[**BASIC STEPS FOR MORTALITY RATES**](https://www.dropbox.com/scl/fi/5lekuv4gxi88p86y2nnea/Malick_Measuring-Mortality_2024-09-23.pptx?rlkey=shx95uz2qjeqvtryjmj0spm65&dl=0)

Mortality rates and ratios serve as key demographic indicators that reflect the overall health status of a country. The levels, patterns, and trends in mortality provide insights into the prevailing mortality scenarios, distinctive characteristics, and variations over time. This section provides the following measures of mortality:

1. **Crude Death Rate (CDR)** measures the number of deaths in a population per a specific unit of people (usually per 1,000 or 100,000 individuals) within a certain time period.



**D**: Total Number of Deaths in a Year

**Mid yr pop**: Total Population Mid-Year​

1. **Age specific mortality rate (nMx)** measures the number of deaths in a defined age group per 1000 mid-year population for the same age group

$$nMx=\frac{nDx \left(T\right) }{nPx \left(T\right)}x 1000$$

**nMx**= Mortality rate between ages x and x+n

**nDx**: Total Number of Deaths between ages x and x+n in a Year

**nPx**: Mid-Year Total Population between ages x and x+n​

1. **Age specific probability of death (nqx)** is the probability of dying within a particular age range (x and x+n). This is obtained by converted the death rates (nMx) using the formula:



**nqx** is the probability of death between ages x and x+n,

**nMx** is the death rate between ages x and x+n,

**s** is the average number of person years lived in the interval by those who died in the interval

**x,x+n**, generally taken as n/2 under the assumption of uniform distribution of deaths, for age groups above five.

**Minimum required mortality data elements:**

1. **Numerators**: Number of deaths by age, sex and year
2. **Denominators**:
	1. Target population counts by age, sex and and year (person-years lives or population at risk)
	2. Births by year (stillbirths, perinatal, childhood mortality rate)
* Computation of the numerator using death table (form “s5\_3c\_Death”)
	+ Keep key variables such as age or date of birth if available, date of death, sex, location (province/region and residence area), place of death
* Computation of the denominator using birth table and population table
	+ Birth table for live births and stillbirths (form “s5\_3b\_Pregnancy Outcome”)
		- Keep key variables such as date of birth, sex, location (province/region and residence area), place of birth, vital status (born alive or born dead)
	+ Population table (form “Household members”)
		- Keep key variables such as age or date of birth if available, date of interview, sex, location (province/region and residence area), date of migrations (in and/or out) if any

**Step 1**: Data preparation at cluster level is key because of sampling weight (for each cluster)

* For each table listed above, ensure to keep key variables at individual level
* Make any variable transformation as needed
	+ For age, you can generate age groups (less than a month, 1-11month, 12-59months, 5-14years, 15-59years and 60years and above)
	+ For place of birth/death, you can generate home, health facility and others. For health, you can be more specific as needed, you can use public or private OR hospital, health center, others
* Agregate records at cluster level
	+ Number of deaths by age groups and year
	+ Number of people by age groups and year
	+ Number of births (live births, stillbirths) by year
	+ If sampling weights are applicable, you can agregate weighted numbers.
* Remark: Save this table (cluster weighted numbers for mortality rates). This table is needed to compute mortality rates and 95% confidence interval using the Jakniffe method to compute the standard errors for instance.

**Step 2**: Computation for mortality rates at national and subnational levels

* We have developed statistical codes to help you compute your mortality indicators using SRS data. Additionally, you can explore publicly available statistical codes on [Github](https://github.com/DHSProgram/DHS-Indicators-Stata/commit/fac2166595626916ebddd138afae1bbdd1aff79a) that use Demographic Health Survey (DHS) data. These codes can be readapted to calculate the mortality indicators.