

COVID-19 Vaccination Demographic Data Analysis

December 15, 2020 – October 17, 2021

Table 1: COVID-19 vaccination status among Snohomish County residents having initiated vaccination

Vaccine status	People initiating vaccination	Percent of eligible population	Snohomish County eligible population (≥12 years)
Fully vaccinated	497,680	70%	---
Partially vaccinated	38,371	5%	---
Total number of people initiating vaccination	536,051	76%	706,950

Table 2: COVID-19 vaccine initiation by sex at birth, Snohomish County

Sex at birth	People initiating vaccination	Percent of people initiating vaccination	People fully vaccinated	Percent fully vaccinated	People partially vaccinated	Percent partially vaccinated	Eligible population (≥12 years)
Female	278,033	79%	259,279	73.3%	18,754	5.3%	353,734
Male	256,692	73%	237,232	67.2%	19,460	5.5%	353,216
Unknown	1,326	---	1,169	---	157	---	---
Total persons initiating vaccination	536,051	76%	497,680	70.4%	38,371	5.4%	706,950

Table 3: COVID-19 vaccine initiation by age group, Snohomish County

Age group in years	People initiating vaccination	Percent of people initiating vaccination	People fully vaccinated	Percent fully vaccinated	People partially vaccinated	Percent partially vaccinated	Eligible population (≥12 years)
12 to 15	24,442	58%	22,057	51.9%	2,385	5.6%	42,493
16 to 19	26,665	74%	24,184	66.8%	2,481	6.9%	36,208
20 to 34	114,306	75%	103,363	67.8%	10,943	7.2%	152,342
35 to 49	133,555	76%	123,959	70.2%	9,596	5.4%	176,569
50 to 64	128,882	76%	121,443	71.5%	7,439	4.4%	169,752
65+	108,201	83%	102,674	79.2%	5,527	4.3%	129,586
Total initiating vaccination	536,051	76%	497,680	70.4%	38,371	5.4%	706,950

Table 4: COVID-19 vaccine initiation by race and ethnicity, Snohomish County

Race/Ethnicity	People initiating vaccination	Percent of people initiating vaccination	People fully vaccinated	Percent fully vaccinated	People partially vaccinated	Percent partially vaccinated	Eligible population (≥12 years)
American Indian/Alaska Native	5,410	70%	4,927	63.4%	483	6.2%	7,774
Asian	70,752	83%	66,881	78.6%	3,871	4.6%	85,065
Black	16,935	80%	15,307	72.6%	1,628	7.7%	21,087
Multiracial	676	3%	630	2.6%	46	0.2%	24,104
Native Hawaiian or Pacific Islander	4,449	100%	4,075	104.4%	374	9.6%	3,904
White	306,557	61%	288,178	57.7%	18,379	3.7%	499,180
Other, non-Hispanic	59,072	---	54,163	---	4,909	---	---
Hispanic - All race	43,699	66%	38,953	59.2%	4,746	7.2%	65,836
Unknown	28,501	---	24,566	---	3,935	---	---
Total	536,051	76%	497,680	70.4%	38,371	5.4%	706,950

Figure 1: COVID-19 vaccine initiation rates by race and ethnicity, Snohomish County

Figure 2: Percent of people who initiated COVID vaccination by race/ethnicity and reporting period

Table 5: COVID-19 vaccine initiation by race and ethnicity relative-risk compared to non-Hispanic White

Race non-Hispanic	People initiating vaccination	Eligible population (≥12 years)	Percent of people initiating vaccination	Relative Risk	95% CI Lower	CI Upper
American Indian/Alaska Native	5,410	7,774	70%	1.1	1.1	1.2
Asian	70,752	85,065	83%	1.4	1.3	1.4
Black	16,935	21,087	80%	1.3	1.3	1.3
Multiracial	676	24,104	3%	0.05	0.04	0.05
Native Hawaiian or Pacific Islander	4,449	3,904	114%	1.9	1.8	1.9
White	306,557	499,180	61%	1.0		
Other, non-Hispanic	59,072	---	---	---	---	---
Hispanic	43,699	65,836	66%	1.1	1.1	1.1
Unknown	28,501	---	---	---	---	---
Total persons initiating vaccination	536,051	706,950	76%	---	---	---

Table 6: COVID-19 vaccine recipients by city of residency, Snohomish County, December 15, 2020 – September 12, 2020

City	Zip	People initiating vaccination	Percent of residents initiating vaccination	Total population
Bothell/Mill Creek	98012	52,675	82%	64,417
Edmonds	98020	15,975	79%	20,322
Bothell	98021	25,250	82%	30,753
Edmonds	98026	28,026	76%	36,729
Lynnwood	98036	29,854	75%	39,766
Lynnwood	98037	21,453	73%	29,402
Mountlake Terrace	98043	15,391	73%	21,126
Woodinville	98072	131	0%	38,364
Lynnwood	98087	27,485	70%	39,221
Everett	98201	19,598	66%	29,484
Everett	98203	23,596	66%	35,603
Everett	98204	26,484	62%	42,882
Everett	98208	39,413	69%	57,306
Arlington	98223	24,259	57%	42,880
Darrington	98241	1,043	54%	1,921
Gold Bar	98251	2,404	63%	3,846
Granite Falls	98252	5,540	58%	9,603
Lake Stevens	98258	30,641	93%	32,959
Marysville	98270	31,381	62%	50,972
Marysville	98271	18,226	64%	28,585
Monroe	98272	18,126	58%	31,416
Mukilteo	98275	16,698	79%	21,264
Snohomish	98290	22,616	63%	35,990
Stanwood	98292	14,460	64%	22,547
Sultan	98294	3,958	56%	7,127
Snohomish	98296	18,371	60%	30,373
Total	---	533,054	63%	844,400

*NOTES: 1. Data for this table is from the WAIS repository dataset 10/17/2021. Population data per zip code is from the 2018 data.census.gov. 2. Due to limitations in the data set, vaccine coverage figures may not be accurate. These data provide a rough estimate of coverage with respect to geography. For further details, see item 4 under “Data Assumptions/Caveats” in the Appendix.

Appendix A: Data cleaning and assumptions

1. All data is from the Washington State Department of Health Internal Data Dashboard, except for table 6.
2. Table 6 data is from the Washington State Immunization Information System repository dataset.
3. Population estimates are from the Washington State Office of Financial Management unless otherwise specified.

Data cleaning steps for table 6:

1. Final export is 1 row per RecipientID (unique person ID in repository) using last reported address data by vaccine administration date.
2. Remove known fake records.
3. Remove any records where vaccine was refused.
4. Remove duplicates and records where difference in days between vaccine administration dates is <6. Will need to run through a couple times to account for people who have >1 pair of records that meet these criteria.
 - a) remove exact duplicates on person, vaccine date, vaccine type
 - b) remove remaining records where difference in days between vaccine administration dates is <6. Keep most recently entered.
5. Deduplicate so that only 1 record per RecipientID remains, keeping the most recent record by vac administration date.
6. Recode unincorporated/PO box zip codes to the incorporated/parent zip code.
7. Keep zip codes of interest, exclude the rest. Exclude Woodinville (98072) where county is King (53033). This step excludes by person, not by record.
8. Export dataset with variables RecipientID, city, and zip code.
9. Export frequency table of records by zip code.

Data Assumptions/caveats:

1. Dataset is a snapshot of the WAIS backend/repository data. If an existing/historic record is updated in WAIS, updates will not be reflected in subsequent datasets on that exact row. Updated records may be reported as duplicates in the repository. General cleaning step 4 addresses this issue. This cleaning process is an attempt to mimic:
 - 1.1. the WAIS deduplication process (i.e., general step 4 to keep most recent record when vaccines administered within 5 days of each other)
 - 1.2. what may be shown in the final WAIS dataset of "true" vaccine doses administered
2. RecipientID is the variable used by DOH for unique identifier per person but is known to have some issues/inconsistencies. To be consistent with DOH, we use this unique identifier as well.
3. County code is based on zip code. There are known data quality issues with incorrect zip codes entered, resulting in incorrect county code. Also, several misspelled cities and occasional non-character cities. Addresses are not geocoded and have not been verified to be true locations or residence. Some cities/zip codes may be mismatched or misspelled.
4. Very few (<20) records of fake data are known to exist in the dataset. Those known to exist have been removed.