

# KEY POINTS ON THE PRODUCTION AND USE OF VITAL STATISTICS

**SECOND REGIONAL WORKSHOP ON PRODUCTION AND  
USE OF VITAL STATISTICS**

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**Daejon, Republic of Korea**

# **KEY POINTS**

**on**

**Definition, Concepts and Uses of Vital  
Statistics**

# On Definition and Concepts

- A vital statistics system is defined as the total process of collecting information on
  - ✓ the frequency of occurrence of specified and defined vital events, and
  - ✓ the relevant characteristics of the events themselves and of the person or persons concerned, and of compiling, analysing, evaluating, presenting and disseminating these data in statistical form.

# On Definition and Concepts

- The vital events of interest are: live births, adoptions, legitimations and recognitions; deaths and foetal deaths; and marriages, divorces, separations and annulments.
- The United Nations recommends 10 vital events for inclusion in a vital statistics system: live birth, death, foetal death, marriage, divorce, annulment, judicial separation, adoption, legitimation and recognition.

# On Definition and Concepts

- The definitions of the 10 recommended events are made from a statistical point of view but are used in both civil registration and vital statistics.
- The civil registration system serves as the collecting agency, and the vital statistics system serves as the compiling and processing agency.
- Universal coverage means that the vital statistics system should include all vital events that occur in each geographic area and in each population group of a country.
- Continuity of the vital statistics system reflects long term trends and short-term fluctuations.

# On Definition and Concepts

- Continuity of the vital statistics system reflects long term trends and short-term fluctuations.
- Confidentiality must be preserved, while the system should provide access that is not overly restrictive.
- Monthly and/or quarterly totals of key vital events must be presented quickly for use in health intervention and population estimation programmes.
- Annual tabulations of vital statistics need to be published with minimal delay for demographic, economic and social service uses.

## On Uses

- A civil registration system is the continuous, permanent compulsory recording of the occurrence and characteristics of vital events, including all institutional, technical and legal settings needed to do so, as provided through decree or regulation in accordance with the legal requirements of each country.
- The civil registration method is the procedure employed to gather the basic observations on the incidence of vital events and their characteristics, upon which vital records with legal value are prepared and vital statistics are based. It is continuous and permanent, and can best be assured by legislation that makes civil registration compulsory.

## On Uses

- A civil registration system is needed to safeguard individual rights to social status and benefits. The system establishes identity, parental relationship, heirship and citizenship, and provides eligibility data for social benefits and age-related items, such as school entry, right to work and driver's license.
- As a total registration system, the civil registration system safeguards these rights for all the population and throughout the entire territory of the country.



## On Uses

- Total registration has an administrative advantage for monitoring such items as cause of death; and is able to identify individual needs, such as maternal or child health care.
- Total registration meets the need for data about small civil or geographic divisions.
- The statistical data supplied by a total civil registration system is not subject to sampling error.

## On Uses

- Total registration data can be evaluated against other records (e.g., census records).
- The records of a total registration system serve as a starting point for more intensive studies.
- Vital statistics are incidence statistics that provide a measure of occurrence during a specified period of time and on a current basis.

**KEY POINTS**  
**on**  
**Data Sources and**  
**Core Topics for Vital Statistics**

# On Data Sources

- The best collection method to achieve the purposes of a vital statistics system is through the civil registration system.
- Other data-gathering techniques can be used to estimate vital statistics rates while pursuing the ultimate goal of organizing a civil registration system. Such techniques can also supplement civil registration data for monitoring and evaluating well established systems.

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# On Core Topics for Vital Statistics

- Topics and themes to be investigated by the vital statistics system need to meet both national and international objectives.
- Countries may wish to collect additional data, but information should be collapsible to standard international categories.
- Exclude topics and themes for which one cannot collect meaningful, quality data.



# On Core Topics for Vital Statistics

- Topics and themes can be investigated through the civil registration method or through the use of household sample surveys.
- First priority topics and themes are an immediate goal for vital statistics systems.
- Direct topics and themes are collected by means of specific questions on the statistical report.
- Derived topics and themes are computed or inferred from other information on the statistical report.

# On Core Topics for Vital Statistics

- The field survey method (by sampling or census enumeration) serves
  - (1) as a supplement in countries with a good civil registration system;
  - (2) as an interim measure, where civil registration is lacking, deficient or under development;
  - (3) to evaluate and monitor completeness of civil registration data; and
  - (4) to provide denominators for vital statistics rates.

# On Core Topics for Vital Statistics

- The definitions and/or specifications of the topics and themes need to be compatible with international standards and current census practices.
- It is important that interviewers, data collectors and registrars be intimately familiar with the definitions and specifications for items on the statistical report, vital record, sample survey or census questionnaire.

**KEY POINTS**  
**on**  
**Compilation of Vital Statistics**

# On Compilation of Vital Statistics

- Advance planning includes priority setting on user needs, and consequently on data collection and tabulation
- Advance planning can involve periods of four or more years
- Vital statistics must be compiled for the entire geographic area, for minor civil divisions, and large cities and towns of the country

# On Compilation of Vital Statistics

- Planning includes how to generate vital statistics on major ethnic, national and nomadic sub-populations within the country
- Unless the number of events is overwhelming, compilation and tabulation are done centrally to guarantee uniform procedures

# On Compilation of Vital Statistics

- Procedures that need to be in place include:
  - (1) Controlling the receipt of the statistical reports;
  - (2) Manual editing;
  - (3) Querying ;
  - (4) Imputation;
  - (5) Manual coding;
  - (6) Data capture using electronic equipment;
  - (7) Electronic tabulation;
  - (8) Quality control

# On Compilation of Vital Statistics

- The process of receiving reports needs controls that guarantee timeliness, accuracy and completeness.
- Manual editing and querying have educational as well as accuracy and completeness benefits.
- Imputation of data is for items of statistical use only, and is not used to amend legal items on the record.



# On Compilation of Vital Statistics

- Manual coding is decreasing due to computerized applications, but is necessary for some problem records.
- Electronic data capture and electronic tabulation require careful attention during advance planning.
- Quality control is continuous and is necessary for both manual and computerized applications.

**KEY POINTS**  
**on**  
**Tabulation of Vital Statistics**

# On Tabulation

- Four criteria measure the effectiveness of a national vital statistics programme:
  - ✓ coverage of the statistics;
  - ✓ quality of the statistics;
  - ✓ tabulation detail that reveals important relationships;
  - ✓ timeliness of data release.
- For best statistical use, each event must be registered and reported within the legislatively established time period.

# On Tabulation

- The basic principle of geographic coverage is that each vital event occurring within the country must be registered and reported statistically.
- Limiting detailed tabulations to areas of known coverage completeness is an interim measure.
- Time periods used for tabulations should be specific calendar periods - month, quarter, calendar year.

# On Tabulation

- Final tabulations are presented by date of occurrence.
- Date of registration may be quicker to use for current weekly, monthly or quarterly summaries.
- A “cut-off” date is established for date-of occurrence reports to be included in final tabulations.
- It is customary to consider data on vital events occurring within a country as an approximation of the events occurring to the residents of the country.

# On Tabulation

- No international definition of usual residence is feasible, but a country's definition for vital statistics purposes should match the country's definition for census purposes.
- Countries are asked to follow a recommendation for determining place of usual residence for each vital event for the purposes of international uniformity.
- There is a set of recommendations for tabulation principles for systems using sample data and/or field survey data.

**KEY POINTS**

**on**

**Dissemination of Vital Statistics**

# On Dissemination

- Annual publications give the user a regular and dependable source for vital statistics data, and give the vital statistics agency visibility for its importance to society.
- Annual vital statistics data can be published in an attractively printed report, with data tables, graphs, charts, maps and analyses.
- Technical notes, definitions and explanation of formulas should be contained in appendices to the printed annual report.



# On Dissemination

- Analysis tools available on the market can be used to make initial presentations that can be refined as user input is received.
- Annual data should also be made available on computer tape, disk, diskette and/or CD-ROM for researcher use.
- Quarterly and monthly bulletins alert officials to unusual changes in vital statistics data, and can be a quality control tool for miscoded data.

# On Dissemination

- Quarterly and monthly data can be based on the date of registration to increase the speed of availability provided that appropriate technical notes accompany the data.
- Release of individual reports on electronic media can satisfy certain research and administrative uses of the data but must be done using proper safeguards for the confidentiality of the data.

## On Dissemination

- Certain uses of vital statistics data require special tabulations of data. It is recommended that the statistical agency supply analysis of the data produced by special tabulations to ensure its proper interpretation.
- The statistical agency should hold periodic technical meetings for users and potential users of its publications, electronic data and special tabulation services.
- The maintenance of a directory of users is recommended to ensure the efficient dissemination of publications and services to those who use and need them.

# **KEY POINTS**

**on**

**Evaluating the Quality of Vital Statistics:  
Completeness and Accuracy of Civil  
Registration and Choosing an Assessment  
Method**

# On Evaluating the Completeness and Accuracy

- The universality of civil registration is maintained through checks on completeness of registration.
- Direct evaluation of the completeness of civil registration matches the vital event records with those from an independent source.

# On Evaluating the Completeness and Accuracy

- Four methods of direct evaluation are:
  - (1) Civil registration records as an independent source;
  - (2) Using administrative or social records;
  - (3) Lists from population census and surveys as independent sources;
  - (4) Dual records systems.
- Matching infant death records to birth records evaluates completeness for that small portion of the file.

# On Evaluating the Completeness and Accuracy

- The infant death to birth match checks a portion of the record file where failure to file one record or the other can occur frequently.
- The use of administrative or social records to match the civil registration file is usually done at the central registration level since it involves records from other agencies as independent matching sources.
- Lists from census records and surveys can be matched against civil registration records for specific time periods.

# On Evaluating the Completeness and Accuracy

- The dual records system produces four mutually exclusive sets of records as an evaluation tool.
- Two high-quality sources that are independent give an accurate estimate of registration completeness, and sometimes reveal sources for registration problems.
- Direct methods can offer both national and local level analyses of the completeness and quality of civil registration.



# On Evaluating the Completeness and Accuracy

- There are a number of limitations that must be considered when using direct methods of evaluation of civil registration.
- The indirect methods of evaluation used to analyse the completeness and quality of vital statistics are also useful to analyse civil registration.

# On Evaluating the Completeness and Accuracy

- Six factors to consider in choosing an appropriate evaluation study are:
  - (1) The objectives of the study;
  - (2) The degree of precision of assessment;
  - (3) The time in which results are needed;
  - (4) The type of event(s) to be studied;
  - (5) Whether the study is of completeness or quality or both;
  - (6) The resources available.

# **KEY POINTS**

**on**

**Evaluating the Quality of Vital Statistics:  
Assessing the Completeness of Statistical  
Reporting and the Quality of Vital  
Statistics Data**

# On Assessing the Completeness of Statistical Reporting

- During the transfer of data or the statistical reporting of data, errors of omission can occur.
- Receipt and control systems should monitor the data as it passes through the levels of transmittal that the organizational structure requires.
- Computer frequency runs that compare the expected number of reports to the number actually received are a check on completeness of data transmission.

# On Assessing the Completeness of Statistical Reporting

- Direct assessment methods check the level of data quality and attempt to discover the sources of the problem.
- Indirect assessment methods indicate whether a data quality problem might exist.
- Six useful indirect methods are comparison of trends, surveillance of delayed registrations, patterns in the sex ratio at birth, comparison with census data, comparison of rates with similar populations or previous time periods, and use of incomplete data methods for comparison.

## On Assessing the Completeness of Statistical Reporting

- Comparison of trends and monitoring delayed registration are assessment methods that are useful at the local and national levels.
- Some inherent assumptions in certain methods (e.g., good census and migration data, stable fertility rates) will make those methods unusable for some developing countries.

## On Assessing the Completeness of Statistical Reporting

- Indirect assessment methods have the advantage of being applicable as soon as the data are available to be tested.
- Limitation of the population or geographic area to which the assessment is applied can allow the use of some methods whose assumptions would not work for the entire population or country.