**BASIC STEPS FOR DATA ANALYSIS**

**Objectives:**

The assessment aims to:

* Provide a complete update of the population and housing of clusters, including geocoordinates of all clusters and households;
* Capture births and deaths that occurred in each SRS cluster since the last assessment;
* Assess the completeness of reporting on births and deaths by community-based agent;
* Evaluate the coverage of births and deaths registration in SRS clusters.

 Overall, the assessment data will be compared with the routine SRS data to assess the level of completeness of births and deaths. To achieve this goal, we recommend completing the different tables below.

**Table 1** provides totals numbers of households, population, vital events (births and deaths) reported by the surveillance data and the assessment data and calculates the differences between the two datasets. This information will be used to readjust the mortality estimates. Please note this table can be done by province/region and by residence area (urban vs rural).

**Table 1. Comparison between surveillance and assessment data**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type** | **Surveillance data** | **Assessment data** | **Surveillance minus Assessment** | **comment** |
| 1. Household
 |  |  |  |  |
| 1. Population
	1. Total
	2. Total by sex
	3. Total by single age
 |  |  |  |  |
| 1. Birth
	1. Total
	2. Total by sex
	3. Total by year (if not conducted annual)
 |  |  |  |  |
| 1. Death
	1. Total
	2. Total by sex
	3. Total by single age
 |  |  |  |  |

Table 2 and Table 3 provide the crude rates (birth and death) from the surveillance data and the assessment data and calculate the differences between the two datasets. Please note these indicators are disaggregated by province/region and by residence area (urban vs rural).

Crude birth rate is the ratio of the number of births in an area during a specified period of time to the mid-year population of that area.

Crude death rate is the ratio of the number of deaths in an area during a specified period of time to the mid-year population of that area.

**Table 2. Crude birth rates by Province/Region and Residence area**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type | Level | Surveillance data | Assessment data | Surveillance minus assessment | comment |
| Province/Region | 1. Province 1
2. Province 2
3. Province 3
4. ................
 |  |  |  |  |
| Residence area | 1. Urban
2. Rural
 |  |  |  |  |

**Table 3. Crude death rates by Province/Region and Residence area (urban vs rural)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type | Level | Surveillance data | Assessment data | Surveillance minus assessment | comment |
| Province/Region | 1. Province 1
2. Province 2
3. Province 3
4. ...........
 |  |  |  |  |
| Residence area | 1. Urban
2. Rural
 |  |  |  |  |

Table 4 presents a comparison of the household average size from the surveillance data and the assessment data and calculates the differences between the two datasets. Please note these indicators are disaggregated by province/region and by residence area (urban vs rural).

**Table 4. Household average size by Province/Region and Residence area**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type | Level | Surveillance data | Assessment data | Surveillance minus assessment | comment |
| Province/Region | 1. Province 1
2. Province 2
3. Province 3
4. .................
 |  |  |  |  |
| Residence area | 1. Urban
2. Rural
 |  |  |  |  |

Table 5 and Table 6 present a comparison of the numbers of births and deaths reported and missed by each system. These tables are used to assess the coverage and completeness of reported events using the Chandra Sekaran and Deming formula, based on the capture-recapture method. This method accounts for events reported by each system, events matched across both systems, and events missed by both systems. The total events can be estimated by formula below:

**N=M+n1+n2+C**

Where:

* **n1**: Events captured by Surveillance (System 1) only.
* **n2**: Events captured by Assessment (System 2) only.
* **M**: Events matched between the two systems (captured by both).
* **C**: Total number of events missed by both systems (n1\*n2)/M

By estimating the total number of events, the formula helps calculate metrics such as:

* Coverage: Proportion of total events captured by one or both systems.
* Completeness: Ability of the systems to capture all events accurately.

Please note that indicators can be disaggregated by province/region and by residence area (urban vs rural).

**Table 5. Number of births reported and missed by each system**

|  |  |  |
| --- | --- | --- |
| System | Assessment | comment |
| Reported | Missed |
| Surveillance  | Reported |  |  |  |
| Missed |  |  |  |

**Table 6. Number of deaths reported and missed by each system**

|  |  |  |
| --- | --- | --- |
| System | Assessment | comment |
| Reported | Missed |
| Surveillance  | Reported |  |  |  |
| Missed |  |  |  |

**Table 7. Mortality rates by province and Residence area**

Key indicators are:

* Age specific mortality rate (nMx)

The age-specific death rate for persons of a given age x (or for a given age interval) is the number of persons who died at age x (or in the same age group) in a specified year divided by the population age x in the middle of the year.

* Age specific probability of death (nqx)
1. Numerators: Number of deaths by age and year
2. Denominators:
	1. Births by year (stillbirths, perinatal, childhood mortality rate)
	2. Population by age and year (mid-year population, person-years lived or population at risk)

Please note that age groups can be changed and disaggregated by province/region and by residence area (urban vs rural).

|  |  |  |  |
| --- | --- | --- | --- |
| Indicators | Definition | Adjusted data | Comments |
| Neonatal mortality rates (NMR) | NMR is defined as the number of deaths of infants less than one month of age per 1000 live births in a given year. |  |  |
| Infant mortality rates (IMR) | IMR the number of deaths to children under 1 year of age per 1000 live births in a given year. |  |  |
| Under-5 mortality rates (U5MR) | U5MR is the number of deaths to children under 5 years of age per 1000 live births in a given year. |  |  |
| 5-14 mortality rates (5-15MR) | 5-15MR is the number of deaths to children 5 to 14 years of age per 1000 population |  |  |
| 15-59 mortality rates (15-59MR) | 15-59MR is the number of deaths to people 15 to 59 years of age per 1000 population |  |  |
| 60Y+ mortality rates (60+MR) | 60+MR is the number of deaths to people 60 years of age and above per 1000 population |  |  |