Session 3
Data Sources and Core Topics for Vital Statistics

2 – 6 December, 2013
Daejon, Republic of Korea

Sources of data for a vital statistics

THE VITAL STATISTICS

- Vital records from the Civil Registration System
- Specific questions in Population Censuses
- Specific questions in Sample Surveys
- Vital records from Sample Registration Areas
- Records from Health Services
- Administrative records
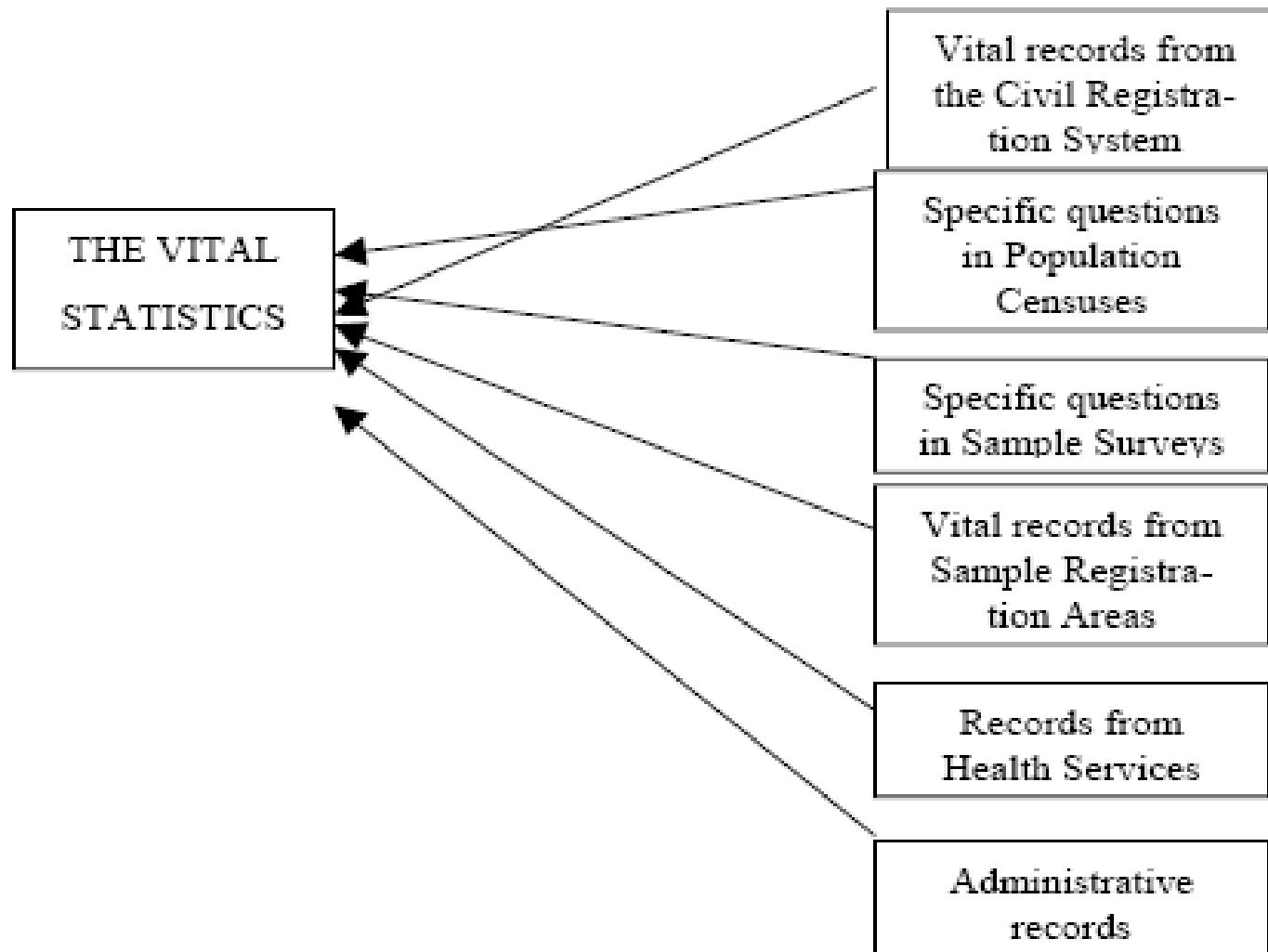
Sources of data for a vital statistics

- Vital statistics are preferably produced from information in a civil registration system, supplemented, as necessary, by information from household surveys, population censuses and sample registration, records from health services and other administrative records.
- There is no substitute for a well-designed and well-maintained civil registration system as source of data on vital events for the production of vital statistics.
- The use of complementary data sources such as population censuses and in-depth household surveys has also been made to enrich and evaluate civil registration data or to gather information on demographic or epidemiological processes in a way that complements the information obtained through civil registration

Sources of data for a vital statistics

- because of the fundamental importance of civil registration records to the efficient operation of a vital statistics system, events not usually subject to civil registration, such as, migration and naturalization, are ordinarily excluded from the vital statistics system
- when civil registration data do not exist or are deficient, or insufficiently reliable, some countries may have recourse to other data sources other than civil registration, that is, other sources of demographic statistics can be used to collect information on the incidence of vital events and to estimate or calculate vital rates
- These other sources are population censuses and household sample surveys

Sources of data for a vital statistics

- Even when civil registration is well established and maintained, these other sources of demographic data are useful in providing independent estimates of demographic parameters, which can be used for evaluating the level of completeness of civil registration and vital statistics or as complementary sources of demographic and health data
- Population censuses are essential in providing the necessary denominators to calculate vital rates and ratios in combination with civil registration data (numerators)
- Utilization of census data as denominators is indispensable when the civil registration system is not accompanied by a population register

Priority in method of collection

- in establishing or improving a vital statistics system, first priority should be given to setting up procedures for the registration of
  - live births
  - Deaths including causes of deaths
  - foetal deaths
- Births and deaths are fundamental to the understanding of the population dynamics and directly related to the measurement of key health indicators, such as infant and childhood mortality, maternal mortality and life expectancy

Priority in method of collection

- The priority for collection of information on the frequency and characteristics of foetal deaths should be almost as high as that for live births and deaths as there is increasing health-related interest and need for information about foetal loss to assist in the measurement of pregnancy outcome, women's health, and mortality occurring just before, during and shortly after the birth.
- The increasing importance given to the registration of foetal deaths is in recognition of their importance in measuring perinatal mortality and pregnancy outcomes.

Priority in method of collection

- the legal requirements for registration of foetal deaths vary considerably from country to country, but the World Health Organization recommends that, if possible, foetuses weighing at least 500 grams at delivery be included in the vital statistics of foetal mortality

- countries should seek to register foetal deaths weighing 500 or more grams or, if weight is not available, foetal deaths occurring after 22 weeks of gestation are completed or of 25 centimetres crown-heel body length should be registered

- a distinction should be made between the definition of the term "foetal death" and the registration requirements for such vital events; the definition is broadly inclusive and encompasses all products of conception which do not result in a live birth

Priority in method of collection

- such events as "spontaneous abortion," "miscarriage," "early foetal death" and "late foetal death" are examples of vital events which are included under the umbrella of the definition

- WHO recommendation suggests that a minimum weight, gestational age or body length be established and that foetal deaths of less than the minimum need not be registered

- it is important that the measurement of foetal development not be introduced into the definition of the event itself

Priority in method of collection

- for statistical purposes, priority is given to foetal deaths occurring after 28 weeks of gestation are completed

- lower priority is given to collection of marriage statistics through civil registration because many marriages constituted by religious or tribal ceremonies and extra-legal consensual unions and temporary marriages often go unregistered

- data based on the registration of statutory marriages and in some instances of religious ceremonies may have value for administrative purposes, but the needs of demographers, sociologists, economists and other users are seldom met by such data

Priority in method of collection

- population censuses and sample surveys may be better sources of data on the formation and dissolution of various kinds of marital unions

- particular attention is drawn to the desirability of exploring methods of obtaining information on non-statutory marital unions ("common-law" or "consensual" unions), with recognition of the fact that, given their characteristics, the collection of information on these unions may be difficult to obtain through a civil registration system

Priority in method of collection

- arrangements for the registration of annulments, judicial separations, adoptions, legitimations and recognitions should have a lower priority than births, deaths, foetal deaths, marriage and divorce, although these, too, are an ultimate registration goal

- where a field sample survey or population census is used as a supplementary means of collection, the events to be investigated can be any of the vital events, e.g., live births, deaths, foetal deaths, marriages and divorces

Priority in method of collection

- because of the expanding use of information for the measurement of population change, the order of first priority recommended for the collection of vital events by field sample survey or population census is given to live births and deaths; secondary priority is given to marriages

- the collection of other vital events, such as foetal deaths, is not recommended because of the problems of accurately reporting the events

Selection of topics and themes

- List of topics included in the global recommendations for vital statistics systems are derived from national experiences
- At the country level, there is a need to meet both national needs and international standards when selecting the topics and themes to be included in its vital statistics system
- Since the national standards are derived from national experiences, these two sets of criteria are rarely incompatible
- Sometimes, a country may need to collect data in more detail than necessary to meet international comparison objectives, in such a case the data can be collected in a way that permits it to be collapsed into categories appropriate to the international standards

Selection of topics and themes

- topics and themes to be investigated for the production of vital statistics are scrutinized for their capability of collection; if one cannot expect to collect meaningful quality data on a topic, then the topic is to be excluded

- some questions involving sensitive or complicated issues can often be saved; it is sometimes possible to collect data on a sensitive topic, if appropriate confidentiality safeguards are made clear to the respondents

- if a question seems too difficult for respondents to supply quality data as answers, one can pre-test alternative wordings of the question on a population sample

Selection of topics and themes

- Direct topics are those for which data are collected by way of specific questions on the statistical reports filled out at the time of registration.
- Derived topics are usually computed or inferred from information on the statistical reports and are not obtained from replies to direct questions. Examples are "age" if it is obtained from a question asking for date of birth and urban/rural occurrences if it is inferred from a question asking for specific place of occurrence or residence
- Derived topics are considered as tabulation components and represent important information which is to be obtained from data collected on the statistical reports

Topics and themes to be investigated for vital statistics purposes through the civil registration system

---

1. LIVE BIRTH

Direct topics	Derived topics

(i) Characteristics of the event - dates (time reference)

Date of occurrence (of birth) (1) (14)	
Date of registration (2)	

Geographic characteristics

Place of occurrence (3)	Locality of occurrence (4) Urban/rural occurrence (5)
Place of registration (3)	

Other characteristics

Type of birth (i.e. single, twin, triplet, quadruplet or higher multiple delivery) (44)	
Attendant at birth (45)	
Type of place of occurrence (hospital, home, etc.) (52)	

(ii) Characteristics of the child and of the parents
(ii a) Characteristics of the child

Sex (15)	
Birth weight (17)	

(ii b) Characteristics of the mother

Date of birth (14) or Age (12)	Age (12) (derived only if date of birth is collected)
Marital status (33)	Child born in wedlock (Legitimacy status) (16)
Educational attainment (37)	
Literacy status (38)	
Ethnic and/or national group (39)	

| Citizenship/nationality (40) | |

Economic characteristics

Economic activity status (41)	Socio-economic status (43)
Usual occupation (42)	

Geographic characteristics

Place of usual residence (6)	Locality of residence (4) Urban/rural residence (5)
Duration of residence in usual place (7)	Migrant status (11)
Place of residence at a specified time in the past (9)	
Place of birth (10)	

Other characteristics of the mother

Date of last menstrual period of the mother (18) or Gestational age (19)	Gestational age (19) (derived only if date of last menstrual period is collected)
Number of prenatal visits (20)	
Month of pregnancy prenatal care began (21)	
Children born alive to mother during her entire lifetime (23)	Birth order or parity (26)
Children born to mother during her entire lifetime and still living (24)	
Foetal deaths to mother during her entire lifetime (25)	
Date of last previous live birth (28)	Interval since last previous live birth (27)
Date of marriage (32)	Duration of marriage (31)

(iii c) Characteristics of the father

Date of birth (14) or Age (12)	Age (12) (derived only if date of birth is collected)
Marital status (33)	
Educational attainment (37)	

17

Topics and themes to be investigated for vital statistics purposes through the civil registration system

Literacy status (38)	
Ethnic and/or national group (39)	
Citizenship/nationality (40)	

Economic characteristics

Economic activity status (41)	Socio-economic status (43)
Usual occupation (42)	

Geographic characteristics

Place of usual residence (6)	Locality of residence (4) Urban/rural residence (5)
Duration of residence in usual (present) place (7)	Migrant status (11)
Place of residence at a specified time in the past (9)	
Place of birth (10)	

(iii) Characteristics of population at risk (54)

To be obtained independently from population censuses,

population registers, sample surveys and inter-censal estimation procedures

Topics and themes to be investigated for vital statistics purposes through the civil registration system

---

2. DEATH

(i) Characteristics of the event - dates (time referenced)

Date of occurrence (1)	
Date of registration (2)	

Geographic characteristics

Place of occurrence (3)	Locality of occurrence (4) Urban/rural occurrence (5)
Place of registration (3)	

Other characteristics

Cause of death* (48)	
Manner of death (49)	
Whether autopsy findings were used to establish cause of death (50)	
Pregnancy-related death (for females 15-49 years of age) (51)	
Certifier (46)	Type of certification (47)
Attendant at birth (for deaths under one year of age) (45)	
Type of place of occurrence (hospital, home etc.) (52)	

(ii) Characteristics of the decedent
Personal characteristics

Date of birth (14) or Age (12)	Age (12) (derived only if date of birth is collected)
Sex (15)	
Marital status (33)	
Date of marriage (32)	Duration of marriage (31)

*The statistical report on the cause of death should include reports on the Medical Certificate of Cause of Death (see para. 110), see also International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, (Geneva, 1992), vol 1

Topics and themes to be investigated for vital statistics purposes through the civil registration system

Children born alive to mother during her entire lifetime (for females of child-bearing age and over) (23)	
Children born to mother during her lifetime and still living (for females of child-bearing age and over) (24)	
Educational attainment (37)	Socio-economic status (43)
Literacy status (38)	
Ethnic (and/or national) group (39)	
Citizenship/nationality (40)	
Whether birth was registered (for deaths under one year of age) (22)	
Born in wedlock (for deaths under one year of age) (16)	Legitimacy status (for deaths under one year of age) (16)

Economic characteristics

Economic activity status (41)	Socio-economic status (43)
Usual occupation (42)	

Geographic characteristics

Place of usual residence (6)	Locality of residence (4)
Place of usual residence of the mother (for deaths under one year of age) (6)	Urban/rural residence (5)
Place of previous residence (8)	Migrant status (11)
Place of residence at specified time in the past (9)	
Place of birth (10)	

(iii)   Characteristics of population at risk (54)

To be obtained independently from population censuses,

population registers, sample surveys and inter-censal estimation procedures

Topics and themes to be investigated for vital statistics purposes through the civil registration system

3. FOETAL DEATH

(i) Characteristics of the event - dates (time reference)

Date of occurrence (of foetal delivery) (1)	
Date of registration (2)	

Geographic characteristics

Place of occurrence (3)	Locality of occurrence (4) Urban/rural occurrence (5)
Place of registration (5)	

Other characteristics

Type of birth (i.e., single, twin, triplet, quadruplet or higher multiple delivery) (44)	
Attendant at birth (45)	
Certifier (46)	Type of certification (47)
Cause of foetal death (48)	
Type of place of occurrence (hospital, home etc.) (52)	

(ii) Characteristics of the foetus and of the parents
(ii a) Characteristics of the foetus

Sex (15)	
Born in wedlock (16)	Legitimacy status (16)
Weight at delivery (17)	
Date of last menstrual period of the mother (18) or Gestational age (19)	Gestational age (19) (derived only if date of last menstrual period is collected)

(ii b) Characteristics of the mother

Date of birth (14) or Age (12)	Age (12) (derived only if date of birth is collected)

Topics and themes to be investigated for vital statistics purposes through the civil registration system

Number of prenatal visits (20)	
Month of pregnancy prenatal care began (21)	
Children born alive to mother during her entire lifetime (23)	Birth order or parity (26)
Children born to mother during her entire lifetime and still living (24)	
Foetal deaths to mother during her entire lifetime (25)	
Date of last previous live birth (28)	Interval since previous live birth (27)
Date of marriage (32) or Duration of marriage (31)	Duration of marriage (31) (derived only if date of marriage is collected)
Educational attainment (38)	Socio-economic status (43)
Literacy status (38)	
Ethnic (and/or national) group (39)	
Citizenship (nationality) (40)	
Economic characteristics	
Economic activity status (41)	Socio-economic status (43)
Usual occupation (42)	

Geographic characteristics

Place of usual residence (6)	Locality of residence (4) Urban/rural residence (5)
Place of birth (10)	Migrant status (11)

(iic) Characteristics of the father

Personal characteristics

Date of birth (14) or Age (12)	Age (12) (derived only if date of birth is collected)
Educational attainment (37)	Socio-economic status (43)
Literacy status (38)	

Topics and themes to be investigated for vital statistics purposes through the civil registration system

Ethnic (and/or national) group (39)	
Citizenship (40)	

Economic characteristics

Economic activity status (41)	Socio-economic status (43)
Usual occupation (42)	

Geographic characteristics

Place of usual residence (6)	Locality of residence (4) Urban/rural residence (5)
Place of birth (10)	Migrant status (11)

(iii)   Characteristics of denominator (live births)
Information is obtained from the civil registration system

---

4. MARRIAGE

(i) Characteristics of the event- dates (time reference)

Date of occurrence (of marriage) (1)	
Date of registration (2)	

Geographic characteristics

Place of occurrence (3)	Locality of occurrence (4) Urban/rural occurrence (5)
Place of registration (3)	

Other characteristics

Type of marriage (53)	

(ii) Characteristics of bride and groom (separately)

Personal characteristics

Date of birth (14) or Age (12)	Age (12) (derived only if date of birth is collected)
Marital status (previous) (33)	
Number of previous marriages (34)	Marriage order (35)
Educational attainment (37)	Socio-economic status (43)
Literacy status (38)	
Ethnic (and/or national) group (39)	
Citizenship (40)	

Economic characteristics

Economic activity status (41)	Socio-economic status (43)
Usual occupation (42)	

Topics and themes to be investigated for vital statistics purposes through the civil registration system

Other characteristics	
Place of usual residence (6)	Locality of residence (4) Urban/rural residence (5)
Duration of residence in usual (present) place (7)	Migrant status (11)
Place of previous residence (8)	
Place of residence at a specified time in the past (9)	
Place of birth (10)	

(iii.) Characteristics of population-at-risk (34)

To be obtained independently from population censuses, population registers, sample surveys and intercensal estimation procedures

---

5.   DIVORCE

(i)   Characteristics of the event - dates (time reference)

Date of occurrence (of divorce) (1)	
Date of registration (2)	

Geographic characteristics

Place of occurrence (3)	Locality of occurrence (4) Urban/rural occurrences (5)
Place of registration (3)	Locality of registration (4)

(ii)   Characteristics of divorces (husband and wife separately)

Personal characteristics

Date of birth (14) or Age (12)	Age (12) (derived only if date of birth is collected)
Type of marriage being dissolved (33)	
Number of dependent children of divorced persons (30)	
Number of children born alive to the marriage being dissolved (29)	
Date of marriage (32) or Duration of marriage being dissolved (31)	Duration of marriage (31) (derived only if date of marriage is collected)
Mode of dissolution of previous marriage (36)	
Number of previous marriages (34)	Marriage order (35)
Educational attainment (37)	Socio-economic status (43)
Literacy status (38)	
Ethnic (and/or national) group (39)	
Citizenship (nationality) (40)	

Economic characteristics

Economic activity status (41)	Socio-economic status (43)
Usual occupation (42)	

Geographic characteristics

Place of usual residence (6)	Locality of residence (4)
	Urban/rural residence (5)
Duration of residence in usual (present) place (7)	Migrant status (11)
Place of previous residence (8)	
Place of residence at specified time in the past (9)	
Place of birth (10)	
Place of occurrence of marriage being dissolved (3)	

(iii.)   Characteristics of population-at-risk (54)

To be obtained independently from population censuses, population registers, sample surveys and intercensal estimation procedures.

Definitions and specifications of topics and themes

- it is important that the data for the vital statistics system be compatible with international standards and definitions for population census, demographic sample surveys and population registers

- adherence to international standards and definitions allows country-to-country comparisons

- accord with current population census definitions and practice is essential since vital statistics frequencies are related to census population counts and intercensal estimates in order to develop vital statistics rates

Definitions and specifications of topics and themes

- accord with international standards and current census practice requires that each item on the statistical report, vital record, sample survey or census questionnaire be clearly, explicitly and equally defined in as simple terms as possible; in this way the interviewer or collector or registrar can obtain accurate and comparable information for statistical purposes

- the interviewer or collector or registrar must be intimately familiar with the definitions and/or with specifications of the direct and derived topics and themes listed above for civil registration and censuses and sample surveys and how to apply them

I. Information that can be collected for fertility and mortality estimation in population censuses and single-round retrospective sample surveys that use census-type questions

1. For all members of the household
   In addition to the basic data collected through censuses and surveys, it is useful to include these topics:
   - relationship among the members of the family
   - identity of the mother, if living in the household (her number in the questionnaire)
   - date of birth (in addition to the age, optional)
   - orphanhood from mother/father (or survival of parents)

2. Information that can be collected for selected members of the household
   For women 15 years of age and over (or the minimum age adopted in the country):
   - total number of children ever born alive, by sex
   - total number of children ever born alive and still living, by sex
   - date of birth and sex of the last child born alive
   - survival of the last child born alive at the time of the survey
   - date of death of the last child born alive
   - age at first marriage
   - age at first child
   - duration of marriage (or date of first marriage)

3. Information that can be collected for all households in a census and/or a sample retrospective survey
    - number of deaths in the household during the previous 12 months (recent deaths)
    - For each deceased:
        - name and surname
        - sex
        - date of birth (or age)
        - date of death (day, month, year)

4. Population-at-risk
    Household members, depending on the census and survey methodology adopted
    – usually, censuses and surveys cover population in the households during a specified period or at specific moment in time
    – in case of censuses, there are two types of approaches for collecting data
        ○ de facto
        ○ de jure
    – some countries use a combination of both procedures

4. Population-at-risk
   – census results give the base line figures for future adjustments and estimates, provided that the net migration has been minimal
   – estimates obtained from these figures constitute the population at risk for calculating vital rates and ratios in combination with vital statistics from registration data

II. Information that can be collected in individual in-depth single-round retrospective surveys

In order to estimate fertility and mortality parameters through in-depth single-round retrospective sample surveys, specific questions may be included in the survey to collect the following information (in addition to the basic topics which are usually investigated):

1. For all members of the household
    - Relationship among the members of the family
    - Identity of the mother, if living in the household (her number in the questionnaire)
    - Date of birth
    - Age

2. Information that can be collected for selected members of the household
   For women in reproductive ages (or any other well defined sub-universe of women, e.g., ever-married women of 15 to 54 years of age):
   - Census-type questions on fertility and mortality
   - A birth history (or a maternity/ pregnancy history) may be completed for each selected woman

2. The information to be collected for each child born alive(if a birth history is used) and for each outcome of pregnancy (if a pregnancy history is used) should include:
   - name
   - date of birth (day, month and year)
   - sex
   - survivorship status and
   - age at last birthday, if alive
   - age at death, if dead (or date of death: day, month and year)
   - gestational age, if foetal death (in completed weeks of gestation)
   - date of occurrence, if foetal death (day, month and year)

2. Information for women:
   - age
   - age at first marriage
   - age at first birth
   - duration of marriage (or date of first marriage)
   - history of marriages

3. Population-at-risk
    - household members present
    - household members temporarily absent
    - household visitors
    - geographical location of the household

    For the purposes of obtaining information on births and deaths, it is recommended that the household include household members present and household members temporarily absent; household visitors should be excluded

III. Information that can be collected in a follow-up (or multi-round) demographic sample survey

In follow-up surveys, data on fertility, mortality and nuptiality are collected in a prospective approach and the sampled households are interviewed repeatedly within certain periods of time to record changes in the household in each visit (e.g., every six-month interval).

III. The topics and themes set out below can include:
   1. Information that can be collected from all members of the household
      - name and surname
      - relationship to the head of the household
      - relationship among the members of the family
      - identity of the mother, if living in the household (line number in the questionnaire)
      - sex
      - date of birth (day, month and year)
      - age
      - ethnic (and or national group)
      - place of birth
      - place of residence

2. Information that may be collected for selected members of the household

    For persons 15 years and older:
    - Marital Status (civil status)

    For women 15 years of age and over:
    - If pregnant at time of interview, number of weeks

2. Topics at each subsequent interview for each person in the household:
   - name and surname
   - date of birth, if a new live birth (day, month, year)
   - sex
   - survivorship status of each person
   - age at death, if dead (or date of death: day, month and year)
   - gestational age, if foetal death (in completed weeks of gestation)
   - date of occurrence, if foetal death (day, month and year)

2. Topics at each subsequent interview for each person in the household:
    - identity of the mother of the live birth (or foetal death) (line number in the questionnaire)
    - immigrant (day, month and year the household member arrived to live in the household)
    - emigrant (date, month and year the household member left the household to live elsewhere)

2. Population-at-risk
   - household members present
   - household members temporarily absent
   - household visitors
   - geographical location of the household

IV. Information that can be collected in a sample registration system
   – topics and themes to be recorded in the sample registration system can be the same as that collected in full registration
   – countries may choose a short list of topics to start with, and then gradually expand it as the registration system matures
   – it is essential that the topics/themes needed for estimating fertility and mortality be included from the start

V. Information that can be collected in a dual-records system
- when the sample registration system is combined by a retrospective survey in the same sample registration area, the system is known as a <u>dual-records system</u>
- <u>t</u>he retrospective survey should be carried out by independent field workers
- data required in this case to include the vital events under investigation as well as the data required for legal purposes
- information selected for collection in the first survey will determine the information to be collected in the retrospective survey for matching the two survey results