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**Sampling Frames & Decision Domains of Statistical Estimation**

**4.1. Defining options for sampling frames**

A sampling frame is a detailed, updated list of small geographic units covering the entire country, including population or household data and key stratifiers like regions, districts, and urban or rural areas. These units should be small enough to serve as clusters for mortality surveillance. A complete sampling frame, ideally based on a recent population census. It serves as the source from which a sample is drawn, ensuring that the results of the study can be generalized to a broader population. An ideal sampling frame should be comprehensive, up-to-date, and free from duplication or omission errors. It should include disaggregated data by census enumeration areas (EAs). EAs typically consist of 100 to 150 households, varying by urban or rural settings, and can serve as clusters. Alternatively, larger clusters combining 2–3 EAs may be used to reduce the number of clusters needed while remaining manageable for community workers to visit households bi-monthly. Clusters must have clearly defined, identifiable boundaries to support effective surveillance. Decisions on cluster definitions should consider the availability of population data, cluster size and boundary clarity.

**4.2. Steps for decision domains of statistical estimation**

In designing the mortality surveillance, it is crucial to reach a consensus on the domain level for representative statistical estimates. Domains may include all or selected level-one administrative areas (e.g., provinces or regions) and specific districts targeted for program support. Stratification by urban and rural areas is also possible. Oversampling in certain subnational areas may be necessary to improve the precision of mortality rates or other indicators. Decisions on domains should involve government, stakeholders, and implementing institutions. It is important to balance the number of domains with available resources, system feasibility, and the purpose of the system. More domains increase sample size and costs, requiring careful compromise. SRS program implementers should consult registration authorities to ensure sampling clusters align with meaningful and operational administrative boundaries. This alignment supports accurate data collection, analysis, and improvements in CRVS systems.

**4.3. Examples of sampling frame**

The sampling frame is stratified by region/province, district, ward and urban/rural residence. The cluster represents an enumeration area (EA) or a group of EAs, defined by administrative boundaries, population size, and geographic location. Census data provides the total population and number of households for each cluster. This stratification ensures comprehensive geographic coverage while maintaining alignment with administrative divisions, facilitating efficient and representative sampling for the mortality surveillance system.

Example of sampling frame of clusters from Mozambique:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Area de Residencia** | **CodProv** | Provincia | CodDist | Distrito | CodPost | Posto | CodLocal | Localidade | Cod | Bairro | CodN1 | NomeN1 | CodN2 | NomeN2 | CodAE | CA | EA | Estratos |
| 1 | 02 | Cabo Delgado | 01 | Cidade de Pemba | 99 | Nao Aplicavel | 99 | Nao Aplicavel | 01 | Alto Gingone | 02 | Unidade A | 02 | Quarteirao 1 | 001 | 01 | 0201999901001 | 2 |

*Area de Residencia* = Residence area; *Cod Prov* = Provincial code; *Provincia* = Province of residence

*Cod Dist* = District code; *Distrito* = District of residence

*Cod Post* = Post administrative code; *Posto* = Post administrative

*Cod Local* = Locality code; *Localidade* = Locality

*Cod Bairro* = Bairro code; *Bairro* = Bairro (Community)

*\*CodN1* = Name 1 code; *Nome* N1= Name 1; *CodN2* = Name 1 code; *Nome N2*= Name 2;

*CodAE* = Enumeration area code; *CA*= Control Area; *EA* = Enumeration area

*\*\*Estratos* = Socio-economic status

\*Cartography subdivisions: Name1, Name2 are smaller census division designations, such as a neighborhood, or zone.

\*\*Socio-economic status of the cluster. In cities, the census framework distinguishes four stratums organized by socio-economic status. The top stratum includes wealthiest and less populated neighborhoods.