

Research Brief: COVID-19 vaccination and vaccine hesitancy among work-age beneficiaries of the Social Security Administration disability programs and Medicare

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May 5, 2021

Acknowledgements. Funding for this study was provided by The Rehabilitation Research and Training Center on Disability Statistics and Demographics (StatsRRTC), funded by the U.S. Department of Health and Human Services, Administration for Community Living, National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), grant number 90RTGE0001. The information developed by the StatsRRTC does not necessarily represent the policies of the Department of Health and Human Services, and you should not assume endorsement by the Federal Government (Edgar, 75.620 (b)).

Introduction. On December 11, 2020, the Food and Drug Administration (FDA) issued the first emergency use authorization for a COVID-19 vaccine (FDA, 2020). To allocate the limited supply of COVID-19 vaccines, the Federal government distributed the available doses nationwide, based on the size of each state's adult population. The states then had the responsibility to distribute the shots to local hospitals, nursing homes and clinics (Singer, 2021). The CDC recommended on December 3, 2020 that the limited initial doses be allocated to healthcare professionals and long-term care facility residents (CDC, 2021). Later, as the vaccine supplies increased, many states expanded their vaccine eligibility to all adults (Martinez, 2021). As demand for the COVID-19 vaccine slows down in the US, attention has turned to vaccine hesitancy and persuading individuals who are unwilling to get vaccinated (Forbes, 2021).

As the vaccination efforts increased, evidence of racial and ethnic disparities in COVID-19 vaccination began to appear (Ndugga et al., 2020). Moreover, disparities exist in access to vaccines with around 1.6 million homebound adults, age 65 years and above, facing barriers to receiving the COVID-19 vaccine (Nye & Blanco, 2021). Research on the trust of information and COVID-19 practices among people with disabilities suggest that rural residents and people with hearing and communication disabilities were less likely to trust information sources and adhere to CDC recommended preventative COVID-19 practices (social distancing, handwashing etc.) than other sociodemographic groups (Ipsen, Myers, & Sage, 2021).

Data Source. To understand the social and economic effects of COVID-19 on American households, the U.S. Census Bureau in collaboration with multiple federal agencies, developed and implemented the Household Pulse Survey (PULSE) (Fields et al., forthcoming). The survey collects information on employment status, consumer spending, use of benefits, food security, housing, education, and physical and mental wellness of American households on a weekly basis. The PULSE is one of the very few nationally representative data sources that provide a comprehensive, relevant, and timely information on the experience of Americans during COVID-19 (Fields et al., forthcoming).

The PULSE is a cross-sectional sample of all household members ages 18 years and above of about 75,000 persons each period (U.S. Census, 2021). It uses a mixed survey mode of internet questionnaires and telephone interviews. The latest revision to the Phase 3 of PULSE, implemented on Jan 6, 2021 included a new series of questions on vaccinations and attitudes towards the vaccine (U.S. Census, 2021). The analysis below uses data over six approximately two-week periods between January 6, 2021 and March 29, 2021. A subsample of a sample of individuals who turned 20-49 years in 2021 is used to avoid age-related pre-qualifications for the vaccine early in the rollout.

Measures. The following questions were used to generate the variables used in the tables below.

Do you currently receive Social Security benefits (Retirement, Disability, or Survivors), Supplemental Security Income (SSI) benefits, or Medicare benefits?

Select only one answer.

- Yes
- No

Have you received a COVID-19 vaccine?

- Yes
- No

Once a vaccine to prevent COVID-19 is available to you, would you...

- Definitely get a vaccine
- Probably get a vaccine
- Probably NOT get a vaccine
- Definitely NOT get a vaccine

Which of the following, if any, are reasons that you? *Select all that apply.*

- I am concerned about possible side effects of a COVID-19 vaccine
- I don't know if a COVID-19 vaccine will work
- I don't believe I need a COVID-19 vaccine
- I don't like vaccines
- My doctor has not recommended it
- I plan to wait and see if it is safe and may get it later
- I think other people need it more than I do right now
- I am concerned about the cost of a COVID-19 vaccine
- I don't trust COVID-19 vaccines
- I don't trust the government
- Other (Specify)

A person may select more than one reason for probably not/definitely not getting a vaccine. Unfortunately, the PULSE public-use files do not contain the text provided when responses specified other reasons.

Methods. The number and percentage of persons (a) receiving at least one vaccination dose and planning to (b) definitely get vaccinated, (c) probably get vaccinated, (d) probably not get vaccinated, (e) and definitely not get vaccinated are estimated, by beneficiary status and time period. The number and percentage of persons reporting each of the eleven reasons are estimated, by beneficiary status for the last time period, March 17–March 29, since the population planning or not planning to get vaccinated changes over time as more people get vaccinated and information changes.

Relative ratios are estimated when comparing a percentage measure for beneficiaries to a percentage measure for non-beneficiaries, with the percentage estimate for beneficiaries as a ratio of the percentage estimate for non-beneficiaries. One-tailed t-tests are conducted with the null hypotheses being the population relative ratio less than one when the estimated relative ratio is less than one, or the population relative ratio greater than one when the estimated relative ratio is greater than one. Pearson correlation coefficients are estimated when comparing the distributions by beneficiary status. Asterisks, ***, **, and * signify p-statistics of less than 0.01, 0.05, and 0.1, respectively. All estimates are adjusted for survey design effects using sample weights, replicate sample weights, and jackknife standard errors.

The PULSE public-use files do not provide imputations of missing values for the variables used to code beneficiary status, receipt of at least one vaccination dose, plans to get vaccinated, and reason underlying vaccination plans. Imputed values for these variables were generated using hot deck imputation, using sex, age, race/ethnicity, and educational attainment, with a seed of 7990173.

Results. Table 1 contains the estimated number of persons who received at least one dose and number of persons who are yet to receive at least one dose disaggregated according to plans to get vaccinated, by beneficiary status and time period. As of the first period (January 6–January 18), 256,493 beneficiaries and 8,929,772 non-beneficiaries had received at least one dose. As of the last period (March 17–March 29), 1,777,764 beneficiaries and 38,608,537 non-beneficiaries had received a least one dose. Table 1 contains Pearson correlation coefficients for each time period. They indicate a statistically significant association between beneficiary status and vaccination receipt/planning, in all periods except the last period.

Table 2 contains the estimated percentage distribution across receipt and plan within beneficiary status, by time period. As of the first period (January 6–January 18), 4.0 percent of beneficiaries and 7.6 percent of non-beneficiaries had received at least one dose, which correspond to a statistically significant relative ratio of 0.53, indicating a disparity between beneficiaries and non-beneficiaries, such that beneficiaries were less likely (0.53 times as likely) than non-beneficiaries to have received at least one dose. The relative ratio moved closer to 1.00 in nearly all of the successive periods. As of the last period (March 17–March 29), 27.4 percent of beneficiaries and 32.6 percent of non-beneficiaries had received a least one dose, which correspond to a statistically significant relative ratio of 0.84.

Regarding plans to get vaccinated, as shown in Table 1, in the first period (January 6–January 18), 865,492 beneficiaries and 13,431,307 non-beneficiaries were not planning to get vaccinated. These counts peaked in late February (February 17 – March 1) for both beneficiaries and non-beneficiaries at 1,134,241 and 13,477,534, respectively. In the last period (March 17–March 29), these counts were at 747,788 beneficiaries and 11,740,906 beneficiaries.

As shown in Table 2, in early January, 13.5 percent of beneficiaries and 11.4 percent of non-beneficiaries were definitely not planning get vaccinated, meaning beneficiaries were more likely (1.19 times as likely) than non-beneficiaries to definitely not planning to get vaccinated. The relative ratio peaked in late February at 1.49 and declined to a statistically insignificant 1.16 by late March, implying there is insufficient evidence to detect a difference between beneficiaries and non-beneficiaries.

Table 3 provides the estimated number of persons citing the various reasons behind plans to get or not get vaccinated, in the late March period. Among those who were probably getting vaccinated, the most selected reason was “plan to wait and see if it is safe and may get it later,” for both beneficiaries (838,370) and non-beneficiaries (9,744,404). The second most selected reason was “concerned about possible side effects of a vaccine,” for both beneficiaries (647,611) and non-beneficiaries (9,542,035).

A similar pattern occurred among those who were probably not getting vaccinated. The most selected reason was “concerned about possible side effects of a vaccine” for beneficiaries (322,437) and “plan to wait and see if it is safe and may get it later” for non-beneficiaries (7,567,816), and vice versa for the second most selected reason, which was “plan to wait and see if it is safe and may get it later” for beneficiaries (303,441) and “concerned about possible side effects of a vaccine” for beneficiaries (6,657,968).

Among those who were definitely not getting vaccinated, the most frequently selected reason was “don’t trust COVID-19 vaccines” for both beneficiaries (306,939) and non-beneficiaries (6,212,762). The second most selected reason was “don’t trust the government” by beneficiaries (262,808) and “concerned about possible side effects of a vaccine” for non-beneficiaries (5,754,532), and vice versa for the third most frequently selected reason, “concerned about possible side effects of a vaccine” for beneficiaries (258,277) and “don’t trust the government” for non-beneficiaries (4,868,617).

Table 4 contains the estimated percentage citing the various reasons within beneficiary status, by plans, in the last period (March 17–March 29). When comparing beneficiaries and non-beneficiaries who were probably going to get the vaccine, beneficiaries were more (1.4 times as) likely to select “don’t know if a COVID-19 vaccine will work,” more (1.32 times as) likely to select “plan to wait and see if it is safe and may get it later,” less (0.69 times as) likely to select “think other people need it more,” and less (0.03 times as) likely to select “don’t believe I need a COVID-19 vaccine.” Among beneficiaries and non-beneficiaries who were probably NOT going to get the vaccine, beneficiaries were more (1.71 times as) likely to select “don’t trust the government” and less (0.71 times as) likely to select “plan to wait and see if it is safe and may get it later.” Of beneficiaries and non-beneficiaries who were definitely not going to get the vaccine, beneficiaries were more (1.57 times as) likely to select “other reason,” less (0.78 times as) likely to select “don’t trust COVID-19 vaccines,” less (0.70 times as) likely to select

“concerned about possible side effects of a vaccine,” less (0.53 times as) likely to select “don’t believe I need a COVID-19 vaccine,” and less (0.51 times as) likely to select “don’t like vaccines.”

Limitations. This study is limited by the lack of questions directly inquiring about disability status. DI/SSI/Medicare beneficiaries are about a third of the population with disabilities ages 20-49, based on authors’ calculations using the 2019 public-use file of the American Community Survey (ACS). The PULSE is adding the first four disability-related questions from ACS in April 2021, so more information about people with disabilities is forthcoming.

A related limitation is the inability to distinguish between disability-related and survivor-related Social Security beneficiaries. However, an analysis of these data, dropping widows/widowers from the beneficiary subsample, did not appreciably change the findings reported above.

Another limitation of this study is the lack of information on barriers to getting vaccinated. The framing of the PULSE vaccine hesitancy question was on planning and preferences and did not address whether barriers, such as the lack of transportation, factored into a respondents planning. This may be perhaps why beneficiaries were more likely to cite “other” reasons. Unfortunately, the PULSE public-use files do not contain what respondents specified as “other” reasons.

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Table 1. Count receiving of at least one vaccine dose or planning to get vaccinated, by DI/SSI/Medicare beneficiary status and time period, among those who turn or turned ages 20 to 49 years old in 2021

Beneficiary status, dose, plan		Time period					
		Jan 6 – Jan18	Jan 20 – Feb 1	Feb 3 – Feb 15	Feb 17 – Mar 1	Mar 3 – Mar 15	Mar 17 – Mar 29
Beneficiary							
At least one dose		256,493	396,312	577,321	836,098	1,114,955	1,777,764
Plan	Definitely yes	2,226,008	2,330,668	2,625,139	2,176,440	2,353,086	2,070,514
	Probably yes	1,896,689	1,659,695	1,533,742	1,514,527	1,614,150	1,184,607
	Probably no	1,159,674	1,278,798	1,089,125	1,041,474	861,355	711,457
	Definitely no	865,492	892,457	1,036,923	1,134,241	937,066	747,788
Sample size		1,156	1,340	1,234	1,262	1,277	1,197
Non-beneficiary							
At least one dose		8,929,772	13,240,999	16,552,200	19,482,303	25,581,017	38,608,537
Plan	Definitely yes	45,451,649	49,809,386	48,066,819	46,806,207	43,365,882	37,379,275
	Probably yes	31,438,969	26,312,603	25,604,560	23,375,068	21,542,399	18,145,787
	Probably no	18,706,344	16,420,081	15,411,559	15,319,447	15,014,932	12,616,810
	Definitely no	13,431,307	12,954,407	11,995,806	13,477,534	12,439,734	11,740,906
Sample size		27,621	30,832	28,169	28,724	28,170	27,553
Pearson coefficient		3.11**	6.35***	5.27***	5.01***	2.63**	1.17
Source: Authors' calculations using the public-use files of the Household Pulse Survey.							
***, **, and * signify p-statistics of one-tailed tests less than 0.01, 0.05, and 0.1, respectively.							

Table 2. Percent distribution within DI/SSI/Medicare beneficiary status across receipt of at least one vaccine dose and plans to get vaccinated, by time period, among those who turn or turned ages 20 to 49 years old in 2021

Beneficiary status, dose, plan		Time period					
		Jan 6 – Jan18	Jan 20 – Feb 1	Feb 3 – Feb 15	Feb 17 – Mar 1	Mar 3 – Mar 15	Mar 17 – Mar 29
Beneficiary							
At least one dose		4.0	6.0	8.4	12.5	16.2	27.4
Plan	Definitely yes	34.8	35.5	38.3	32.5	34.2	31.9
	Probably yes	29.6	25.3	22.4	22.6	23.5	18.3
	Probably no	18.1	19.5	15.9	15.5	12.5	11.0
	Definitely no	13.5	13.6	15.1	16.9	13.6	11.5
Non-beneficiary							
At least one dose		7.6	11.2	14.1	16.5	21.7	32.6
Plan	Definitely yes	38.5	42.0	40.9	39.5	36.8	31.6
	Probably yes	26.7	22.2	21.8	19.7	18.3	15.3
	Probably no	15.9	13.8	13.1	12.9	12.7	10.7
	Definitely no	11.4	10.9	10.2	11.4	10.6	9.9
Relative ratio							
At least one dose		0.53***	0.54***	0.60***	0.76**	0.75***	0.84**
Plan	Definitely yes	0.90	0.85***	0.94	0.82***	0.93	1.01
	Probably yes	1.11	1.14*	1.03	1.15*	1.28**	1.19**
	Probably no	1.14	1.41***	1.21*	1.20**	0.98	1.03
	Definitely no	1.19*	1.25*	1.48***	1.49***	1.29*	1.16

Source: Authors' calculations using the public-use files of the PULSE Household Survey.
 ***, **, and * signify p-statistics of one-tailed tests less than 0.01, 0.05, and 0.1, respectively.

Table 3. Number of persons by planning reason, by plans and DI/SSI/Medicare beneficiary status, among persons who turn or turned ages 20 to 49 years old in 2021, for period March 17 – March 29

Reason	Probably yes		Probably no		Definitely no	
	Beneficiary	Non-beneficiary	Beneficiary	Non-beneficiary	Beneficiary	Non-beneficiary
Concerned about possible side effects of a vaccine	647,611	9,542,035	322,437	6,657,968	258,277	5,754,532
Don't know if a COVID-19 vaccine will work	282,869	3,103,428	174,744	2,873,947	94,204	2,479,541
Don't believe I need a COVID-19 vaccine	2,810	1,311,170	108,257	2,852,014	154,988	4,584,973
Don't like vaccines	38,934	1,131,587	96,716	1,384,450	83,298	2,555,608
One's doctor has not recommended it	70,605	767,327	60,018	834,463	23,130	643,076
Plan to wait and see if it is safe and may get it later	838,370	9,744,404	303,441	7,567,816	141,540	2,497,952
Think other people need it more	322,909	7,133,661	154,762	3,837,119	64,895	1,508,600
Concerned about the cost of a COVID-19 vaccine	76,662	1,531,569	27,469	703,544	13,821	363,368
Don't trust COVID-19 vaccines	110,849	1,948,704	199,366	3,185,345	306,939	6,212,762
Don't trust the government	152,138	2,003,352	214,144	2,214,475	262,808	4,868,617
Other reason	120,090	1,539,238	76,558	1,263,749	212,016	2,126,540

Source: Authors' calculations using the public-use files of the PULSE Household Survey.

***, **, and * signify p-statistics of one-tailed tests less than 0.01, 0.05, and 0.1, respectively.

Table 4. Percentage of persons by planning reason, by plans and DI/SSI/Medicare beneficiary status, among persons who turn or turned ages 20 to 49 years old in 2021, for period March 17 – March 29

Reason	Probably yes			Probably no			Definitely no		
	Percentage		Relative ratio	Percentage		Relative ratio	Percentage		Relative ratio
	Beneficiary	Non-beneficiary		Beneficiary	Non-beneficiary		Beneficiary	Non-beneficiary	
Concerned about possible side effects of a vaccine	54.7	52.6	1.04	45.3	52.8	0.86	34.5	49.0	0.70**
Don't know if a COVID-19 vaccine will work	23.9	17.1	1.40*	24.6	22.8	1.08	12.6	21.1	0.60*
Don't believe I need a COVID-19 vaccine	0.2	7.2	0.03***	15.2	22.6	0.67	20.7	39.1	0.53**
Don't like vaccines	3.3	6.2	0.53	13.6	11.0	1.24	11.1	21.8	0.51**
One's doctor has not recommended it	6.0	4.2	1.41	8.4	6.6	1.28	3.1	5.5	0.56
Plan to wait and see if it is safe and may get it later	70.8	53.7	1.32***	42.7	60.0	0.71**	18.9	21.3	0.89
Think other people need it more	27.3	39.3	0.69**	21.8	30.4	0.72	8.7	12.9	0.68
Concerned about the cost of a COVID-19 vaccine	6.5	8.4	0.77	3.9	5.6	0.69	1.9	3.1	0.60
Don't trust COVID-19 vaccines	9.4	10.7	0.87	28.0	25.3	1.11	41.1	52.9	0.78*
Don't trust the government	12.8	11.0	1.16	30.1	17.6	1.71**	35.1	41.5	0.85
Other reason	10.1	8.5	1.20	10.8	10.0	1.07	28.4	18.1	1.57*

Source: Authors' calculations using the public-use files of the PULSE Household Survey.
 ***, **, and * signify p-statistics of one-tailed tests less than 0.01, 0.05, and 0.1, respectively.