

Public Health Indicators

User Guidebook

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Introduction and Equity Considerations

The Multnomah County Health Department (MCHD) Public Health Indicators (PHI) dashboard is a tool for tracking the health of the population in the county. The dashboard provides up-to-date metrics on a variety of health indicators, including chronic diseases, injury, and behavioral health. These metrics are calculated using standardized methods to ensure consistency, accuracy, and reliability.

This document details the methods, data sources, and definitions of the indicators published in the PHI. The methods outlined below are the standards employed by the National Center for Health Statistics¹ and the data are obtained through administrative databases, such as the Oregon Health Authority's Vital records, and surveys of representative samples provided by the US Census Bureau. For information that does not appear in this document, please contact phi@multco.us.

In understanding health data and data on health equity, it is critical to have information about the underlying factors influencing health. According to the National Institutes of Health, 80% of health outcomes are the result of social and economic determinants of health, such as systemic racism, geographic disparities, regressive economic policies, the lasting impacts of settler colonialism, and lack of access to food, land, or healthcare.² As a result, this dashboard includes data not only on health, but also social determinants of health. Ultimately, we plan to include protective community factors as well, which support the health of communities and lessen inequities.

In developing this website, MCHD worked with community partners to understand these results from a community perspective. The PHI development team included staff from Community Partnerships and Capacity Building, and the team engaged community health workers from eleven community-based service organizations (CBO) to get important feedback on the data and how to interpret results. We will continue to update the dashboards and this website with additional feedback from community partners through local community health needs assessments.

MCHD recognizes that there are numerous limitations to these data. The data have biases arising from how they are gathered, analyzed, and shared. Many of these limitations are based in a long history in the U.S. of systemic racism and settler colonialism, which seek to erase the presence of indigenous people and people of color. The way data are currently collected and analyzed makes many communities invisible, including Tribal members, indigenous people, Native Hawaiians and Pacific Islanders, Arab Americans, and Slavic communities. We are exploring ways to address those gaps.

Public health equity is not only an end in itself but also a way of approaching the work. We are committed to using equity in the way we work on a daily basis. The gaps in our current data can serve as opportunities to develop new systems that respect and reflect the values and norms of the many communities that make up our county. We are beginning a long-term transition to an organizational culture that uses equity, anti-racist, and decolonizing frameworks and strategies to collaboratively create useful and meaningful public health data. The intent of these frameworks and strategies is to center communities, indigenous values, and history, while simultaneously sharing decision-making power and resources with communities that have been excluded, ignored, or made invisible. Additionally, these frameworks acknowledge the inherent right of communities to make decisions about their data.

¹ Kochanek KD, Murphy SL, Xu JQ, Arias E. Deaths: Final data for 2020. National Vital Statistics Reports; vol 72 no 10. Hyattsville, MD: National Center for Health Statistics. 2023. DOI: <https://dx.doi.org/10.15620/cdc:131355>.

² Hood CM, Gennuso KP, Swain GR, Catlin BB. County health rankings: relationships between determinant factors and health outcomes. *Am J Prev Med* 2016;50:129–135.

We're dedicated to maintaining a continuous conversation about the ways we collect, analyze, and use public health data, and ensuring that our efforts align with the needs and values of Multnomah County's diverse communities. If you or your group is interested in starting a project that lets the community lead the way in gathering and using health data, please get in touch with us (phi@multco.us). And if you have any questions about the Public Health Indicators website, feel free to reach out for more information.

Methods Standards

This section details the methods used in calculating the indicators present in the PHI. Included below are guidelines for choosing the correct population denominators, assigning demographic characteristics, and calculating each type of output in the dashboards.

Population Denominators

The PHI utilizes population denominator estimates provided by the US Census Bureau American Community Survey (ACS) and Public Use Microdata Sample (PUMS) data and the National Center for Health Statistics (NCHS). The NCHS estimates are obtained through the Oregon Public Health Assessment Tool (OPHAT). All mortality rates except those disaggregated by level of education use the NCHS population denominator estimates. OPHAT does not provide population estimates by level of education, so the ACS/PUMS data provide denominator estimates for outcomes by highest level of educational attainment. ACS/PUMS denominators are also used for all social determinants of health metrics obtained from the US Census Bureau. The specific ACS sample used depends on the type of analysis and is outlined below. In cases where the PHI re-publishes external data, the denominators and estimates will match the original data source. This is done to maintain clarity and continuity across sources of the same data.

Mortality denominators by county, race, sex, and age come from OPHAT. Oregon, Portland, and Gresham denominators come from ACS table B01001 (1-year for single years, 5-year for 5-year periods), with the under-5 count split 20% under 1 year and 80% ages 1–4. Education denominators come from ACS microdata (PUMS) person weights for Multnomah County residents age 25 and older, in six attainment levels and seven age groups (25–34 through 85 and older). Census tract denominators come from ACS 5-year table B01001. Because there is no standard 2020 ACS/PUMS 1-year release, 2020 single-year ACS/PUMS denominators are the average of 2019 and 2021 when used for analyzing trends in mortality.

County-level Analysis

- The ACS/PUMS provides population estimates used in calculations for the social determinants of health.
- The number of live births with a known value for the item serves as the denominator in calculations of birth outcomes (for example, births with a recorded birthweight).
- Birth outcomes use 5-year periods for the demographics and maps tabs and 3 consecutive 1-year periods for trends.
- The NCHS provides population estimates used in calculations for all mortality outcomes, except when the mortality rates are disaggregated by level of education.
- For mortality outcomes, calculations use 5-year population estimates for the final year of each time period for demographics and maps tabs and three consecutive 1-year estimates for trends.

Trend Analysis

- Trend analyses utilize the ACS or NCHS 1-year estimates.
- For birth and mortality outcomes, a rolling average of three years is used to smooth out fluctuations.³
- ACS trends use single-year ACS/PUMS 1-year estimates with no rolling average. There is no 2020 ACS/PUMS trend point because the Census Bureau released only experimental 1-year data for 2020.

Data Warning and Suppression

Small population sizes or rare events can lead to breaches of confidentiality and the statistics calculated from them may be unreliable. Data warnings and suppression are mechanisms to ensure confidentiality and reliability in public health reporting. Metrics published in the PHI follow the guidelines below when suppressing an estimate or providing a warning regarding low reliability.⁴

Suppression

For death estimates with a population size less than 50, a numerator size less than 5 but greater than 0, or a relative standard error (RSE) greater than 50%, the estimate and associated calculations are suppressed to avoid breaching confidentiality or presenting potentially misleading information.

For birth estimates, an estimate is suppressed when the numerator is 0 (“No cases”) or 1–4, and is published as “Confidential” when fewer than 50 births are in the denominator or when every birth in the group had the outcome. Because a breakdown’s groups add up to the county total, a second group is also hidden wherever a group is confidential so the hidden value cannot be worked out by subtraction. Suppressed birth estimates show no numerator, denominator, standard error, or RSE.

For ACS/PUMS estimates, an estimate and its associated calculations are suppressed when the numerator is 0 (“No cases”), when the numerator is 1–4, or when the RSE is 50% or higher. For demographic and trend estimates calculated from ACS microdata (PUMS), the 0 and 1–4 rules count unweighted survey respondents (households, for median income) rather than the weighted estimate, so an estimate resting on 1–4 people is withheld however large its weighted population. Commissioner district and neighborhood estimates are also suppressed as unreliable when their base (the denominator, or the number of households for median income) is under 50, because they are built from pieces of census tracts. No minimum population size is applied to census tracts or to Multnomah County, Oregon, Portland, and Gresham. The denominator is still shown for suppressed estimates.

Warning

For estimates with an RSE of at least 30% and less than 50%, a warning is included to inform users the estimate has a high proportion of error and should be interpreted with caution.

³ Due to the rolling average calculations, standard errors are more complex. Therefore, values in a trend line analysis should not be used for significance testing.

⁴ Greater detail regarding the criteria for warning or suppression may be found in the [MCHD Guidelines for Reliability when Reporting Small Numbers](#) and [Guidelines for Confidentiality and Reliability when Reporting Small Numbers](#).

Demographic Categories

The following coding is used for age, education, and race/ethnicity. Coding of demographic categories, such as age, race/ethnicity, and sex vary by data source.

Age

For calculation of age-adjusted rates, age groups follow the brackets as detailed below. For the calculation of crude rates disaggregated by age, brackets follow directions for specific data sources. For the ACS/PUMS social determinants of health, age groups depend on the indicator:

Dashboard	Indicator	Age Group
SDoH	Education	25–44, 45–64, 65–74, 75+
SDoH	Commuting	16–24, 25–44, 45–64, 65–74, 75+
SDoH	Unemployment	16–19, 20–24, 25–44, 45–64, 65–74, 75+
SDoH	Language	5–17, 18–24, 25–44, 45–64, 65–74, 75+
SDoH	Poverty and nativity	Under 18, 18–24, 25–44, 45–64, 65–74, 75+
SDoH	Household indicators (age of householder)	18–24, 25–44, 45–64, 65–74, 75+
SDoH	Median household income (age of householder)	15–24, 25–44, 45–64, 65–74, 75+
Birth	All	Under 17, 18–24, 25–34, 35–44, 45+
Death	All	Under 17, 18–24, 25–44, 45–64, 65–74, 75+

Education

For analyses disaggregated by education, the categories include less than high school, high school diploma or GED, some college (without a degree), associate degree, bachelor's degree, and graduate or professional degree. For social determinants of health and mortality data, estimates by educational attainment are included for respondents ages 25 and older. For birth data, all ages are included.

Race/ethnicity

Race and ethnicity categories follow the revised Statistical Policy Directive No. 15 from the federal Office of Management and Budget (OMB). This method treats Hispanic or Latino ethnicity as a racial category and presents non-Hispanic, mutually exclusive categories for American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. A multi-racial category is assigned if the individual provides two or more non-Hispanic races. Although the OMB directive includes the Middle Eastern/North African category, these data will not appear in the PHI until our data collection and reporting systems are revised to tabulate this group. We are not able to calculate rates for non-Hispanic "Other" races due to the lack of reliable population denominators. The small and variable population sizes of these groups often result in statistical uncertainties that make accurate rate calculations challenging.

The ACS/PUMS still asks about race and Hispanic or Latino origin in two separate questions. The PHI combines them into the categories above, with Hispanic or Latino people of any race in one group. For ACS/PUMS household indicators (housing cost burden, SNAP, and linguistic isolation), race/ethnicity, age, sex, and poverty level describe the householder.

For births, race and ethnicity describe the mother. Hispanic or Latino origin takes precedence over race, two or more races are published as Multi-racial, and "Other" is not counted as a second race. Oregon birth certificates changed their race fields between 2021 and 2022, so births from 2021 on read both the older and newer fields, and write-in answers are matched against a reviewed list. This shift in fields for reported race and ethnicity result in an increase in the population identifying as Hispanic or Latino and Multi-racial. This change in race fields does not appear in the death data.

Calculations

Mortality Rates

Crude Rate

Mortality rates are presented as deaths per 100,000 population. All analyses for sub-county geographies use crude rates. Only eligible members of the population are included in the denominator. For example, sex and age-specific rates are calculated using the denominators for each sex and age group.

Formula:

None

$$\text{Crude Rate} = (N / D) * 100,000$$

Where:

- N is the number of cases or events in the numerator
- D is the sample or population size

Example:

Between 2020 and 2024, there were 32,084 deaths from all causes in Multnomah County. The total population of Multnomah County for this period was 4,033,318. The crude death rate from all causes in Multnomah County from 2020-2024 was 795.5 per 100,000 population.

None

$$\begin{aligned}\text{Crude Rate} &= (32,084 \text{ deaths} / 4,033,318 \text{ population}) * 100,000 \\ &= 795.5 \text{ deaths per } 100,000 \text{ people}\end{aligned}$$

Age-adjusted Rate

The age-adjusted rate is a measure of disease frequency that takes into account the age distribution of the population in order to compare different populations to each other. It is calculated by applying the age-specific weights from a standard population to the age distribution of the population being studied and summing the results. Age-adjusted rates are calculated using the 2000 US standard population weights (Table 1). Note that age-adjusted weights are relative and used for comparisons of population. They are not actual measures of mortality risk, and do not convey the magnitude of the problem.⁵ For greater detail on the population weights, please see the Centers for Disease Control and Prevention (CDC) [publication on age adjustment](#).⁶

Formula (see Table 2):

None

$$\text{Age-adjusted Rate} = \Sigma(R_i * W_i)$$

Where:

- R_i is the age-specific rate for age group i
- W_i is the age-specific weight for age group i
- Σ sums the values across all age groups

Example:

The age-adjusted death rate from all causes in Multnomah County from 2020-2024 was 797.8 per 100,000 population. This rate was calculated by multiplying the age-specific death rate by the age-specific 2000 US standard population weight and adding the values across all age groups. To maintain consistency across health surveillance platforms, the PHI adopted the age-adjustment method implemented by OPHAT. See Table 2 for a detailed calculation.

⁵ New Jersey Department of Health. Age-Adjusted Death Rate. Accessed July 21, 2025.

<https://www-doh.state.nj.us/doh-shad/home/AARate.html>. Note that the number of age brackets and exact weights may vary, but the weights will always sum to 1. The PHI uses 11 age groupings to mirror the methods to reproduce estimates by the Oregon Health Authority and the [Oregon Public Health Assessment Tool](#).

⁶ Klein RJ, Schoenborn CA. Age adjustment using the 2000 projected U.S. population. Healthy People Statistical Notes, no. 20. Hyattsville, Maryland: National Center for Health Statistics. January 2001.

Table 1: Population weights for age adjustment

Age Group	Standard Population Weight (W_i)
Under 1 year	0.013818
1 to 4 years	0.055316
5 to 14 years	0.145563
15 to 24 years	0.138646
25 to 34 years	0.135575
35 to 44 years	0.162614
45 to 54 years	0.134835
55 to 64 years	0.087249
65 to 74 years	0.066035
75 to 84 years	0.044841
85 years and over	0.015509

Table 2: Calculation of an age-adjusted rate

Age Group	Deaths (N_i)	Population (P_i)	Age-specific Rate per 100,000 (R_i)	Standard Population Weight (W_i)	Expected Deaths $\Sigma(R_i * W_i)$
Less than 1 year old	157	37,364	420.2	0.013818	5.81
1 to 4	26	147,175	17.7	0.055316	0.98
5 to 14	54	396,667	13.6	0.145563	1.98
15 to 24	415	434,380	95.5	0.138646	13.25
25 to 34	1,045	721,049	144.9	0.135575	19.65
35 to 44	1,684	689,353	244.3	0.162614	39.72
45 to 54	2,420	549,972	440.0	0.134835	59.33
55 to 64	4,655	440,434	1,056.9	0.087249	92.21
65 to 74	7,169	367,963	1,948.3	0.066035	128.66
75 to 84	7,599	166,941	4,551.9	0.044841	204.11
85 and over	8,395	56,085	14,968.4	0.015509	232.14
Totals	33,619	4,007,383	838.9		797.8

Age-adjusted
Rate per
100,000 people

Years of Potential Life Lost Rate

Years of Potential Life Lost (YPLL) is a measure of premature mortality. When calculated in relation to age 75, it quantifies the number of years a person would have lived had they survived to age 75, subtracting their age at death from 75. For example, if an individual dies at age 40, they contribute 35 YPLL ($75 - 40 = 35$).

The PHI uses age 75 to approximate the current life expectancy in YPLL calculations because it serves as a reasonable benchmark for a full lifespan in many developed countries. This allows for consistent comparisons of premature death across different populations and over time. Below is an example of how to calculate a crude YPLL rate per 100,000 population. YPLL rates presented in the PHI are not age-adjusted.

Formula:

None

$$\text{Years of Potential Life Lost Rate} = (\sum(75-A_i) / D) * 100,000$$

Where:

- A_i is the age at death of each individual who died under the age of 75
- D is the size of the population under the age of 75

Example:

This is a hypothetical example to protect confidentiality. There were 6 deaths from tuberculosis from 2020-2024 and the ages of these individuals ranged from 7 to 82.

Table 3: Calculation of years of potential life lost

Age of Individual (A_i)	Years of Potential Life Lost ($75-A_i$)	Population under 75 (D)	Years of Potential Life Lost Rate ($\sum(75-A_i) / D$)
7	68		
12	63		
45	30		
68	7		
72	3		
82	0		
Total	171	4,024,432	4.25

Years of Potential Life Lost Rate
per 100,000

Standard Error

The standard error (SE) is a measure of the precision of a rate, with smaller values indicating a more precise estimate. The calculation of the SE depends on how rare the event is. For mortality rates, it is calculated by dividing the rate by the square root of the number of cases. For birth data, the SE is equal to the square root of the proportion multiplied by one minus the proportion, all divided by the total sample size. The SE is used to construct confidence intervals around the rate.

SE of Crude Mortality Rate

Formula:

None

$$\text{SE of Crude Rate} = (R / \sqrt{N})$$

Where:

- R is the rate
- N is the number of events or positive cases

Example:

The crude mortality rate from all causes in Multnomah County from 2015-2019 was 795.5 per 100,000 people, with a total of 32,084 deaths. The standard error of the crude mortality rate is 4.21.

None

$$\begin{aligned}\text{SE of Crude Rate} &= (795.5 \text{ deaths per } 100,000 \text{ people} / \sqrt{32,084} \\ &\text{deaths}) \\ &= 4.44\end{aligned}$$

SE of Age-adjusted Mortality Rate

Formula (see Table 4):

None

$$\text{SE of Age-adjusted Rate} = \sqrt{\sum (SE_i * W_i)^2}$$

Where:

- SE_i is the standard error of the age-specific rate for age group i
- W_i is the age-specific weight for age group i
- Σ sums the values across all age groups

Example:

The standard error of the age-adjusted death rate from all causes in Multnomah County from 2020-2024 is 4.42. See Table 4 for a detailed calculation.

Table 4: Calculation of the standard error for an age-adjusted rate

Age Group	Deaths (N _i)	Population (D _i)	Age-specific Rate per 100,000 (R _i)	Age-specific Standard Error (SE _i)	Standard Population Weight (W _i)	Weighted Age-specific Standard Error (SE _i *W _i)	Squared Variance (SE _i *W _i) ²	Standard Error $\sqrt{\sum (SE_i * W_i)^2}$
Less than 1	157	37,364	420.2	33.54	0.013818	0.4633951	0.2147	
1 to 4	26	147175	17.7	3.47	0.055316	0.1920160	0.0369	
5 to 14	54	396,667	13.6	1.85	0.145563	0.2693972	0.0726	
15 to 24	415	434,380	95.5	4.69	0.138646	0.6499601	0.4224	
25 to 34	1,045	721,049	144.9	4.48	0.135575	0.6077009	0.3693	
35 to 44	1,684	689,353	244.3	5.95	0.162614	0.9680780	0.9372	
45 to 54	2,420	549,972	440.0	8.94	0.134835	1.2060009	1.4544	
55 to 64	4,655	440,434	1056.9	15.49	0.087249	1.3515575	1.8267	
65 to 74	7,169	367,963	1948.3	23.01	0.066035	1.5195001	2.3089	
75 to 84	7,599	166,941	4551.9	52.22	0.044841	2.3414764	5.4825	
85 and over	8,395	56,085	14968.4	163.37	0.015509	2.5336629	6.4194	
Totals	33,619	4,007,383	838.9	4.58			19.545	4.42

Standard
Error of
Age-adjusted
Rate per
100,000

SE of Birth Percentages

Formula:

None

$$SE \text{ of Birth Percentage} = \sqrt{((P * (1 - P)) / N)}$$

Where:

- P is the percentage shown as a proportion
- N is the sample or population size

Example:

The percentage of babies born to parents on OHP/Medicaid in Multnomah County from 2020-2024 was 42.1% (0.421 as a proportion), with a total of 36,015 total births. The standard error of the proportion is 0.26.

None

$$SE \text{ of Percentage} = \sqrt{((0.421 * (1 - 0.421)) / 36,015 \text{ live births})}$$

$$= 0.26$$

SE of Estimates from ACS/PUMS

ACS estimates come from a sample survey, so their standard errors measure sampling error, not the count-based formulas above. The method depends on where the estimate comes from: the Census Bureau's published tables or the survey's individual records (microdata). For details regarding how the standard error is calculated for ACS/PUMS data, see the US Census publication on [measuring sampling error](#).⁷

Relative Standard Error

The relative standard error (RSE) is a measure of the precision of a rate relative to its size. It is calculated by dividing the standard error of the rate by the rate. The RSE is used to compare the precision of different rates.

RSE of Crude and Age-adjusted Rates

Formula:

None

$$\text{RSE of Rate} = 100 * \sqrt{(1 / N)}$$

Where:

- N is the number of events or positive cases

Example:

From 2020-2024, a total of 32,084 deaths occurred among residents of Multnomah County. The RSE for the crude rate is 0.558.

None

$$\begin{aligned}\text{RSE of the Crude Rate} &= 100 * \sqrt{(1 / 32,084 \text{ total deaths})} \\ &= 0.558\end{aligned}$$

RSE of Percentages

⁷ U.S. Census Bureau. American Community Survey Public Use Microdata Sample (PUMS) Accuracy of the Data (2020–2024). https://www2.census.gov/programs-surveys/acs/tech_docs/pums/accuracy/2020_2024AccuracyPUMS.pdf

Formula:

None

$$\text{RSE of the Percentage} = 100 * (\text{SE} / P)$$

Where:

- SE is the standard error of the percentage
- P is the percentage

Example:

From 2020-2024, 42.1% of births in Multnomah County were to parents on OHP/Medicaid, with a standard error of 0.26. The RSE of the percentage is 0.62.

deaths occurred among residents of Multnomah County. The RSE for the crude rate is 0.59.

None

$$\begin{aligned}\text{RSE of the Percentage} &= 100 * (0.26 / 42.1) \\ &= 0.62\end{aligned}$$

Confidence Interval

Confidence intervals provide a range of values that is likely to contain the true value of a metric within the population. This information is used to make comparisons across demographic groups, geographies, and time periods. The formula for calculating the confidence interval depends on the number of events (counts or numerators) in the rate calculation. PHI metrics include 95% confidence intervals alongside rate calculations.

For ACS estimates, the 95% confidence interval is the estimate $\pm 1.96 \times \text{SE}$ regardless of the count, using the SE described under SE of ACS Estimates. A lower limit below 0 is set to 0, and the upper limit is not capped at 100%. The method for counts below 100 is not used for ACS estimates. A median income reported as “or more” or “or less” has a one-sided interval (for example, “\$200,000 or more”), calculated with the Census Bureau’s median-interval method.

Calculating Confidence Intervals for Estimates with Counts ≥ 100

Formula:

None

$$\text{Lower Limit} = P - 1.96 * \text{SE}$$

$$\text{Upper Limit} = P + 1.96 * \text{SE}$$

Where:

- P is the sample proportion or rate
- SE is the standard error of the estimate

Example:

The crude all-cause mortality rate in Multnomah County (2020-2024) was 795.5 deaths per 100,000 people with a standard error of 4.44. The lower limit is 789.2 and the upper limit is 804.2.

None

$$\begin{aligned}\text{Lower Limit} &= 795.5 \text{ deaths per } 100,000 \text{ people} - 1.96 * 4.44 \\ &= 789.2\end{aligned}$$

$$\begin{aligned}\text{Upper Limit} &= 795.5 \text{ deaths per } 100,000 \text{ people} + 1.96 * 4.44 \\ &= 804.2\end{aligned}$$

Calculating Confidence Intervals for Estimates with Counts < 100

Formula:

For rates based on counts of less than 100 events we use a different statistical distribution to calculate the confidence interval than used for more common events. The change in method eliminates the possibility of lower confidence limits falling below zero. The upper and lower limits of the confidence interval for a rate based on fewer than 100 cases in the numerator are found in Table 5 below. For birth estimates with fewer than 100 births with the outcome, the interval is the Clopper–Pearson binomial interval rather than the factors in Table 5. Birth estimates with 100 or more use the estimate $\pm 1.96 \times \text{SE}$. Birth intervals are kept within 0% and 100%.

None

$$\text{Lower Limit} = R * L(X)$$

$$\text{Upper Limit} = R * U(X)$$

Where:

- R is the rate
- L is the factor associated with the number of cases
- X the number of cases

Example:

In a hypothetical example, from 2020-2024 there were 6 deaths from tuberculosis for a crude rate of 0.149 deaths per 100,000 people. The lower confidence limit for the mortality rate from

tuberculosis is 0.055 and the upper limit is 0.324.

None

$$\begin{aligned}\text{Lower Limit} &= 0.149 * 0.366982 \\ &= 0.055\end{aligned}$$

$$\begin{aligned}\text{Upper Limit} &= 0.149 * 2.176579 \\ &= 0.324\end{aligned}$$

Table 5. Lower and upper 95% confidence limit factors for mortality rate when number of deaths < 100

Number of deaths (D)	Lower confidence limit factor (L)	Upper confidence limit factor (U)	Number of deaths (D)	Lower confidence limit factor (L)	Upper confidence limit factor (U)
1	0.025318	5.571643	51	0.744566	1.314815
2	0.121105	3.612344	52	0.746848	1.311367
3	0.206224	2.922424	53	0.749069	1.308025
4	0.272466	2.560397	54	0.751231	1.304783
5	0.324697	2.333666	55	0.753337	1.301637
6	0.366982	2.176579	56	0.755389	1.298583
7	0.402052	2.060382	57	0.75739	1.295616
8	0.431729	1.970399	58	0.759342	1.292732
9	0.457264	1.898311	59	0.761246	1.289927
10	0.479539	1.839036	60	0.763105	1.287198
11	0.499196	1.789276	61	0.764921	1.284542
12	0.516715	1.746799	62	0.766694	1.281955
13	0.532458	1.71003	63	0.768427	1.279434
14	0.546709	1.67783	64	0.770122	1.276978
15	0.559692	1.649348	65	0.771779	1.274582
16	0.571586	1.623937	66	0.7734	1.272245
17	0.582537	1.601097	67	0.774986	1.269965
18	0.592663	1.580431	68	0.776539	1.267738
19	0.602065	1.561624	69	0.77806	1.265564
20	0.610826	1.544419	70	0.779549	1.26344
21	0.619016	1.528606	71	0.781008	1.261364
22	0.626695	1.514012	72	0.782438	1.259335
23	0.633914	1.500491	73	0.78384	1.25735
24	0.640719	1.487921	74	0.785215	1.255408
25	0.647147	1.476197	75	0.786563	1.253509
26	0.653233	1.465232	76	0.787886	1.251649
27	0.659006	1.454947	77	0.789184	1.249828

28	0.664493	1.445278	78	0.790459	1.248045
29	0.669716	1.436167	79	0.791709	1.246298
30	0.674696	1.427562	80	0.792938	1.244587
31	0.679451	1.41942	81	0.794144	1.242909
32	0.683999	1.411702	82	0.79533	1.241264
33	0.688354	1.404372	83	0.796494	1.23965
34	0.692529	1.3974	84	0.797639	1.238068
35	0.696537	1.390758	85	0.798764	1.236515
36	0.700388	1.384422	86	0.799871	1.234992
37	0.704092	1.378368	87	0.800959	1.233496
38	0.70766	1.372578	88	0.802029	1.232028
39	0.711098	1.367033	89	0.803082	1.230586
40	0.714415	1.361716	90	0.804118	1.22917
41	0.717617	1.356613	91	0.805138	1.227778
42	0.720712	1.351709	92	0.806141	1.226411
43	0.723705	1.346993	93	0.807129	1.225068
44	0.726602	1.342453	94	0.808102	1.223747
45	0.729407	1.338079	95	0.80906	1.222448
46	0.732126	1.33386	96	0.810003	1.221171
47	0.734762	1.329788	97	0.810933	1.219915
48	0.737321	1.325855	98	0.811848	1.21868
49	0.739806	1.322053	99	0.812751	1.217464
50	0.742219	1.318375			

SOURCE: Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National Vital Statistics Reports; vol 47 no. 3. Hyattsville, MD: National Center for Health Statistics. 1998.

Reference Group

In all presented analyses, the reference group used is the Multnomah County estimate for the same indicator and time period. This reference provides a consistent baseline for interpreting differences and assessing variations across subpopulations within the county. For social determinants indicators, the county estimate comes from the published ACS tables: the 5-year estimate for the demographics and maps tabs and the 1-year estimate for trends. Demographic group estimates come from Census microdata (PUMS), so they may not average exactly to the county value.

Significance Testing

When comparing two rates, significance testing helps determine whether the observed differences are statistically meaningful or just due to random variation. There are various statistical methods to assess significant differences between two estimates. While more complex methods improve the accuracy of the significance test, a simpler approach captures nearly all significant differences in an easy visual interpretation. Significant differences are identified by examining the 95% confidence

interval. If the confidence intervals for two rates do not overlap, the difference between the rates is considered significant. If the confidence intervals overlap, the difference is not statistically significant. Estimates that carry a reliability warning (RSE of at least 30% and less than 50%) or are suppressed show neither a comparison with the county (higher or lower) nor a significance flag.

Geospatial Analysis

The major geographies for calculating metrics are the County, Commissioner District, neighborhood, and Census tract levels. Commissioner district, neighborhood, and tract results are crude rates or percentages. They are not cross-tabulated with any other demographic (e.g., females in the Montavilla neighborhood).

Census Tracts:

Each 5-year period is shown on the census tracts the Census Bureau used for that period. Periods ending in 2019 or earlier use 2010 tracts (170 shown), and periods ending in 2020 or later use 2020 tracts (196 shown). Data are not converted between the 2010 and 2020 boundaries, so tract values are not directly comparable across that change.

Commissioner Districts:

Periods ending in 2019 or earlier use the 2010 district lines, and periods ending in 2020 or later use the county's post-2020 district lines. The four districts cover the whole county without overlapping.

Neighborhoods:

The 136 neighborhoods are the same in every period. Neighborhood boundaries overlap, so a person, birth, or death can count toward more than one neighborhood. Four neighborhoods have no residents (Lake Oswego Area, Mt. Hood Forest Area, Troutdale Area, and Government Island Area) and are always shown as suppressed.

How Each Data Source is Mapped

Social Determinants of Health (ACS/PUMS):

The Census Bureau publishes ACS 5-year estimates for census tracts but not for neighborhoods or commissioner districts. Neighborhood and district estimates are built from tracts using population weights (described below). Each tract's estimates and margins of error are multiplied by its weight for a neighborhood or district and rounded. Estimates are then summed, and margins of error are combined as the square root of the sum of their squares.

Median household income cannot be combined this way, because medians cannot be added together. For neighborhoods and districts, median income is re-estimated from the number of

households in each income bracket, combined with the same weights.⁸ A neighborhood or district estimate whose base is fewer than 50 people or households is suppressed as unreliable.

Births and Deaths:

Each birth or death of a county resident is placed directly in the census tract, commissioner district, and every neighborhood that contains the mother's or decedent's residence address, on the boundaries for that period. A birth or death whose address cannot be placed is left off the map but is still included in county totals.

Population denominators for the mortality rates use the population estimates described below. Each tract's ACS 5-year population is multiplied by its weight for the neighborhood or district, rounded, and summed.

Population Weights

The PHI uses population weights, which allocate a tract's data according to where its residents live. The weights come from the Census Bureau's TIGER/Line census block files, which include each block's decennial census population (2010 or 2020). Each block is placed in a commissioner district and a neighborhood using a point that lies inside the block. A tract's weight for a district or neighborhood is the population of the tract's blocks inside that unit divided by the tract's total population. 2010 blocks are used with 2010 tracts and the 2010 district lines, and 2020 blocks with 2020 tracts and the post-2020 district lines. A few blocks along river edges fall between district boundaries. For these cases, each is assigned to the nearest district. Due to overlapping neighborhoods, a block inside two neighborhoods counts toward both. A tract's neighborhood weights can therefore add up to more than 1, or to less than 1 where part of the tract lies outside every neighborhood.

Geospatial Data and Tools

All boundary files are combined into one map file. It contains the 2010 and 2020 census tracts (from Census TIGER/Line files), the 2010 commissioner districts, the county's post-2020 commissioner districts, and the 136 neighborhoods. The map file and the population weights are built in Python, using the geopandas package, and stored as reference files.

⁸ For detail on how the US Census calculates median income, see: U.S. Census Bureau. American Community Survey and Puerto Rico Community Survey 2024 Subject Definitions. "Income in the Past 12 Months: Median Income." https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2024_ACSSubjectDefinitions.pdf

Data Sources

This section contains information on each data source included in the PHI.

American Community Survey

The American Community Survey (ACS) is a continuous household survey conducted nationwide by the U.S. Census Bureau. The ACS gathers and publishes data on the population's demographic, social, economic, and housing characteristics. These data act as the denominator for calculating health event and status rates in Multnomah County. Furthermore, ACS data constitutes the primary source of information used in assessing the social determinants of health (SDoH) within the county. The information provided below and additional frequently asked questions are available in the ACS Information Guide.⁹

Who collects the data?

The ACS is a study conducted by the U.S. Census Bureau that gathers data from households primarily through online and mail-in methods. Additionally, some interviews are conducted over the phone or in person.

Who owns the data?

The data are owned by the U.S. Census Bureau and available at data.census.gov.

How is the data collected?

The Census Bureau uses multiple methods to encourage participation in the survey. First, households are encouraged to complete the survey online. Households that do not respond online are mailed a paper survey, followed by phone and in-person interviews for a sub-sample of non-responding households. The Census Bureau provides language support to ensure everyone can participate. The print surveys are in English, with instructions for requesting language support via telephone in Spanish, Russian, Chinese, Korean, and Vietnamese.

Who is included and excluded from the data?

⁹ U.S. Census Bureau. American Community Survey Information Guide. Updated December 18, 2024. Accessed July 21, 2025. <https://www.census.gov/programs-surveys/acs/about/information-guide.html>

Every year, the Census Bureau conducts a survey of over 3.5 million households and group living quarters, such as college dormitories and correctional facilities, located throughout the United States. The bureau maintains a comprehensive record of addresses for residential units, group quarters, and non-residential properties across the country. This database, combined with records of newly constructed housing units and other address updates, forms the basis for identifying potential participants in the American Communities Survey (ACS). However, the ACS methodology may inadvertently exclude individuals who lack a traditional residential address.

Where is the data collected?

ACS data are collected from households across the 50 U.S. states, the District of Columbia, and Puerto Rico. Counties are the primary subdivisions of states. Tracts are smaller statistical subdivisions of counties. Multnomah County had 171 census tracts in the 2010 Census and 197 in the 2020 Census. ACS data are collected from a representative sample of households in each county and tract. A representative sample is a subset of the population that reflects characteristics of the broader population.

Each 5-year period is shown on the census tracts the Census Bureau published it on. Periods ending in 2019 or earlier use 2010 tracts (170 shown), and periods ending in 2020 or later use 2020 tracts (196 shown). Estimates are not converted between the two sets of boundaries, so census tract and commissioner district values are not directly comparable across that change.

Why is the data collected?

The ACS is a comprehensive survey designed to provide insightful information about the United States population. It covers various aspects such as social, economic, housing, and demographic characteristics. The federal government agencies leverage this data to make informed policy decisions, allocate funding, and evaluate the effectiveness of various programs. Additionally, state and local agencies utilize the ACS to plan and develop critical services like roads, hospitals, and schools, ensuring that they align with the needs of the communities they serve.

How often is this data collected?

The ACS is conducted throughout the year. The data are released annually in the form of 1-year and 5-year estimates. The 5-year estimates are meant to be representative of the population at multiple levels of geography over the period in which the data are collected. The collection period of 5 years offers a more accurate estimate of the population over that time period, but does not offer numbers as recent as the 1-year estimates. The 1-year estimates are available for geographic areas with at least 20,000 people. These estimates provide the most recent estimates of populations, yet have a

larger margin of error due to the lower number of households and individuals surveyed over a short period of time.

The PHI uses the most recent 1-year estimates to analyze changing trends over time. To obtain a large enough sample size to analyze differences across populations within the county, ACS 5-year estimates are used for results that disaggregate by demographic characteristics. The ACS 5-year estimates are also used in analyzing populations below the county-level. This means that the rates presented for any subdivision of the county (e.g., neighborhood or commissioner district) use the 5-year estimates.

Demographic breakdowns come from the ACS Public Use Microdata Sample (PUMS), the individual survey records released with each ACS release: 5-year PUMS for the demographics tab and 1-year PUMS for trends. Multnomah County is defined by its Public Use Microdata Areas (PUMAs 5101–5116 on 2020 boundaries; 1301–1316 on 2010 boundaries). Totals for Multnomah County, Oregon, Portland, and Gresham come from the published ACS tables.

What else is important to know about this data?

In 2020, the COVID-19 pandemic created challenges to data collection for the ACS. The Census Bureau developed new ways of accounting for the lower response rates. With these new techniques, the Census Bureau considers the 1-year ACS data from 2020 to be experimental and does not recommend publication. For more information on the efforts made to correct for non-response in 2020, please refer to [the Census Bureau's overview of how they addressed the issue](#).¹⁰

To ensure the data collected through the ACS accurately reflects the populations it represents, the Census Bureau employs a statistical process known as weighting. Weighting adjusts for demographic imbalances between survey respondents and the broader population they represent, like households in Multnomah County. The ACS weights estimates based on age, race/ethnicity, sex, relationship to the owner or renter of the home, marital status, citizenship status, and highest level of educational attainment. This process allows the results of the ACS to be generalized to all households in Multnomah County, not just those who participate in the survey. Weighting is commonly used in large-scale population-based surveys to enhance the representativeness of the data.

The US Census Bureau data presented in the PHI do not contain information on granular racial or ethnic identities as outlined in the [OHA race, ethnicity, language, and disability \(REALD\)](#) data collection guidelines. Likewise, the Census Bureau does not

¹⁰ U.S. Census Bureau. An Overview of Addressing Nonresponse Bias in the American Community Survey During the COVID-19 Pandemic Using Administrative Data. Random Samplings blog. Published November 2021. Accessed July 21, 2025.
<https://www.census.gov/newsroom/blogs/random-samplings/2021/11/nonresponse-acsv-covid-administrative-data.html>

currently publish data regarding sexual orientation and gender identity (SOGI). When REALD and SOGI data become available by these agencies, they will be included in the dashboards for social determinants of health in Multnomah County.

Oregon Health Authority Vital Records

Statistics on births and deaths in Multnomah County are compiled and analyzed from the Oregon Health Authority (OHA) Vital Records database. Vital records provide crucial information about the health of Oregonians, including leading causes of death, low birth weight babies, and access to prenatal care. This data is essential for understanding health trends, planning programs, and developing policies within Multnomah County.

Who collects the data?

OHA records all birth and death events which occur in Oregon. The database is maintained by OHA and Multnomah County Health Department (MCHD) accesses the data through a secure connection and data use agreement.

Who owns the data?

The data are collected and stored by the OHA Center for Health Statistics.

How is the data collected?

Birth and death record data are essential for monitoring public health trends, developing policies, and planning for future needs. Vital records birth data is primarily obtained through birth certificates. These certificates include information such as the child's name, date and place of birth, sex, race or ethnicity, and birthweight. The database also has details on the parents, such as ages, occupations, and levels of education. The data provides valuable insights into various aspects of family health, including fertility rates, prenatal care, and healthy birth weights. Location data, such as residence at birth, is used to examine different patterns in fertility across neighborhoods and districts in the county.

Vital records mortality statistics are obtained through death certificates filed with the State of Oregon. The database contains details such as the deceased's name, date and place of death, and demographic information. The records include the underlying or primary cause of death, along with contributing factors. Mortality data is used to estimate life expectancy, analyze trends in the leading causes of death, and explore disparities in death rates. The mortality data contains residence of the deceased along

with the location of death. This information allows us to compare areas of the county and examine geographic patterns of causes of death.

Who is included and excluded from the data?

All births and deaths among residents of Multnomah County will be captured in the data. County birth and death totals, demographic breakdowns, and maps use births and deaths among Multnomah County residents. Oregon totals use births and deaths among all Oregon residents. Portland and Gresham totals use the residence city on the certificate, across every Oregon county, including the parts of each city outside Multnomah County.

Where is the data collected?

The data are collected at birth or at the pronouncement of death by the attending care provider (typically a physician or nurse). The data are stored electronically with OHA.

Why is the data collected?

Vital records birth and death data play a critical role providing insights into the health status of Multnomah County's population. Birth records provide information on prenatal care and maternal health so that health care professionals and local governments can plan programs and interventions to improve outcomes among populations in need. Death certificate data details the burden of disease throughout the county and provides county and community leaders another tool to use in allocating resources and planning programs to improve health.

What else is important to know about this data?

Access to Oregon vital records is restricted. Birth data are restricted for 100 years following the birth of the child and death data are restricted for 50 years following the death. Once these time thresholds are passed, the data are transferred to the Oregon State Archives. Multnomah County analysts undergo training and sign data use agreements to ensure that data are properly aggregated and confidentiality is maintained.

The birth and death data from OHA Vital Records do not currently contain REALD or SOGI information. As these systems publish REALD and SOGI data in the future, this information will be incorporated into the dashboards for births and deaths in Multnomah County. This will ensure a more comprehensive understanding of the health needs and experiences of the population in the county.

Data Release Schedule

Data for each dashboard will be released as they are finalized and made available from each source. Listed below are tentative timelines of release for each dashboard. All data will be released with a lag in reporting. The births and deaths data will be released in the fall of the following year (Ex: 2025 data will be available in November 2026). Data on the social determinants of health will lag by at least a full calendar year (Ex: 2025 data will be available in March 2027). These schedules are tentative and depend on the release date from the source, such as Oregon Health Authority or the US Census Bureau.

Dashboard	Annual Release Schedule
Births	November
Deaths	November
Social Determinants of Health	March (at least 1 full year)

Indicators Definitions and Notes

This section contains notes on the demographic categories and definitions of the metrics included in the PHI site. It is broken down into two subsections. The first section outlines demographic characteristics used for disaggregation of results and the second section defines the indicators currently published.

Demographic Category Definitions and Notes

The indicators in the next section are broken down into demographic categories to present outcomes by group characteristics. Outlined below are explanations of how we present data for race and ethnicity, sex, disability status, household income, and poverty. Other demographic categories, such as age and highest level of education, are self-explanatory. Demographic categories that also serve as indicators in the PHI are explained in the [Outcome Indicator Definitions and Notes](#) section below. These categories include median income, household income as a percentage of the Census Poverty Threshold, and nativity or citizenship status.

Race and Ethnicity

In public health analyses, the use of race and ethnicity as variables are included in both the ACS and Vital Records data. Analyzing health outcomes by race and ethnicity is intended to highlight disparities and uncover inequities rooted in structural racism. Racial and ethnic health inequities reflect the unequal distribution of resources, opportunities, and health outcomes and do not suggest inherent biological differences between groups. This approach aims to underscore the social determinants of health that arise from systemic inequities, emphasizing how racism, rather than race or ethnicity itself, drives adverse health impacts.

Caution is necessary when analyzing health data by broad racial and ethnic categories for several reasons. First, population undercounts can artificially inflate rates of health outcomes, a significant concern for data involving Native Hawaiian, Pacific Islander, American Indian, and Alaska Native populations. Second, significant health variations exist *within* each racial and ethnic group. For example, the social and health outcomes of Multnomah County's Slavic community may differ from the broader 'White' category, just as outcomes for American Indian or Alaska Native individuals can vary by tribal affiliation. While this analysis helps highlight the persistent impacts of systemic racism and colonization, the findings represent group-level trends and should not be interpreted as characteristic of every individual within a community.

Race and ethnicity categories in the PHI reflect the minimum required by the 2024

Office of Management and Budget (OMB) Statistical Policy Directive No. 15.¹¹ These revisions, the first since 1997, mandate the use of a single, combined question for race and ethnicity, allowing individuals to select all categories that apply to how they identify. This approach addresses the limitations of previous categories, which did not sufficiently reflect the diversity in our community and often masked disparities for specific groups. A significant revision includes the addition of Middle Eastern/North African as a distinct, minimum reporting category, whereas previously individuals of Middle Eastern or North African origin were categorized under White. As data systems integrate these new standards, including the collection of additional detail beyond the minimum required categories by default, these categories will become more granular, enhancing the visibility of diverse racial and ethnic groups.

The race and ethnicity categories in the PHI are defined in the revised Directive No. 15 and listed below. We do not calculate rates for non-Hispanic "Other" races due to the lack of reliable population denominators. The small and variable population sizes of these groups often result in statistical uncertainties that make accurate rate calculations challenging.

- **American Indian or Alaska Native (AIAN):** A person having origins in any of the original peoples of North and South America.
- **Asian:** A person having origins in any of the original peoples of Central Asia, East Asia, Southeast Asia, or South Asia, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- **Black:** A person having origins in any of the Black racial groups of Africa, including, for example, African American, Jamaican, Haitian, Nigerian, Ethiopian, and Somali.
- **Hispanic or Latino:** A person of Cuban, Mexican, Puerto Rican, Salvadoran, Dominican, Guatemalan, or other Central or South American or Spanish culture or origin, regardless of race.
- **Native Hawaiian or Other Pacific Islander (NHPI):** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands, including, for example, Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, and Marshallese.
- **White:** A person having origins in any of the original peoples of Europe, including, for example, English, German, Irish, Italian, Polish, and Scottish. At this time, the White category includes people identifying as Middle Eastern/Northern African.

¹¹ Office of Management and Budget, "Revisions to OMB's Statistical Policy Directive No. 15: Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity," *Federal Register* 89, no. 62 (March 29, 2024): 22182, <https://www.govinfo.gov/content/pkg/FR-2024-03-29/pdf/2024-06469.pdf>.

Sex

The data currently used in the PHI are binary sex indicators. Currently, it is not possible to conduct reliable analysis of gender or non-binary sex. Equity and data modernization efforts, such as REALD and SOGI data collection, will eventually lead to more detail on the diverse identities in Multnomah County. As data systems continue to improve in the collection of intersex and other identities the PHI will include the data which meet reporting standards for confidentiality and estimate reliability.

Disability

Disability data come from the ACS and capture six different types of disability: hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, and independent living difficulty. Respondents who report anyone of the six disability types are considered to have a disability. Disability often intersects with other social determinants of health, such as poverty, access to healthcare, and social support, leading to heightened vulnerability and unique health needs. People with disabilities can face barriers such as physical inaccessibility, discrimination, and inadequate healthcare services, which can result in poorer health outcomes compared to those without disabilities.

REALD and SOGI Data

REALD refers to a set of demographic data collection standards established by the Oregon Health Authority (OHA) to gather uniform and detailed information about individuals' race, ethnicity, preferred language, and disability status. Sexual orientation and gender identity (SOGI) data provide details on members of LGBTQIA2S+ communities. The PHI includes information on race, ethnicity, preferred language and disability status, but not to the level of detail in REALD and SOGI guidelines. As these agencies publish more granular REALD and SOGI data in the future, this information will be incorporated into the dashboards for births, deaths, and social determinants of health in Multnomah County. This will ensure a more comprehensive understanding of the health needs and experiences of the population in the county.

Household Income

Household income data come from the ACS and represent the sum of the income of all people 15 years and older living in the household. It includes sources such as wages, salaries, social security, retirement benefits, investment dividends, and public assistance. This metric is a primary social determinant of health, as it dictates a household's ability to afford essential needs like nutritious food, stable housing, and medical care, all of which are fundamental to long-term wellness.

The household income groups in the PHI (less than \$20,000; \$20,000–\$34,999;

\$35,000–\$49,999; \$50,000–\$74,999; \$75,000–\$99,999; \$100,000–\$149,999; and \$150,000 or more) are based on household income expressed in dollars of the final year of each ACS period, following the Census Bureau’s income adjustment. The groups are not restated across periods, so this is a metric to examine high- versus low-earning households within a specific time period rather than across time. Household income groups are shown on the demographics tab only. For a metric that accounts for the cost of living, refer to income as a percentage of the Census Poverty Threshold (Poverty Level), which scales income against the costs of basic necessities.

Poverty Level

For ACS demographic breakdowns, poverty level is grouped as below 100%, 100–199%, 200–399%, and 400% or more of the Census Poverty Threshold. For household indicators, the householder’s poverty level is used.

Nativity

Nativity groups are: born in the US; not born in the US, naturalized citizen; and not born in the US, not a citizen.

Indicator Definitions and Notes

Births

Outlined in this section are the indicators included in the PHI births dashboard. Each subsection corresponds to an indicator category present in the dashboard. Birth data are presented as percentages of live births in Multnomah County within the specified time period. Each indicator’s denominator is the births with a known value for that item: for example, birthweight indicators exclude births with no recorded weight, and payer indicators exclude births with an unknown payer.

Birth Insurance Payer

Oregon Health Plan/Medicaid

Medicaid status serves as an indicator of socio-economic status and access to healthcare, both of which are closely linked to maternal and infant health. The Oregon Health Plan (OHP) is Oregon’s medicaid program. It provides health care coverage for working families, children, pregnant adults, single adults, and seniors.

Private Insurance

Private insurance differs from OHP/Medicaid significantly in terms of coverage, access to care, and the socioeconomic status of the populations served. Private insurance is typically associated with higher-income individuals and often provides broader access to a wider network of healthcare providers, more comprehensive coverage, and lower out-of-pocket costs for services.

Self-paid

Self-paid births refer to deliveries paid for by the family without the use of health insurance.

Other Payment Source

In addition to OHP/Medicaid, which is coordinated at the state level, there are government healthcare programs at the federal level to provide insurance for specific populations. In the PHI, Other Payment Source combines the Indian Health Service for the American Indian/Alaska Native population, CHAMPUS/Tricare for active-duty military, other government programs, and any other reported source.

Birth Outcomes

Healthy Birth Weight

Healthy birth weight (HBW) is defined as a birth weight of 2,500 grams (5.5 pounds) or greater. A healthy birth weight is associated with lower risk of adverse neonatal outcomes, developmental delays, and health across the lifecourse.

Low Birth Weight

Low birth weight (LBW) is defined as a birth weight of less than 2,500 grams (5.5 pounds), regardless of gestational age. LBW is associated with an increased risk of neonatal morbidity and mortality, developmental delays, and long-term health issues such as chronic conditions, cognitive impairments, and increased susceptibility to infections.

Term Birth (at least 37 weeks gestation)

Births that are considered full term have a gestation of at least 37 weeks. Full term pregnancies are associated with lower risk of birth complications and developmental delays.

Preterm Birth (less than 37 weeks gestation)

Births that occur before 37 weeks of gestation are classified as preterm births. Preterm birth is a leading cause of neonatal morbidity and mortality and is associated with a range of short- and long-term health complications. Babies born preterm are at higher risk for respiratory distress, feeding difficulties, infections, and issues related to underdeveloped organs, particularly the lungs and brain.

Birth Risk Factors

Eclampsia

Eclampsia is a serious seizure condition during pregnancy that can be dangerous for mother and unborn baby. Eclampsia is a life-threatening emergency that can lead to serious health risks for both the mother and the baby, including organ damage and stroke.

Gestational Diabetes

Gestational diabetes is a type of diabetes that develops during pregnancy in mothers who did not have diabetes before becoming pregnant. It occurs when the body cannot produce enough insulin to meet the increased needs during pregnancy, leading to high blood sugar levels. Gestational diabetes usually resolves after childbirth, but it can increase the risk of developing type 2 diabetes later in life for both the mother and the child.

Gestational Hypertension

Gestational hypertension is when a mother develops high blood pressure (hypertension) during pregnancy, when the mother had normal blood pressure prior to the pregnancy. Gestational hypertension may lead to further complications, such as preeclampsia and preterm delivery.

For eclampsia, gestational diabetes, and gestational hypertension, births with an “unknown” answer stay in the denominator and are counted as not having the risk factor.

Prenatal Care

Prenatal care is the healthcare provided to the mother throughout pregnancy. This care helps prevent complications by allowing healthcare providers to manage conditions like gestational diabetes, hypertension, or preeclampsia. It also provides an opportunity for healthcare professionals to educate expectant mothers about important aspects of pregnancy, labor, and newborn care, ensuring both maternal and fetal health. The PHI provides three measures of prenatal care: no prenatal care, a five-visit adequacy measure, and the Kotelchuck Index:

Adequate/Inadequate Prenatal Care (5+ visits before 3rd trimester)

This metric indicates whether prenatal care began before the third trimester and the mother had five or more prenatal care visits in total. Care that began in the third trimester, no care, or four or fewer visits is inadequate.

Adequate/Intermediate/Inadequate Prenatal Care (Kotelchuck Index)

Kotelchuck Index is a tool used to measure how well a pregnant person has utilized prenatal care. It combines two factors: when prenatal care began and the number of visits attended, adjusted for the length of the pregnancy. While the actual number of

recommended prenatal care visits may vary based on the individual's health and risk factors, the American College of Obstetricians and Gynecologists (ACOG) guidelines advise approximately 14 visits for a full-term pregnancy of 40 weeks. This index classifies the adequacy of prenatal care into categories, helping to identify individuals and groups who may have received insufficient care during pregnancy. These categories are defined as such:

- Inadequate prenatal care: Prenatal care began in the fifth month of pregnancy or later, or the mother received fewer than 50% of the expected prenatal care visits.
- Intermediate prenatal care: Prenatal care began by the end of the fourth month of pregnancy and the mother received 50–79% of the expected visits.
- Adequate prenatal care: Prenatal care began by the end of the fourth month of pregnancy and the mother received 80% or more of the expected visits (including “adequate plus,” 110% or more). Expected visits are based on the length of the pregnancy and when care began.

No Prenatal Care:

The percentage of births where the mother received no prenatal care.

Women, Infants, and Children (WIC)

Women, Infants, and Children (WIC) is a federal assistance program in the United States that provides nutrition support, healthcare referrals, breastfeeding support, and education to low-income pregnant, postpartum, and breastfeeding women. This assistance is available for families with infants and children up to age five. The PHI reports the percentage of births where the mother was enrolled in WIC during pregnancy. Births with an unknown answer are excluded.

Deaths

Each subsection below defines the indicators included in the specific indicator category presented in the PHI deaths dashboard. Mortality data in the PHI are presented as crude and age-adjusted death rates, and years of potential life lost (YPLL). Rates show the number of deaths among members of a demographic group per 100,000 people in the group. YPLL is the number of years of life lost prior to age 75 among a demographic category per 100,000 people in the group. More details on how these values are calculated may be found in the [Methods Standards](#) section.

All Cause Mortality

All Cause Mortality

Deaths to any cause.

Deaths from cancers

Any Cancer

Deaths from any form of cancer listed below.

- Bladder cancer: A cancer affecting the bladder lining, typically presenting with blood in the urine, frequent urination, or pelvic pain, often linked to smoking or chemical exposures.
- Brain cancer: Cancer that starts in the brain tissues, leading to neurological symptoms like headaches, seizures, and cognitive changes depending on the tumor's location.
- Breast cancer: Cancer that develops from breast tissue, commonly detected through lumps, changes in breast shape, or discharge from the nipple, primarily affecting females but can also occur in males. Breast cancer is also included as a standalone indicator in the PHI.
- Colorectal cancer: Cancer of the colon or rectum, often presenting as changes in bowel habits, abdominal pain, or blood in the stool, and associated with lifestyle factors like diet and genetic predispositions.
- Esophageal cancer: Cancer that occurs in the esophagus, associated with smoking, heavy alcohol use, and gastroesophageal reflux disease, leading to swallowing difficulties and chest pain.
- Kidney cancer: Cancer that begins in the kidneys, with risk factors like smoking, high blood pressure, and obesity, presenting symptoms like blood in the urine, back pain, and weight loss.
- Leukemia: A cancer of the blood and bone marrow, characterized by the overproduction of abnormal white blood cells, causing fatigue, fever, and increased susceptibility to infections.
- Liver cancer: Cancer that begins in the liver, commonly caused by chronic hepatitis infections, alcohol use, or fatty liver disease, presenting with symptoms like jaundice, abdominal swelling, and pain.
- Lung cancer: Cancer that begins in the lungs and is often linked to smoking, air pollution, or exposure to certain toxins, causing difficulty with breathing, persistent cough, and chest pain. Lung cancer is also included as a standalone indicator in the PHI.
- Lymphoma: Cancer that begins in the lymphatic system, including Hodgkin's and non-Hodgkin's lymphoma, causing swollen lymph nodes, fever, and night sweats.
- Ovarian cancer: Cancer that originates in the ovaries, often going undetected until it has spread, with symptoms like bloating, pelvic pain, and changes in bowel habits.
- Pancreatic cancer: Cancer originating in the pancreas, usually detected late due to non-specific symptoms like jaundice, abdominal pain, and weight loss.
- Prostate cancer: Cancer in men that affects the prostate gland, often without symptoms in early stages but can lead to difficulty urinating or pelvic pain as it progresses.

- Skin cancer: Including melanoma and non-melanoma types, skin cancer arises from abnormal growth of skin cells, frequently due to UV exposure, presenting as moles or skin lesions that change in appearance.
- Stomach cancer: Cancer that starts in the stomach lining, often linked to diet, smoking, or H. pylori infection, with symptoms like indigestion, stomach pain, and weight loss.

Deaths from cardiovascular diseases

Any heart disease

Deaths from heart disease including deaths from congestive heart failure, cardiac dysrhythmias, acute myocardial infarction (i.e. heart attack), and coronary artery disease. This is a subset of the category for major cardiovascular disease and is part of the CDC rankable causes of death.

Major cardiovascular disease

Major cardiovascular disease includes serious health conditions that affect the heart and blood vessels, such as heart attack, stroke, and heart failure. These diseases are among the leading causes of death worldwide, primarily driven by lifestyle factors, genetics, and other health conditions. This category includes the causes of death listed in the any heart disease category, plus additional causes such as stroke.

Stroke (cerebrovascular disease)

A stroke is a type of cerebrovascular disease that occurs when blood flow to part of the brain is interrupted or reduced, preventing brain tissue from getting oxygen and nutrients. This can cause brain cells to die within minutes, leading to severe complications or death.

Deaths from chronic diseases

Chronic lower respiratory disease (CLRD)

Chronic lower respiratory disease (CLRD) are a group of conditions that affect the airways and other parts of the respiratory system. CLRD can cause shortness of breath, coughing, wheezing, and chest tightness. CLRD includes long-term lung problems that make it hard to breathe, like Chronic Obstructive Pulmonary Disease (COPD), emphysema, and chronic bronchitis which may result in death.

Diabetes

Diabetes is a condition where the body either does not produce enough insulin or cannot use it effectively, leading to high blood sugar. Deaths from diabetes occur when the chronically elevated blood sugar levels damage the blood vessels and nerves. Over time, this leads to life-threatening complications such as heart disease, kidney failure, and nerve damage. The main types are Type 1, where the body fails to produce insulin, and Type 2, where it does not use insulin properly.

Essential hypertension

Essential hypertension means high blood pressure that does not have a clear medical cause. It is the most common type of high blood pressure. Over time, uncontrolled high blood pressure damages arteries and vital organs, significantly increasing the risk of heart attack, stroke, and kidney failure, which can be fatal.

Liver disease and cirrhosis

Deaths from liver disease include a range of conditions that affect the liver, impairing its ability to function properly. Common causes include viral infections (such as hepatitis), excessive alcohol consumption, obesity, and genetic disorders, which can lead to inflammation, scarring (cirrhosis), liver failure, and death.

Nephritis

Nephritis is an inflammation of the kidneys, often caused by infections, autoimmune diseases, or other underlying conditions. This inflammation can impair the kidneys' ability to filter waste and excess fluids from the blood, leading to symptoms such as swelling, high blood pressure, and changes in urine output. If left untreated, nephritis can result in chronic kidney damage or kidney failure, posing serious health risks, including death.

Deaths from infectious diseases

Influenza (Flu) and pneumonia

Influenza (flu) and pneumonia are respiratory infections that can be severe, especially in older adults, young children, and individuals with weakened immune systems. The flu can lead to complications like pneumonia, an infection that inflames the air sacs in the lungs, causing breathing difficulties, chest pain, and potentially life-threatening complications. Both conditions can be fatal without timely medical treatment, particularly in vulnerable populations.

COVID-19

COVID-19 is a highly contagious viral infection caused by the SARS-CoV-2 virus, primarily affecting the respiratory system and potentially leading to severe complications such as pneumonia, acute respiratory distress syndrome, and organ failure. Symptoms range from mild respiratory illness to severe conditions requiring hospitalization and can be fatal, especially for older adults and those with pre-existing health conditions.

Septicemia

Septicemia is a serious bacterial infection of the bloodstream. It often begins as a localized infection, such as a urinary tract infection or pneumonia, that spreads into the bloodstream. Rapid diagnosis and treatment with antibiotics and supportive care are crucial to improving chances of survival.

Deaths from injury and suicide

Any unintentional injury

Deaths from any unintentional injuries including drowning, falls, fire, firearms, motor vehicle collision, poisoning, and suffocation.

Alcohol-related deaths

Alcohol-related deaths are fatalities directly caused by the physiological, behavioral, and toxicological consequences of consuming alcohol. This includes chronic conditions resulting from long-term use, such as alcoholic liver disease, cardiomyopathy, neurological degeneration, and maternal and fetal complications like fetal alcohol syndrome. This also includes immediate causes of death, such as alcohol poisoning.

Motor vehicle traffic crashes

Motor vehicle traffic crashes are a leading cause of injury death, often resulting from factors such as speeding, impaired driving, distracted driving, and not wearing seat belts. These crashes can cause severe injuries, including head trauma, internal bleeding, and multiple fractures, which can be fatal.

Any overdose

An overdose happens when someone consumes more of a substance than their body can safely handle, leading to toxic effects that can be life-threatening. Symptoms vary depending on the substance but often include respiratory distress, unconsciousness, seizures, and cardiac arrest. Overdoses can occur with drugs, alcohol, or a combination of substances.

Overdose of cocaine

Deaths from cocaine overdose occur when excessive amounts of the drug are taken, leading to severe physiological and neurological effects.

Overdose of heroin

Heroin overdose occurs when an excessive amount of the drug depresses the central nervous system, leading to slowed or stopped breathing, unconsciousness, and potentially death. Symptoms include pinpoint pupils, weak pulse, and severe respiratory depression, which can be fatal without immediate treatment, such as the administration of naloxone.

Overdose of prescription opioids

Deaths from prescription opioid overdose involve medications commonly prescribed for pain management, such as oxycodone, hydrocodone, morphine, and fentanyl. These drugs are effective for pain relief but carry a high risk of addiction and overdose, especially when misused.

Overdose of over-the-counter pain medication

Deaths from an overdose of over-the-counter pain medication typically involve medications such as acetaminophen (Tylenol), ibuprofen (Advil and Motrin), or aspirin.

These medications, while generally safe when used as directed, can lead to severe toxicity and fatal outcomes when taken in excessive amounts.

Overdose of methadone

Methadone overdose occurs when too much of the medication is consumed, leading to severe respiratory depression. Symptoms include slow or stopped breathing, extreme drowsiness, and unconsciousness, which can be fatal without immediate medical intervention. Overdose risk increases when methadone is mixed with other substances like alcohol or sedatives.

Overdose of methamphetamine (meth) or fentanyl

Methamphetamine overdose can cause heart attack, stroke, seizures, and severe hyperthermia, all of which can lead to death. Fentanyl, a potent synthetic opioid, can cause rapid respiratory depression, unconsciousness, and death even in small doses, making it highly dangerous. These substances are reported in one indicator as they are commonly used together and pose a high overdose risk due to their powerful effects on the central nervous system. Overdoses of methamphetamine are also included in deaths from an overdose of stimulants and overdoses of fentanyl are included in deaths from synthetic opioids.

Overdose of any opioid

Opioid overdose occurs when high doses of opioids, such as heroin, prescription painkillers, or synthetic opioids, suppress the body's ability to breathe, leading to a lack of oxygen (hypoxia). This can cause brain damage, unconsciousness, and death if not promptly treated with interventions like naloxone.

Overdose of a psychostimulant

Psychostimulant overdose, involving drugs like cocaine or amphetamines, can cause severe cardiovascular issues such as heart attack, stroke, or dangerously high blood pressure. It often leads to hyperthermia, seizures, and altered mental states, which can be fatal without immediate medical care.

Overdose of a stimulant

Stimulant overdose involves excessive intake of drugs like cocaine, amphetamines, or MDMA, leading to dangerous symptoms like heart palpitations, high blood pressure, seizures, and hyperthermia. It can result in severe outcomes, including cardiac arrest, stroke, and death, often due to the strain on the cardiovascular system.

Overdose of synthetic opioids

Synthetic opioids, such as fentanyl and tramadol, are potent drugs that can easily cause overdose due to their strong effect on the respiratory system. They are much stronger than natural opioids and even small doses can be lethal. These substances have significantly contributed to the rise in opioid-related deaths.

Suicide

Suicide is the act of intentionally taking one's own life, often linked to underlying mental health issues like depression, anxiety, or trauma. It is a complex and multifaceted cause of death that can result from overwhelming emotional pain, hopelessness, or feelings of being a burden. Early intervention and mental health support are crucial for prevention.

Deaths from neurological disorders

Alzheimer's

Alzheimer's is a disease that affects the brain, including memory and thinking skills. It is the leading cause of dementia, marked by abnormal protein buildup in the brain that disrupts cell communication and leads to cell death. Symptoms worsen over time, ultimately resulting in severe impairment and death.

Parkinson's

Parkinson's is a disease that affects the nervous system and a person's movement, ultimately leading to death. It occurs due to the gradual loss of nerve cells in the brain, leading to symptoms like tremors, stiffness, slow movement, and balance problems. As the disease advances, it can also impact speech, mood, and cognitive functions.

Deaths from violence

Firearm violence

Firearm violence includes deaths resulting from the use of guns, such as homicides, suicides, and accidental shootings. Firearm violence is a major public health issue influenced by factors like access to guns, mental health, and social environments.

Homicide

Homicide is the intentional killing of one person by another and can occur in various contexts, including domestic disputes, gang violence, or random acts of aggression. It often involves firearms, knives, or other weapons and can result in profound psychological and social impacts on victims' families and communities. Homicide rates are influenced by factors such as social inequality, substance abuse, and lack of mental health support.

Violence (any form)

Violence, in any form—physical, emotional, or psychological—can lead to serious injuries, long-term trauma, and death. This category includes deaths due to domestic abuse, assault, and bullying. Preventing violence involves addressing root causes like poverty, substance abuse, and lack of social support systems.

Social Determinants of Health

The subsections below provide definitions for the indicators included in each indicator category of the PHI dashboard for the social determinants of health. Social determinants of health are the conditions in which people are born, grow, live, work, and age, and they significantly influence health outcomes and quality of life. These factors include economic stability, access to quality education, healthcare, safe neighborhoods, and social support, all of which can affect physical and mental health. Inequities in these areas can lead to disparities in health status, contributing to higher rates of chronic disease, reduced life expectancy, and overall poorer health outcomes in disadvantaged populations.

Economic and Food Security

Median Income

The American Community Survey (ACS) measures household income by collecting data on the total income received by all members of a household aged 15 years and older over the most recent 12 months. This includes wages, salaries, self-employment income, Social Security, public assistance, interest, dividends, retirement income, and other sources of income. Income is presented as the median household income. This means that half of households have incomes above the median and half have incomes below it. Median income for census tracts and for Multnomah County, Oregon, Portland, and Gresham comes from the published ACS tables. Median income by the householder's age, race/ethnicity, and nativity is calculated from ACS microdata (PUMS).

For neighborhoods and commissioner districts, which are built from pieces of tracts, the median is re-estimated from the number of households in each of 16 income brackets, interpolating within the bracket that holds the median as the Census Bureau does. Following the Census Bureau, a median above the highest bracket or below the lowest is reported as a limit with no margin of error: "\$250,000 or more" or "\$2,500 or less" for tracts and the named places, and "\$200,000 or more" or "\$10,000 or less" for neighborhoods and districts. Medians the Census Bureau could not calculate are suppressed. Within each ACS period, income is expressed in dollars of the period's final year. When several periods are shown together (the dashboard and the multi-year download), earlier periods are adjusted for inflation with the Consumer Price Index for All Urban Consumers (CPI-U) to match the purchasing power of the most recent period. Adjusting income for inflation ensures that financial values from different years can be compared on a consistent "apples-to-apples" basis.

Poverty Level

In the PHI, income is presented as the median and the percentage of people whose family income is below, near, or above the Census Poverty Threshold (CPT). The CPT is adjusted based on the number of people in a family to account for the varying costs of living and basic needs that increase with family size. For example, the CPT increases by several thousand dollars for each additional person in the household to reflect the increased expenses for housing, food, healthcare, and other essentials that larger families face. In 2024, the poverty threshold in the ACS for a family of four with two

children was \$31,812. The [poverty thresholds](#) by year and family size are available on the ACS website.¹² Among people for whom poverty status is determined, the PHI reports three groups that do not overlap: below poverty (less than 100% of the CPT), near poverty (100–199%), and not near poverty (200% or more). The thresholds quoted in the dashboard are the Census Bureau thresholds for the final year of each period, for one person and for a family of four with two children.

Unemployment

The unemployment rate is the percentage of the civilian labor force age 16 and older that is unemployed: without a job, available to work, and actively seeking work. It is a key economic indicator used to assess the health of the economy, reflecting the ability of people to find employment and the overall demand for labor.

SNAP Benefits

Supplemental Nutrition Assistance Program (SNAP) benefits, formerly known as food stamps, provide low-income individuals and families with financial assistance to purchase food and improve their nutrition. Benefits are distributed monthly through an Electronic Benefit Transfer (EBT) card, which can be used at authorized grocery stores and farmers' markets to buy eligible food items like fruits, vegetables, bread, meat, and dairy products. The PHI reports the percentage of households that received SNAP benefits at any time in the past 12 months.

Housing Burden

Housing cost burden in the PHI is measured by the percent of household income spent on housing costs: gross rent for renters, and selected monthly owner costs (including the mortgage) for homeowners. The PHI uses two thresholds: households spending 30% or more of their income on housing are cost burdened, and households spending 50% or more are severely cost burdened. The PHI also reports the complementary measures (households spending less than 30% or less than 50%). These calculations are presented for all households, for renters, and for homeowners with a mortgage. Homeowners without a mortgage are included in the all-households measure but are not reported separately.

Education

Education is measured as the highest level of schooling completed. The PHI presents six measures that do not overlap for adults age 25 and older: less than high school; high school or GED; some college (no degree); associate degree; bachelor's degree; and graduate degree (master's, professional, or doctoral).

¹² <https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html>

Other Demographics

Born outside of the United States

This indicator is the percentage of the total population born outside the United States. The ACS defines the foreign-born population as anyone who was not a U.S. citizen at birth, including naturalized citizens and people who are not citizens. The foreign-born population includes:

- Naturalized U.S. citizens
- Non-citizen U.S. nationals
- Lawful permanent residents (immigrants)
- Temporary migrants (e.g., foreign students)
- Humanitarian migrants (e.g., refugees and asylees)
- Unauthorized migrants

Limited English proficiency

Limited English proficiency in the ACS is defined as speaking English less than “very well.” English proficiency is tabulated for individuals over the age of 5.

Linguistic isolation

The ACS identifies limited English speaking households (previously called linguistically isolated households). These are households in which no member age 14 or older either speaks only English at home or speaks another language and speaks English “very well.”

Non-English language spoken at home

The ACS captures the language spoken at home by people age 5 and older. This indicator is the percentage of people age 5 and older who speak a language other than English at home.

Work Commute

Bike

Workers age 16 and older whose primary means of commuting to work is by bicycle, as a percentage of all workers age 16 and older (including those who work from home). Commuting by bicycle is one means of active transportation.

Extreme commuting

Commuting 90 minutes or more one way to work, as a percentage of workers age 16 and older who do not work from home.

Public transportation

Workers age 16 and older whose primary means of commuting to work is public transportation (bus, subway, commuter rail, light rail or streetcar, or ferry; taxis are not included), as a percentage of all workers age 16 and older.

Walking

Workers age 16 and older whose primary means of commuting to work is walking, as a percentage of all workers age 16 and older.

Release Notes

Date	Release
10/15/26	PHI 2026.1.0 released SDoH published through 2024 Births published through 2024 Deaths published through 2024