

Supplementary Table. Associations between social vulnerability* and vaccination coverage† among U.S. adults for three separate time periods[§], overall and by urbanicity[¶] (N = 3,129) — United States, December 14, 2020–May 1, 2021

Characteristics/ social vulnerability	All Counties (N = 3,129)		Large Central Metropolitan (N = 68)**		Large Fringe Metropolitan (N = 368)		Medium/Small Metropolitan (N = 727)		Nonmetropolitan (N = 1,966)	
	Vaccination coverage estimate	Vaccination coverage differences (95% CI)	Vaccination coverage estimate	Vaccination coverage differences (95% CI)	Vaccination coverage estimate	Vaccination coverage differences (95% CI)	Vaccination coverage estimate	Vaccination coverage differences (95% CI)	Vaccination coverage estimate	Vaccination coverage differences (95% CI)
Time period 1: December 14, 2020–January 23, 2021										
Overall social vulnerability										
Q1 (lowest)	8.0	Ref	—	—	7.9	Ref	8.4	Ref	8.3	Ref
Q2	8.0	0 (-0.5 to 0.4)	7.9	Ref	7.3	-0.6 (-1.2 to 0.1)	8.6	0.2 (-0.6 to 1.0)	7.8	-0.4 (-1.0 to 0.2)
Q3	8.0	0 (-0.5 to 0.5)	7.7	-0.2 (-1.2 to 0.8)	8.2	0.3 (-1.0 to 1.6)	8.5	0.2 (-0.7 to 1.0)	7.9	-0.4 (-1.2 to 0.5)
Q4 (highest)	7.4	-0.7 (-1.5 to 0.2)	6.7	-1.1 (-2.1 to -0.1)	6.0	-1.9 (-2.8 to -1.1)	7.7	-0.6 (-1.7 to 0.4)	8.7	0.5 (-0.8 to 1.7)
Social vulnerability related to socioeconomic status										
Q1 (lowest)	8.2	Ref	—	—	7.9	Ref	8.9	Ref	8.7	Ref
Q2	8.1	-0.1 (-0.5 to 0.4)	8.1	Ref	7.6	-0.3 (-1.5 to 0.8)	8.5	-0.4 (-1.2 to 0.3)	8.0	-0.7 (-1.5 to 0.2)
Q3	7.4	-0.8 (-1.3 to -0.3)	6.9	-1.3 (-2.1 to -0.5)	7.1	-0.9 (-1.9 to 0.2)	8.1	-0.7 (-1.6 to 0.1)	7.7	-1.0 (-2.1 to 0.1)
Q4 (highest)	7.6	-0.6 (-1.6 to 0.3)	5.7	-2.4 (-3.1 to -1.8)	5.4	-2.5 (-3.1 to -1.9)	7.6	-1.2 (-2.7 to 0.3)	8.6	-0.1 (-1.4 to 1.2)
Social vulnerability related to household composition and disability										
Q1 (lowest)	7.9	Ref	—	—	8.0	Ref	8.6	Ref	8.0	Ref
Q2	7.8	-0.2 (-0.6 to 0.3)	7.4	Ref	6.8	-1.2 (-2.0 to -0.4)	8.8	0.2 (-0.5 to 0.9)	8.1	0 (-0.6 to 0.7)
Q3	7.8	-0.2 (-0.7 to 0.3)	7.5	0.1 (-1.2 to 1.5)	7.0	-1.0 (-2.1 to 0)	7.9	-0.7 (-1.5 to 0)	8.1	0 (-0.7 to 0.8)
Q4 (highest)	7.9	0 (-0.9 to 0.8)	5.8	-1.6 (-2.3 to -0.8)	6.2	-1.8 (-2.6 to -1.0)	7.8	-0.9 (-1.9 to 0.1)	8.6	0.5 (-0.7 to 1.7)
Social vulnerability related to racial and ethnic minority residents and English proficiency										
Q1 (lowest)	7.5	Ref	—	—	6.6	Ref	7.9	Ref	7.7	Ref
Q2	7.9	0.4 (-0.2 to 1)	—	—	7.5	0.9 (0 to 1.8)	7.9	0.1 (-0.8 to 0.9)	8.1	0.4 (-0.2 to 1.1)
Q3	8.2	0.6 (0 to 1.3)	8.9	Ref	7.5	0.9 (0.2 to 1.6)	8.5	0.6 (-0.3 to 1.5)	8.2	0.5 (-0.4 to 1.5)
Q4 (highest)	7.8	0.2 (-0.5 to 1)	7.3	-1.5 (-2.3 to -0.8)	7.8	1.3 (0.3 to 2.2)	8.4	0.6 (-0.5 to 1.6)	9.0	1.3 (-0.5 to 3.0)
Social vulnerability related to housing type and transportation										
Q1 (lowest)	7.7	Ref	—	—	7.6	Ref	8.2	Ref	7.8	Ref
Q2	7.7	0 (-0.4 to 0.4)	7.9	Ref	7.5	-0.1 (-0.8 to 0.6)	7.9	-0.3 (-1.3 to 0.7)	7.9	0.1 (-0.4 to 0.6)
Q3	8.1	0.4 (-0.2 to 1)	7.5	-0.4 (-2.1 to 1.2)	8.5	1.0 (0.1 to 1.8)	8.5	0.3 (-0.5 to 1.2)	8.1	0.2 (-0.3 to 0.7)
Q4 (highest)	7.8	0.1 (-0.4 to 0.6)	7.3	-0.6 (-2.2 to 1)	6.5	-1.1 (-2.3 to 0.1)	8.5	0.4 (-0.7 to 1.4)	8.7	0.9 (0 to 1.8)
Time period 2: January 24–March 20, 2021										
Overall social vulnerability										
Q1 (lowest)	28.4	Ref	—	—	28.6	Ref	27.7	Ref	29.1	Ref

Q2	26.9	-1.5 (-2.9 to -0.1)	28.5	Ref	26.0	-2.5 (-4.8 to -0.3)	27.0	-0.6 (-2.5 to 1.3)	25.3	-3.8 (-5.0 to -2.5)
Q3	25.7	-2.8 (-4.5 to -1.0)	26.8	-1.7 (-4.1 to 0.7)	24.8	-3.7 (-5.5 to -2.0)	25.4	-2.3 (-4.3 to -0.3)	23.2	-5.9 (-7.8 to -4.0)
Q4 (highest)	24.1	-4.3 (-5.9 to -2.6)	24.8	-3.7 (-5.1 to -2.3)	20.3	-8.2 (-10.3 to -6.2)	24.9	-2.8 (-5.3 to -0.3)	22.8	-6.3 (-8.8 to -3.7)
Social vulnerability related to socioeconomic status										
Q1 (lowest)	28.9	Ref	—	—	28.8	Ref	28.3	Ref	30.0	Ref
Q2	26.2	-2.6 (-4.4 to -0.9)	27.2	Ref	24.1	-4.7 (-6.5 to -3.0)	26.7	-1.7 (-3.7 to 0.3)	26.2	-3.8 (-5.3 to -2.2)
Q3	24.5	-4.4 (-5.6 to -3.2)	25.5	-1.7 (-4.9 to 1.6)	21.6	-7.2 (-9.3 to -5.2)	24.0	-4.3 (-6.5 to -2.2)	23.1	-6.9 (-8.7 to -5.0)
Q4 (highest)	23.1	-5.8 (-7.8 to -3.8)	24.2	-2.9 (-8.1 to 2.2)	19.0	-9.8 (-12.6 to -7.0)	25.0	-3.4 (-6.7 to 0)	21.9	-8.0 (-10.6 to -5.5)
Social vulnerability related to household composition and disability										
Q1 (lowest)	27.7	Ref	—	—	28.2	Ref	27.4	Ref	26.6	Ref
Q2	25.2	-2.6 (-4.1 to -1.0)	24.9	Ref	23.8	-4.4 (-6.4 to -2.3)	26.4	-0.9 (-2.3 to 0.4)	25.3	-1.3 (-2.7 to 0.2)
Q3	24.6	-3.1 (-4.4 to -1.8)	25.5	0.5 (-1.5 to 2.6)	21.2	-7.0 (-9.9 to -4.1)	25.3	-2.1 (-3.5 to -0.7)	24.1	-2.5 (-4.1 to -0.9)
Q4 (highest)	23.0	-4.8 (-6.4 to -3.1)	22.2	-2.7 (-4.4 to -1.1)	18.2	-10.0 (-12.3 to -7.7)	22.9	-4.5 (-6.3 to -2.8)	23.6	-3.0 (-5.1 to -0.9)
Social vulnerability related to racial and ethnic minority residents and English proficiency										
Q1 (lowest)	25.0	Ref	—	—	25.6	Ref	25.1	Ref	24.8	Ref
Q2	25.3	0.4 (-1.3 to 2.0)	—	—	26.0	0.5 (-3.6 to 4.6)	24.9	-0.2 (-3.0 to 2.6)	25.3	0.6 (-1.1 to 2.3)
Q3	25.9	0.9 (-1.1 to 3.0)	30.5	Ref	26.5	0.9 (-2.1 to 4.0)	25.8	0.7 (-2.9 to 4.3)	24.1	-0.7 (-3.0 to 1.6)
Q4 (highest)	26.5	1.5 (-0.9 to 4.0)	26.4	-4.1 (-8.7 to 0.5)	26.8	1.2 (-2.8 to 5.3)	26.7	1.7 (-2.2 to 5.6)	24.3	-0.5 (-3.5 to 2.6)
Social vulnerability related to housing type and transportation										
Q1 (lowest)	25.9	Ref	—	—	25.8	Ref	24.6	Ref	26.9	Ref
Q2	26.2	0.3 (-1.8 to 2.4)	25.2	Ref	27.8	2 (-0.6 to 4.6)	25.3	0.7 (-2.2 to 3.5)	24.7	-2.1 (-3.6 to -0.6)
Q3	26.2	0.3 (-1.7 to 2.3)	26.1	0.8 (-1.8 to 3.4)	26.7	0.9 (-1.8 to 3.6)	26.7	2.1 (-0.7 to 4.8)	24.4	-2.5 (-3.9 to -1.1)
Q4 (highest)	26.2	0.3 (-1.9 to 2.4)	26.9	1.6 (-2.5 to 5.7)	25.6	-0.2 (-3.6 to 3.2)	26.1	1.5 (-1.2 to 4.2)	23.9	-3.0 (-5.2 to -0.8)
Time period 3: March 21–May 1, 2021										
Overall social vulnerability										
Q1 (lowest)	38.1	Ref	—	—	41.8	Ref	33.9	Ref	27.6	Ref
Q2	34.7	-3.5 (-8.4 to 1.5)	47.0	Ref	35.2	-6.5 (-10.7 to -2.3)	31.1	-2.8 (-7.5 to 1.9)	20.6	-7.0 (-10.6 to -3.5)
Q3	30.5	-7.6 (-11.5 to -3.7)	36.9	-10 (-15.2 to -4.8)	32.0	-9.8 (-13.1 to -6.4)	26.0	-7.9 (-12.4 to -3.4)	17.0	-10.6 (-14.6 to -6.6)
Q4 (highest)	27.4	-10.7 (-15.5 to -6.0)	34.5	-12.5 (-16.0 to -9.0)	26.6	-15.2 (-19.7 to -10.7)	24.9	-8.9 (-14.6 to -3.3)	15.6	-12.0 (-16.0 to -8.0)
Social vulnerability related to socioeconomic status										
Q1 (lowest)	40.3	Ref	—	—	42.3	Ref	34.3	Ref	29.2	Ref
Q2	32.4	-7.9 (-10.7 to -5.0)	39.0	Ref	31.1	-11.2 (-14.2 to -8.2)	29.8	-4.5 (-7.5 to -1.5)	21.7	-7.5 (-11.3 to -3.6)
Q3	28.5	-11.8 (-14.7 to -8.9)	35.5	-3.6 (-10.9 to 3.8)	24.6	-17.7 (-22 to -13.5)	23.2	-11.2 (-14.6 to -7.7)	16.7	-12.4 (-16.7 to -8.2)
Q4 (highest)	21.7	-18.6 (-22.9 to -14.3)	31.1	-8.0 (-16.7 to 0.7)	23.5	-18.8 (-24.2 to -13.3)	25.6	-8.8 (-16.7 to -0.8)	14.8	-14.4 (-18.6 to -10.2)
Social vulnerability related to household composition and disability										
Q1 (lowest)	40.0	Ref	—	—	41.7	Ref	34.3	Ref	26.0	Ref

Q2	27.7	-12.3 (-15.0 to -9.6)	30.5	Ref	27.7	-14.0 (-17.0 to -11.0)	27.7	-6.6 (-9.9 to -3.4)	20.3	-5.7 (-9.0 to -2.4)
Q3	24.5	-15.5 (-18.6 to -12.4)	31.5	1.0 (-2.1 to 4.2)	24.3	-17.4 (-22.6 to -12.2)	25.3	-9.1 (-12.2 to -6.0)	18.2	-7.8 (-11.3 to -4.3)
Q4 (highest)	18.3	-21.7 (-25.3 to -18.2)	28.5	-1.9 (-3.8 to 0.0)	18.2	-23.4 (-27.2 to -19.7)	18.8	-15.6 (-18.9 to -12.3)	15.6	-10.4 (-13.9 to -7.0)
Social vulnerability related to racial and ethnic minority residents and English proficiency										
Q1 (lowest)	21.2	Ref	—	—	26.2	Ref	22.5	Ref	19.3	Ref
Q2	23.5	2.3 (-0.7 to 5.4)	—	—	31.2	5.0 (-0.5 to 10.5)	22.3	-0.2 (-4.4 to 4.0)	20.3	1.0 (-2.1 to 4.1)
Q3	28.9	7.7 (3.5 to 12.0)	38.5	Ref	34.4	8.1 (4.0 to 12.3)	28.6	6.1 (-0.4 to 12.7)	18.8	-0.5 (-4.6 to 3.7)
Q4 (highest)	35.9	14.7 (9.8 to 19.5)	38.2	-0.3 (-6.7 to 6.1)	39.4	13.2 (7.4 to 18.9)	30.4	7.9 (1.1 to 14.6)	18.1	-1.1 (-5.3 to 3.0)
Social vulnerability related to housing type and transportation										
Q1 (lowest)	31.6	Ref	—	—	35.3	Ref	24.6	Ref	21.7	Ref
Q2	30.5	-1.1 (-4.1 to 2.0)	33.8	Ref	37.8	2.4 (-2.2 to 7.1)	27.4	2.8 (-1.3 to 6.9)	19.9	-1.7 (-4.5 to 1.0)
Q3	31.3	-0.3 (-3.9 to 3.4)	34.0	0.2 (-7.4 to 7.8)	37.7	2.3 (-1.9 to 6.6)	29.3	4.7 (0.5 to 9.0)	18.8	-2.8 (-5.3 to -0.4)
Q4 (highest)	34.0	2.4 (-1.9 to 6.8)	41.3	7.5 (0.4 to 14.6)	36.8	1.5 (-6.9 to 9.9)	28.4	3.8 (-0.9 to 8.5)	17.9	-3.8 (-6.9 to -0.7)

Abbreviations: CI = confidence intervals; Ref = referent group.

* Scores for all social vulnerability measures represent percentile ranks by county ranging from 0–1 with higher scores indicating greater vulnerability. Scores were categorized into quartiles based on distribution among all U.S. counties.

† Vaccination coverage (≥1 dose) was calculated by summing the number of vaccinated adults in each SVI category and dividing by the total adult population in the specified SVI category. 95% CIs for the vaccination coverage differences were calculated using generalized estimating equation models with robust standard errors to account for state variability. Models were run separately by time period and excluded adults vaccinated in previous time periods from the numerator and denominator.

§ Time periods were December 14, 2020—January 23, 2021; January 24—March 20, 2021; March 21—May 1, 2021.

¶ Urbanicity categories were based on the 2013 National Center for Health Statistics urban/rural classification scheme: https://www.cdc.gov/nchs/data/series/sr_02/sr02_166.pdf.

Categories were collapsed into large metropolitan, large fringe metropolitan, medium/small metropolitan, and nonmetropolitan (micropolitan and noncore) counties.

**Results suppressed for SVI and urbanicity categories with ≤ 4 counties; reference group was the lowest vulnerability quartile with > 4 counties.