

Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

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Table S1. V-safe pregnancy registry variables and questions used in the analysis.

Variable	Calculated (Y/N)	V-safe pregnancy registry question	Reponses options
1. Age at 1 st vaccine	Y	Can you please confirm your date of birth?	
2. Race/Ethnicity	N	What race or races do you consider yourself to be? Select all that apply:	White, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Unknown, or Decline to respond
	N	Are you Hispanic, Latina, or of Spanish origin? Pick one:	Yes, Hispanic/Latina/Spanish origin, No, Non-Hispanic/not Latina/not Spanish origin, Unknown, or Decline to respond
3. Timing of 1 st vaccine dose	Y	Gestational age (based on estimated due date (EDD) if available, then pregnancy end date, then LMP) and date received 1 st dose	
4. COVID-19 infection during pregnancy relative to timing of 1 st vaccine dose	N	Have you been diagnosed with any of these conditions during your current/recent pregnancy? Please respond by saying yes or no: COVID-19? If Yes: what is the approximate date of diagnosis? If no date, how many weeks pregnant were you when diagnosed? Did you experience any complications during delivery?	
5. Self-reported vaccine priority group	N	Do you fall into any of the groups that were prioritized to receive	Healthcare personnel, A non-healthcare essential worker like a teacher or

		vaccination when it rolled out?	grocery store worker, A medical condition other than pregnancy that increases your risk for severe illness from COVID-19, something else (if other, specify)
6. Pregnancy loss	N	What was the outcome of your recent pregnancy?	Was it a live birth, miscarriage (<20 weeks), stillbirth (≥20 weeks), induced abortion, some other outcome (e.g. ectopic or tubal), declined
7. Congenital anomaly	N	Was a birth defect diagnosed at any time after your baby was born? Can you give me the name(s) or a description of the birth defect?	
8. Preterm	Y	Gestational age (based on EDD if available, then pregnancy end date, then LMP) at birth <37 weeks	
9. Small for gestational age	Y	Gestational age and birth weight (calculated using birthweight below the 10th percentile for gestational age and infant sex using INTERGROWTH-21 st Century growth standards)	
10. Neonatal death	N	Is the baby still living? If no, what was the date of death? (<28 days)	

Table S2. Frequency of most common solicited local and systemic reactions reported in v-safe on the day after mRNA COVID-19 vaccination by age groups in self-identified pregnant persons and nonpregnant women aged 16–54 years, December 14, 2020–February 28, 2021.

Reaction	Dose 1		Dose 2	
	Pregnant persons N=391	Nonpregnant women N=92,194	Pregnant persons N=233	Nonpregnant women N=47,345
16–24 years – n (%)				
Injection site pain	315 (80.6)	77,713 (84.3)	208 (89.3)	41,922 (88.5)
Fatigue	140 (35.8)	36,837 (40.0)	176 (75.5)	35,801 (75.6)
Headache	118 (30.2)	28,785 (31.2)	137 (58.8)	32,725 (69.1)
Myalgia	92 (23.5)	27,871 (30.2)	133 (57.1)	31,945 (67.5)
Chills	35 (9.0)	12,699 (13.8)	88 (37.8)	24,489 (51.7)
Fever or felt feverish	43 (11.0)	13,296 (14.4)	94 (40.3)	25,297 (53.4)
Nausea	49 (12.5)	10,075 (10.9)	81 (34.8)	14,726 (31.1)
Joint pain	32 (8.2)	9,687 (10.5)	67 (28.8)	16,804 (35.5)
Injection site swelling	44 (11.3)	14,286 (15.5)	41 (17.6)	9,880 (20.9)
25–34 years – n (%)	N=10,947	N=272,421	N=8,060	N=172,245
Injection site pain	9,729 (88.9)	235,590 (86.5)	7,409 (91.9)	155,824 (90.5)
Fatigue	3,270 (29.9)	99,834 (36.7)	5,829 (72.3)	131,341 (76.3)
Headache	1,973 (18.0)	74,571 (27.4)	4,555 (56.5)	114,395 (66.4)
Myalgia	1,239 (11.3)	67,552 (24.8)	4,405 (54.7)	117,239 (68.1)
Chills	415 (3.8)	29,549 (10.8)	2,958 (36.7)	88,204 (51.2)
Fever or felt feverish	404 (3.7)	30,430 (11.2)	2,808 (34.8)	87,749 (50.9)
Nausea	726 (6.6)	22,885 (8.4)	2,186 (27.1)	47,459 (27.6)
Joint pain	325 (3.0)	24,757 (9.1)	2,059 (25.5)	65,663 (38.1)
Injection site swelling	659 (6.0)	36,749 (13.5)	928 (11.5)	34,862 (20.2)
35–44 years – n (%)	N=5,288	N=323,015	N=3704	N=209,052
Injection site pain	4,635 (87.7)	272,408 (84.3)	3,416 (92.2)	186,293 (89.1)
Fatigue	1,514 (28.6)	101,279 (31.4)	2,597 (70.1)	150,261 (71.9)
Headache	900 (17.0)	78,344 (24.3)	1,947 (52.6)	127,174 (60.8)
Myalgia	558 (10.6)	64,512 (20.0)	1,950 (52.6)	133,039 (63.6)

Chills	207 (3.9)	28,235 (8.7)	1,339 (36.2)	96,430 (46.1)
Fever or felt feverish	224 (4.2)	28,354 (8.8)	1,230 (33.2)	93,154 (44.6)
Nausea	334 (6.3)	23,027 (7.1)	938 (25.3)	49,561 (23.7)
Joint pain	159 (3.0)	26,186 (8.1)	903 (24.4)	77,283 (37.0)
Injection site swelling	306 (5.8)	40,269 (12.5)	434 (11.7)	42,650 (20.4)
45–54 years – n (%)	N=356	N=321,972	N=276	N=194,989
Injection site pain	283 (79.5)	253,077 (78.6)	241 (87.3)	164,883 (84.6)
Fatigue	98 (27.5)	85,171 (26.5)	170 (61.6)	125,443 (64.3)
Headache	87 (24.4)	71,531 (22.2)	161 (58.3)	108,313 (55.5)
Myalgia	73 (20.5)	55,860 (17.3)	150 (54.3)	109,791 (56.3)
Chills	39 (11.0)	26,149 (8.1)	117 (42.4)	79,522 (40.8)
Fever or felt feverish	38 (10.7)	25,656 (8.0)	110 (39.9)	76,909 (39.4)
Nausea	21 (5.9)	19,265 (6.0)	60 (21.7)	38,210 (19.6)
Joint pain	35 (9.8)	24,962 (7.8)	109 (39.5)	66,102 (33.9)
Injection site swelling	48 (13.5)	39,135 (12.2)	59 (21.4)	39,962 (20.5)

Table S3. Frequency of severe solicited local and systemic reactions in v-safe on the day after mRNA COVID-19 vaccination in self-identified pregnant persons and nonpregnant women aged 16–54 years, December 14, 2020–February 28, 2021.

Reported severe* reaction – n (%)	Dose 1		Dose 2	
	Pregnant persons N=16,982	Nonpregnant women N=1,009,602	Pregnant persons N=12,273	Nonpregnant women N=623,631
Injection site pain	257 (1.5)	26,049 (2.6)	732 (6.0)	48,934 (7.8)
Fatigue	265 (1.6)	27,461 (2.7)	1,542 (12.6)	91,274 (14.6)
Headache	123 (0.7)	17,817 (1.8)	646 (5.3)	62,512 (10.0)
Myalgia	111 (0.7)	19,579 (1.9)	1,149 (9.4)	85,022 (13.6)
Chills	58 (0.3)	10,737 (1.1)	626 (5.1)	55,412 (8.9)
Measured fever $\geq 39^{\circ}\text{C}$	8 (<0.05)	2,226 (0.2)	67 (0.5)	12,045 (1.9)
Nausea	39 (0.2)	3,757 (0.4)	255 (2.1)	9,872 (1.6)
Joint pain	48 (0.3)	9,512 (0.9)	511 (4.2)	47,118 (7.6)
Injection site swelling	12 (0.1)	1,979 (0.2)	27 (0.2)	4,700 (0.8)
Abdominal pain	16 (0.1)	1,287 (0.1)	38 (0.3)	3,401 (0.5)
Injection site redness	3 (<0.05)	950 (0.1)	16 (0.1)	2,023 (0.3)
Diarrhea	11 (0.1)	1,395 (0.1)	21 (0.2)	1,752 (0.3)
Vomiting	9 (0.1)	776 (0.1)	63 (0.5)	2,086 (0.3)
Injection site itching	4 (<0.05)	375 (<0.05)	6 (<0.05)	709 (0.1)
Rash	1 (<0.05)	210 (<0.05)	0 (0.0)	292 (<0.05)

* Participants were asked to classify the severity of all symptoms except fever as mild (symptoms noticed but weren't a problem), moderate (symptoms limited normal daily activities), or severe (symptoms made normal daily activities difficult or impossible); for this table, fever $\geq 39^{\circ}\text{C}$ in pregnancy was considered severe.

Table S4. Characteristics of reports to VAERS among pregnant persons following mRNA COVID-19 vaccines, December 14,2020–February 28, 2021 (N=221)*.

Median maternal age in years (range)	33 (16–51)
Trimester of pregnancy at time of vaccination in completed weeks[†]	163
First (0–13 weeks)	81 (49.7)
Second (14–27 weeks)	53 (32.5)
Third (28+ weeks)	29 (17.8)
Vaccine brand (%)	
Pfizer-BioNTech	130 (58.8)
Moderna	90 (40.7)
Most frequently reported nonpregnancy-specific adverse events (%)[‡]	155 (70.1)
Fatigue	44
Headache	43
Chills	30
Pain in extremity	27
Nausea	25
Pain	21
Fever	18
Injection site pain	17
Dizziness	17
Injection site erythema	11
Pregnancy- or neonatal- specific conditions (%)	66 (29.9)
Miscarriage [§]	46
Stillbirth	3
Premature rupture of membranes	3
Vaginal bleeding	3
Fetal hydrops	2
Preterm delivery	2
Neonatal death in 22-week preterm birth	1
Other [¶]	6

* Reports received and processed through February 28, 2021; 1 report with unknown vaccine brand

[†] Includes 163 reports where information was available on trimester of pregnancy at the time of vaccination

[‡] Not mutually exclusive; more than one adverse event can be assigned to a single report

[§] 37 in first trimester, 2 in second trimester, and 7 where trimester was unknown or not reported

^{||} Person was diagnosed with COVID-19 before pregnancy (mild 3-day illness 8 months before delivery) and received dose 2 of Pfizer-BioNTech vaccine one day prior to delivery; onset of

preterm labor symptoms began 2 days before dose 2 and birth occurred 32 hours after dose 2 at 22 weeks and 2 days; reported symptoms following receipt of dose 2 were muscle aches and chills; additional information regarding any adverse events associated with dose 1 of the vaccine were not available

¶ Other pregnancy- or neonatal-specific conditions include 1 report each of calcified placenta, leakage of amniotic fluid, shortened cervix, gestational diabetes, pre-eclampsia, irregular/painful contractions