

## Age Standardized Mortality Rates per 100,000 Population

**Age-standardized mortality rates** can be used to compare the mortality rates of countries without being affected by the difference in age distributions from country to country. Without using this standardization, it would be unclear if differing mortality rates were due to differences in age distribution or as a result of other factors.

The use of a **standard population** is needed. For our purposes, the WHO World Standard Population will be used. This standard population reflects the average age structure of the world's population expected over the next generation, from 2000 to 2025<sup>1</sup>. This ensures a standard approach with the option of long-term use and facilitates global comparisons.

WHO World Standard Population  
Distribution (%),

Age group	World Average 2000-2025
0-4	8.86
5-9	8.69
10-14	8.60
15-19	8.47
20-24	8.22
25-29	7.93
30-34	7.61
35-39	7.15
40-44	6.59
45-49	6.04
50-54	5.37
55-59	4.55
60-64	3.72
65-69	2.96
70-74	2.21
75-79	1.52
80-84	0.91
85-89	0.44
90-94	0.15
95-99	0.04
100+	0.005
Total	100

### Calculation

1. For each selected mortality condition, determine the number of deaths (by Males, Females and Total) for the age groups: 0-4, 5-9, 10-14, 15-19, 20-24, 25-19, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69.
2. Determine the population estimates (by Males, Females and Total) for the above age groupings.
3. Calculate the **age-specific rate** for each age group/gender strata, as follows:

$$\text{Age-specific rate (per age group/gender)} = \frac{\text{Number of deaths from condition}}{\text{Population}} \times 100,000$$

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- Calculate the **age-standardized rate** for each age group/gender strata by multiplying each age-specific rates by the appropriate weight in the standard population, as follows:

$$\text{Age-standardized rate (per age group/gender)} = \frac{\text{Age-specific rate per 100,000 population}}{\text{Weight in standard population}^*} \times$$

Where, \* *weight in standard population* for persons <70 years has been calculated as follows:

WHO World Standard Population Distribution < 70 Years

Age group	Percentage All Age Groups	Percentage < 70 years	Weight
0-4	8.86	9.35	0.0935
5-9	8.69	9.17	0.0917
10-14	8.60	9.08	0.0908
15-19	8.47	8.94	0.0894
20-24	8.22	8.67	0.0867
25-29	7.93	8.37	0.0837
30-34	7.61	8.03	0.0803
35-39	7.15	7.55	0.0755
40-44	6.59	6.95	0.0695
45-49	6.04	6.37	0.0637
50-54	5.37	5.67	0.0567
55-59	4.55	4.80	0.0480
60-64	3.72	3.93	0.0393
65-69	2.96	3.12	0.0312
<b>Total</b>	<b>94.76</b>	<b>100.00</b>	<b>1.00</b>

- For each gender (Males, Females and Total) sum the products across all age-groupings to obtain the overall **age-standardized rate**

**Note:** The Microsoft Excel workbook *Age Standardized Mortality Rates\_calculation wkb* provides further assistance.

### References:

1 Ahmad O, Boschi-Pinto C, Lopez AD, Murray CJL, Lozano R, Inoue M. *Age standardization of rates: a new WHO standard*. Geneva, World Health Organization, 2001