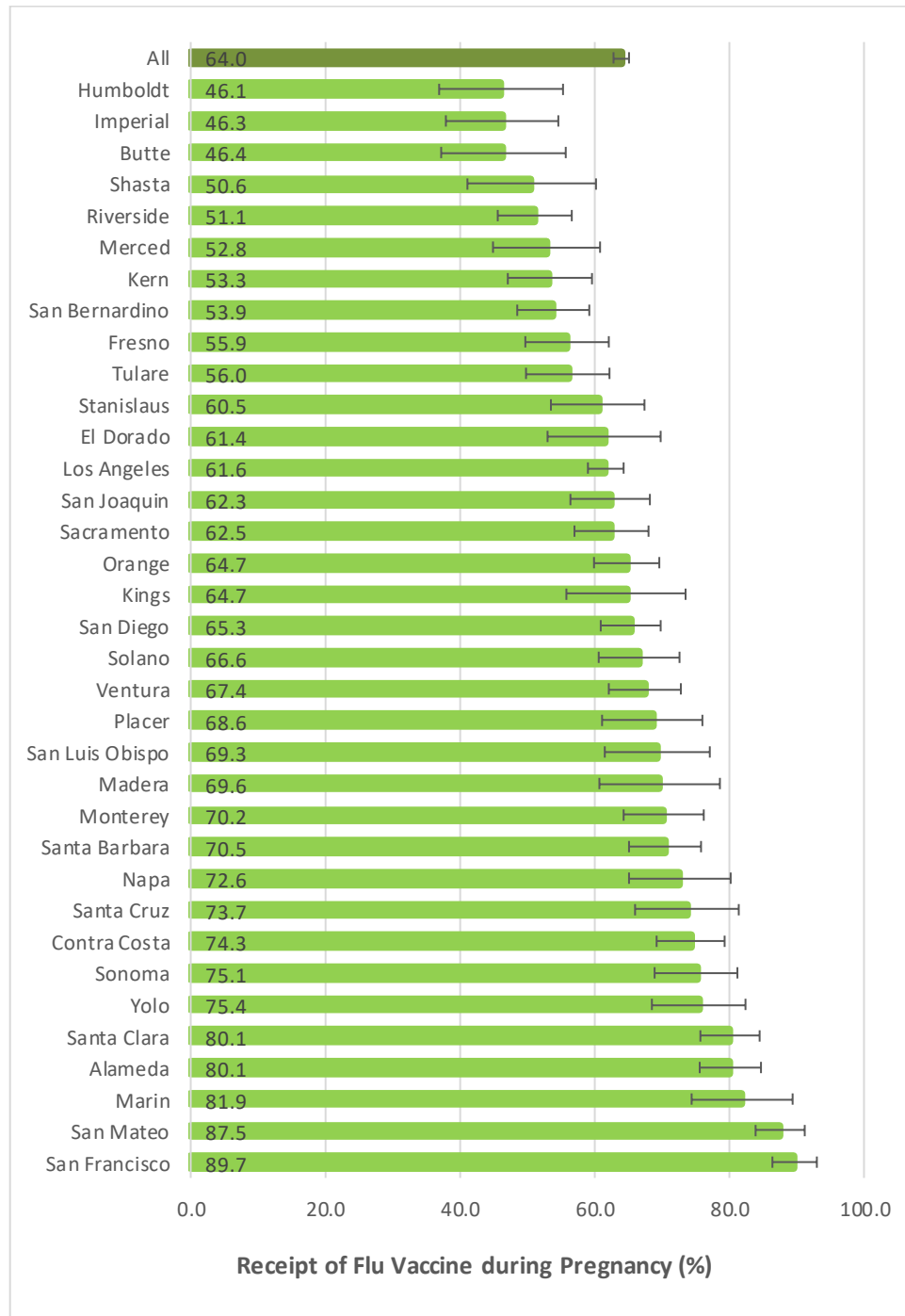
Receipt of influenza vaccine during pregnancy varies geographically. Persons in Southeastern California¹⁰ reported the lowest prenatal influenza coverage (52.2%) and those in the San Francisco Bay Area reported the highest coverage (79.7%) (Figure 5).

Figure 6. Proportion of persons with a live birth in 2020-2021 that received influenza vaccine during pregnancy, by MIHA region.¹⁰



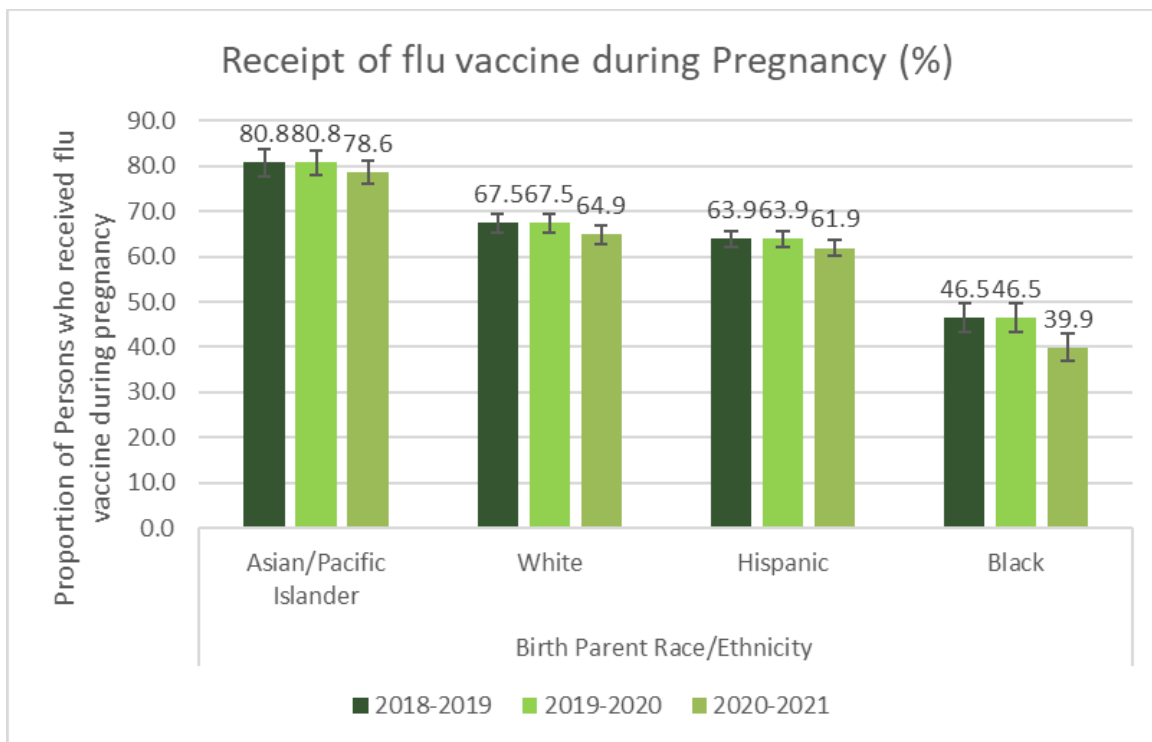
Error bars reflect 95% confidence intervals.

Figure 7. Proportion of persons with a live birth in 2020-2021 that received influenza vaccine during pregnancy, in the 35 counties with the highest number of births.



Error bars reflect 95% confidence intervals.

Figure 8. Proportion of persons with a live birth in that received flu vaccine during pregnancy, 2018-2019, 2019-2020, 2020, and 2020-2021



Error bars reflect 95% confidence intervals.

Figure A1. Prenatal Tdap and Influenza vaccine coverage by MIHA Region of California – MIHA 2020-2021



Appendix

2020 and 2021 MIHA immunization questions:

- "During your most recent pregnancy, did you receive a Tdap vaccination or shot? A Tdap vaccination is a shot that protects against tetanus, diphtheria, and pertussis (whooping cough)." Responses included:
 - "Yes, I got a Tdap shot during my pregnancy"
 - "No, but I got a Tdap shot in the hospital after I delivered"
 - "No, I did not get a Tdap shot"
 - "Don't remember"
- "During your most recent pregnancy, did you get a flu shot?" Responses include "Yes" or "No."

Data source: MIHA is an annual population-based survey of California resident women with a live birth, with a statewide sample size of 6,363 in 2020 and 6,039 in 2021. MIHA participants were sampled from the CDPH Monthly Birth File. Prevalence (%), 95% confidence interval (95% CI), and population estimates (rounded to the nearest hundred) are weighted to represent all women with a live birth. Data were prepared by the UCSF Center for Health Equity for the CDPH Maternal, Child and Adolescent Health Division. MIHA is a collaborative effort of the Maternal, Child and Adolescent Health Division and the Women, Infants and Children Division in the California Department of Public Health and the Center for Health Equity at the University of California, San Francisco. See the Technical Notes for information on weighting, comparability to prior years and technical definitions. Visit the MIHA website at www.cdph.ca.gov/MIHA.

For programmatic inquiries and questions, please contact:

California Department of Public Health, Immunization Branch at IZBranch@cdph.ca.gov or (510) 620-3737.

References:

- ¹ [California Department of Public Health \(CDPH\). Pertussis web page](http://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/pertussis.aspx) (www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/pertussis.aspx). Accessed 5/21/2024.
- ² [Centers for Disease Control and Prevention \(CDC\). Flu Vaccine Safety and Pregnancy – Questions and Answers web page](https://www.cdc.gov/flu/highrisk/qa_vacpregnant.htm) (https://www.cdc.gov/flu/highrisk/qa_vacpregnant.htm). Updated August 25, 2023. Accessed 5/21/2024.
- ³ [Centers for Disease Control and Prevention. Pregnant Women & Influenza \(Flu\) web page](https://www.cdc.gov/flu/highrisk/pregnant.htm) (<https://www.cdc.gov/flu/highrisk/pregnant.htm>). Updated March 22, 2024. Accessed 5/21/2024
- ⁴ Creanga AA, et al. Severity of 2009 pandemic influenza (H1N1) virus infection in pregnant women. *Obstet Gynecol.* 2010; 115(4): 717-26
- ⁵ Poehling, KA, Szilagyi PG et al. Impact of Maternal Immunization on Influenza Hospitalizations in Infants. *Am J Obstet Gynecol.* 2011 June; 204(6 Suppl 1): S141-S148.
- ⁶ Centers for Disease Control and Prevention. Updated Recommendations for Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine (Tdap) in Pregnant Women – Advisory Committee on Immunization Practices (ACIP), 2012. *MMWR Morb Mortal Wkly Rep.* 2013; 62(07); 131-135.
- ⁷ Centers for Disease Control and Prevention. Prevention and Control of Seasonal Influenza with Vaccines. Recommendations of the Advisory Committee on Immunization Practices – United States, 2013-2014. *MMWR Morb Mortal Wkly Rep.* 2013; 62(07).
- ⁸ Centers for Disease Control and Prevention. Updated Recommendations for Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine (Tdap) in Pregnant Women and Persons Who Have or Anticipate Having Close Contact with Infant Aged <12 Months --- Advisory Committee on Immunization Practices (ACIP), 2011. *MMWR Morb Mortal Wkly Rep.* 2011; 60(41); 1424-1426.
- ⁹ [Centers for Disease Control and Prevention. Vaccinating Pregnant Patients web page](http://www.cdc.gov/pertussis/pregnant/hcp/pregnant-patients.html) (www.cdc.gov/pertussis/pregnant/hcp/pregnant-patients.html). Updated December 1, 2022. Accessed 5/21/2024
- ¹⁰ [California Department of Public Health Maternal Child and Adolescent Health Program. Maternal and Infant Health Assessment. MIHA Methods web page](http://www.cdph.ca.gov/Programs/CFH/DMCAH/MIHA/Pages/Methods.aspx) – Map of MIHA Regions of California (www.cdph.ca.gov/Programs/CFH/DMCAH/MIHA/Pages/Methods.aspx). Accessed 5/21/2024
- ¹¹ [CDPH MIHA Prenatal Vaccinations in California 2020 Maternal and Infant Health Assessment Survey](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Immunization/MIHA-FactSheet2020.pdf) (<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Immunization/MIHA-FactSheet2020.pdf>)