Session 5
Compiling and Processing of Vital Statistics

SECOND REGIONAL WORKSHOP ON PRODUCTION AND USE OF VITAL STATISTICS

2 – 6 December, 2013
Daejon, Republic of Korea

Principles for compiling and processing vital statistics based on a civil registration

Advance planning is crucial to the success of any statistical program

- The vital data and the form that records the data determine the kind of statistics that can be processed
- Regardless of the method of processing, the statistics compiled and tabulated cannot be more accurate and complete than the data from which they are derived

Principles for compiling and processing vital statistics based on a civil registration

- The statistical processing plan should address several issues:

1. Ensure the information needed by major data users will be collected
2. To ascertain what tabulations are needed by the users
3. Long range programming is needed because the execution of the statistical program for a given year is usually made a few years in advance, therefore a 3-4 year plan for the collection, editing, querying, coding, sorting and tabulation of the data and the analysis, evaluation, interpretation and the dissemination of the results is critical to ensure the success of these programs

Principles for compiling and processing vital statistics based on a civil registration

- Vital statistics should be compiled for the total geographic area of the country, for each major or other minor civil division and for each principal town and city
- They should also distinguish urban and rural for at least the country as a whole and for each major or other civil divisions
- Where registration of vital events for important population subgroups is less than 90 percent complete or the quality of the data is poor, separate tabulations should be made for the various segments of the population, accompanied by a clear statement of the qualifications and limitations of the data wherever the statistics appear

Principles for compiling and processing vital statistics based on a civil registration

2. National centralized compilation from individual statistical reports (either paper based or electronic)
   - National vital statistics should be compiled and tabulated uniformly for the country, using common definitions, classifications, coding, querying, data entry and editing procedures throughout
   - Tabulations should conform, as a minimum, to predetermined tabulation plans, and should permit flexibility and adaptability to meet national and international requirements

Principles for compiling and processing vital statistics based on a civil registration

- In order to produce the highest level of accuracy, uniformity and flexibility, it is recommended that compilation from individual reports, either paper based or electronic, be undertaken centrally
- When compilation is carried out in decentralized manner, detailed written guidelines, dealing with such procedures as coding, editing, querying and data entry, must be issued by the central national authority

Procedures in a centralized scheme for vital statistics production

The following are the important procedures that need to be in place to ensure quality and reliable data in a centralized scheme for vital statistics production

1.Controlling the receipt of statistical reports
2.Manual editing
3.Querying procedures
4.Imputation of missing or inconsistent data items
5.Manual coding of data
6. Data capture procedures for paper-based statistical reports
7. Tabulation using electronic equipment
8. Quality control

Procedures in a centralized scheme for vital statistics production

The following are the important procedures that need to be in place to ensure quality and reliable data in a centralized scheme for vital statistics production

1.Controlling the receipt of statistical reports

•controlling the receipt of the statistical reports is important in terms of both timeliness and completeness of the data

National centralized compilation

1. **Controlling the receipt of statistical reports**

- computer-generated reports can be helpful in tracking timeliness
  - the computer can also be used to supply management with a record of the timeliness with which data are being reported from the field offices or suppliers
    - Are the prescribed time limits for completing the cause-of-death certification being met?
    - Are local registrars reporting events to the central office in a timely manner?
    - Are hospitals forwarding the birth data to the registrar on time?

National centralized compilation

1. **Controlling the receipt of statistical reports**

    - by collecting dates on the record and entering them into the master file, monthly or quarterly runs can be done to evaluate the timeliness of those processes
    - reports back to the registrars, hospitals, etc. can often dramatically improve the levels of timeliness
    - without internal system review, timeliness of reports can often fall victim to other competing concerns

National centralized compilation

1. **Controlling the receipt of statistical reports**

- controls can also be put in place for completeness and accuracy; management:
    - should look at monthly frequency runs from the master files to review completeness and accuracy of the files
    - the number of events of each kind that should be reported during a particular month can be anticipated based on previous history and population levels

National centralized compilation

1. Controlling the receipt of statistical reports

- a set of variable ranges can be developed (e.g., age of mother, birth weight, number of deaths by cause) and when the frequency is outside the range or in some cases when the specific variable—such as mother's age—is outside the expected range a query should be initiated
- frequency checks each month can also be used by management to monitor the number of missing or unknown values

National centralized compilation

1. Controlling the receipt of statistical reports

- a higher than anticipated count of missing or unknown values could signal some failure in the reporting system
- system failure needs immediate attention by the field training team

National centralized compilation

2. Manual editing

•manual editing of statistical reports at the central office can detect missing, inconsistent, inappropriate or obscure items

•a visual check by trained staff can be followed by direct contact with the local office responsible for the questionable report

•the process adds accuracy to the records and also has an educational component to help diminish this type error on future reports

National centralized compilation

3. Querying procedures

•querying procedures are a part of the vital statistics system that improve the resulting statistics

•items on the report with missing, inconsistent or inappropriate responses should be questioned or “queried”

•this querying process should be adopted as an integral part of the vital statistics system in order that the resulting statistics may be improved

•it is important that the appropriate reporting office or the person responsible for filling out the item in question be queried

National centralized compilation

3. Querying procedures

•if a direct query to this individual (for example the physician, the midwife etc.) is not possible from the national office, it may be necessary to contact the local registrars and request that they contact the appropriate source

•once data have been queried, the corrected data must be transmitted to the central office (or sub-national office if that is the case); how this is accomplished will vary from country to country

National centralized compilation

3. Querying procedures

- in some areas of the country, the local registrar may forward a corrected report. In others, the corrected information may be obtained over the telephone or other means

- in either case, if the item is of legal as well as statistical concern (e.g., place of occurrence or date of death), it is important that the correction be made on the legal record in addition to the statistical report

- a mechanism must be established in the local civil registration office to ensure that this happens

National centralized compilation

4. Imputation of missing or inconsistent data items

- imputation of missing or inconsistent data items is a process that can be used on items that will be used for statistical purposes only; it is not a process that can be used to amend the legal record

- on items to be used for statistical purposes only, where the querying procedures described above fail to provide the data, it is sometimes possible to assign a probable value for the unknown item

National centralized compilation

4. Imputation of missing or inconsistent data items

- imputation
  - in some instances, the query process will not result in a corrected data item; in those cases, it may be possible to “impute” the data required
  - imputation is the process of assigning the most probable value to an item whose exact value is unknown

National centralized compilation

4. Imputation of missing or inconsistent data items

- two major types of imputation
  - "cold deck" imputation method
    - it may be possible to impute a child's legitimacy status from the surnames and civil status of his/her parents
    - assignment of the "race" code item to the most common racial group of the respondent's geographical area of residence
  - "hot deck" imputation method
    - when imputation is carried out using the same value as the previous person having the similar personal characteristics

National centralized compilation

4. Imputation of missing or inconsistent data items

- in all cases, imputation should not be undertaken unless
  - vigorous querying efforts have failed
  - there is a high probability that the imputed value will represent the true value of the item in question

National centralized compilation

5. Manual coding of data

•manual coding of data is gradually yielding to computerized applications; coding translates the item into numerical values to facilitate processing by computerized means; electronic reporting accomplishes the translation in a manner transparent to the person recording the event

•manual coding for cause of death, place of occurrence, place of registration, usual place of residence and occupation are currently yielding to software programmes that accomplish major percentages of the coding electronically

National centralized compilation

5. Manual coding of data

•the availability of appropriate software in these areas is not, however, universal; where manual coding is necessary, there should be clearly written instructions, definitions and classifications; adherence to them should be ensured by designating trained personnel to provide oversight to this task

•recommended international standards should be followed; this is also true in a computerized system, where a small percentage of electronically rejected records are coded manually

National centralized compilation

6. Data capture procedures for paper-based statistical reports

- data capture procedures for paper-based statistical reports must use all 5 recommendations discussed

- control of receipt, manual editing, querying, data imputation and manual coding are all applicable

- according to the organization of the system and available resources, a country may apply different levels of automation for each of the procedural steps

National centralized compilation

6. Data capture procedures for paper-based statistical reports

- at some point, the data from the statistical reports is converted to electronic form; this may occur at the central office in a centralized system

- automation of the data may occur at subnational levels in a decentralized system, with the automated data being transferred to the central office for integration with other state or province data

National centralized compilation

7. Data capture using electronic equipment

- the guiding principle remains that uniform procedures for compilation and tabulation should be employed throughout the process and throughout the country

- data capture using electronic equipment is a growing trend; rapid advances in technology create new options in this area at an equally rapid rate

- a combined form that records the data for both civil registration and vital statistics should be given consideration

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***automated cause of death coding***
    - the World Health Organization (WHO) has made comparability of cause of death data possible worldwide through the development and revisions of the International Classification of Diseases and Related Health Problems (ICD)
    - assigning the codes of the classification and applying the associated rules to select the underlying cause of death when multiple causes are listed are not easy tasks

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***automated cause of death coding***
    - long periods of training are necessary to develop nosologists who can accomplish the work; this problem led to the development in the late 1960s and early 1970s of the Automated Classification of Medical Entities (ACME)
    - the National Center for Health Statistics of the United States of America pioneered the evolution of the ACME software

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***automated cause of death coding***
    - for each cause listed on the record, the user enters both the ICD code for that cause of death and its location on the record into the ACME system
    - using this information, the software applies the ICD rules and selects the underlying cause of death
    - other advantages of ACME are that the software can track the assumptions made during the selection of the underlying cause, and can capture all the causes electronically, making possible multiple cause of death analysis

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***automated cause of death coding***
    - although use of ACME does not require a trained nosologist, the skill and medical knowledge level needed remains very high
    - in response to this, NCHS produced a pre-processor known as Mortality Medical Indexing, Classification, and Retrieval System (MICAR)
    - this pre-processor allows entry of the causes of death without coding

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***automated cause of death coding***
    - a subsequent software development, called Super MICAR, permits the entry of causes of death, an abbreviation, or code for frequently used entries
    - this version of the software brings entry of cause of death within the skills of a mid-to-high level clerical employee

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***automated cause of death coding***
    - the programs originally written for these software products required the use of mainframe computers that were beyond the resources of many civil registration systems; however, they can now be used on personal computers
    - as noted by one authority, in the past, only a few countries could afford to produce multiple cause tabulations such as they were

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***automated cause of death coding***
    - with the adoption of the automated coding system, all countries will expect to generate, as a by-product, multiple cause data
    - it is time that serious study is given to the development of a useful body of multiple cause statistics

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic birth record***
    - a number of vendors offer software that will allow reporting the birth record by electronic means
    - the software is generally loaded to a personal computer
    - Several screens ask the operator to enter the record information for the birth

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic birth record***
    - edits are built into the software so that questionable entries are queried on the spot. For example, if a mother's age is entered as 53, the software might be set to consider this age outside the normal range
    - a query would ask the operator if the entry is correct

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic birth record***
    - when a sufficient number of records have been loaded into the software, they may be printed onto paper and also loaded onto a diskette in electronic form
    - alternatively, the records may be sent by telephone modem directly to the main data-base
    - if the system is Internet-based, the records will have already been captured by the central server

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic birth record***
    - capturing birth records electronically works with particular efficiency when a large percentage of the births occur in hospitals
    - applications of the software have also been made where data are collected at a number of regional registries for electronic shipment to a central registry

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic birth record***
    - the software can be tailored to the needs of individual users; it can be designed to assign the birth record number automatically
    - it can also automatically complete information that is specific to a site
    - for example, the hospital location, the physician's address or the local registrar's information can be entered once and then automatically affixed to each record

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic birth record***
    - the software can also offer report generators
    - if the package is being used at a specific hospital, reports can be generated by type of delivery by physician for that hospital
    - usually the software generates a paper copy of the record, as well as downloading the information electronically
    - the paper copy may or may not be necessary, depending on the back-up structure for the total system

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic death record***
    - the electronic death record is similar to the electronic birth record in that the reporting takes place electronically
    - it is different from the electronic birth record in that there are usually several reporting sources for the information
    - the family (or in some countries a funeral director) reports the demographic information about the decedent through a registrar

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic death record***
    - if the death occurs in an institution, this report may be initiated at the institution
    - for natural deaths the cause of death will be reported by a physician, while the report might come from a coroner or medical examiner in cases of traumatic deaths

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic death record***
    - the multiple sources for death reporting have affected the design of electronic death reporting systems
    - an internet design with the multiple sources reporting to a central server has proven most feasible
    - a second result of having multiple sources is a need for communication among the various reporters

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic death record***
    - one must examine the system to determine a hierarchy of who reports what and when it is reported
    - for example, the registrar may be assigned top authority for demographic reporting; the coroner may be given the ultimate decision making authority on cause and manner of death for traumatic causes

National centralized compilation

7. Data capture using electronic equipment

- current applications available
  - ***electronic death record***
    - if the report of death is initiated by the physician, it is then the physician's responsibility to notify the registrar that the record needs demographic data
    - according to the system and local circumstances, the notification can be done by e-mail, fax, or telephone
    - If electronic communication is not possible, then printed forms can be used

National centralized compilation

7. Data capture using electronic equipment

- an interim measure used in automated data capture is optical disk technology

- the technology seems to have limited long-term application in civil registration and vital statistics, although it can offer short-term solutions for storage problems, depending on a country's needs and available resources
    - optical disk technology
        - a newer technology that offers problem solution similar to microfilm

National centralized compilation

7. Data capture using electronic equipment

- optical disk technology
  - this system digitizes the copy of the record so that it can be stored electronically, thus responding to climatic and storage problems the digitized record is also retrievable, and with appropriately worded statutes one can issue official copies from the digitized version this technology even allows enhancement of the images of stored records the enhancement capability is helpful for older, faded records an emerging technology with similar benefits is known as “Computer Output to Laser Disk (COLD)”

National centralized compilation

7. Data capture using electronic equipment

- optical disk technology
  - as with microfilming of records and registers, optical disk technology offers a good interim measure for the storage and preservation of records while a computerized system is being developed
  - it can also serve as an efficient back-up system during the later phases of the computerization development
  - as with microfilming, the optical disk system will need an automated index to make locating the records a productive process

National centralized compilation

7. Data capture using electronic equipment

- optical disk technology
  - it is important to note, however, that microfilm, optical and laser disk technology offer back-up system capability
  - at this point in time, these systems are not designed to allow use of the data for statistical purposes in the way that the computerized system is

National centralized compilation

8. Tabulation using electronic equipment

- offers a substantial increase in processing speed and the ability to perform more complex cross-classifications

- these electronic applications require more advance planning among registration and vital statistics officials, systems analysts and computer programmers

National centralized compilation

8. Tabulation using electronic equipment

- in addition to the determination of user needs, planning for computerization of the tabulation process involves hardware and software selections and security precautions

- a good guide for this planning is *the United Nations publication Handbook on Civil Registration and Vital Statistics Systems: Computerization*

National centralized compilation

8. Quality control

•process that takes place from the initial recording of the data to the final publication of vital statistics information

•whatever the combination of manual and automated functions, appropriate quality control mechanisms are necessary

•verification of coding and keying procedures can be done on a total or sample level, based on decisions about error tolerance limits

National centralized compilation

8. Quality control

•where there is a mix of input methods, i.e., some by electronic means and some by manual methods, the quality control checks applied to each type of input should maintain the same limits of error tolerance and as far as possible apply the same edits to the data

National centralized compilation

8. Quality control

- edit checks on data that are tabulated electronically need to examine frequency distributions for expected levels, inconsistent and extreme data items, levels of “unknown” responses, unusual clumping of records within classifications etc.
- computerized tabulations can introduce errors into final results through programming mistakes that send items to incorrect classifications
- prior to publication, both statisticians and computer personnel should inspect the data for credibility and consistency in this area

TABULATION

contoso

Tabulation Principles

- the effectiveness of a national vital statistics programme can be measured by the following four criteria
  - coverage of the statistics it produces
  - quality of those statistics in terms of accuracy and completeness
  - whether the tabulations are of sufficient detail to reveal important relationships
  - timeliness of its availability including publications

Tabulation Principles

- in order that all criteria may be met, the tabulation program should be constructed in accordance with the following basic principles
  - Tabulation coverage
  - Time reference
  - Geographic reference

TABULATION COVERAGE

- A basic requirement of a vital statistics system is that each vital event that occurs within the area's geographical system must be registered once and only once for legal purposes, and must be reported for statistical purposes

TIME REFERENCE

- For best statistical use, each event must be registered and reported within the time period specified in the civil registration and vital statistics law(s)
- for example, the draft model law stipulates that “The entry of birth shall be made on the basis of a declaration made within 30 days following the delivery”

- with regard to death and foetal death, the draft law requires the following
  - entries of death shall be made on the basis of the declaration made immediately after the death of a person is known

TIME REFERENCE

- apart from the declaration which the persons referred to in the preceding article are required to make, any physician who treated the decedent during his last illness or, failing that, who treated him at any time, shall in all cases be required to immediately give the registrar who is competent to make the entry a medical certificate of death
- the medical certificate shall state the identity data of the issuing physician, together with the circumstances of the death, the time, date and place, with a statement as to both the basic and the immediate cause of death

TIME REFERENCE

- it shall also give the identity data of the decedent, indicating the sources of such information
- in the absence of a physician, verification shall be based on the declaration of two qualified witnesses who witnessed the death or have certain knowledge of it, or even by the registrar himself examining the corpse
- any verification made by the registrar who is competent to make the entry may not extend beyond 48 hours

TIME REFERENCE

- the persons required by law to declare births and the physicians who attended the delivery and wrote the compulsory medical record, are also required to make a timely declaration of the foetal death to enable the statistical report to be completed, within a period of 48 hours
- in preparing the tabulations, a decision needs to be made whether to use the date of registration or the date of occurrence of the event

TIME REFERENCE

- marriages performed by the local registrar are entered in the record at the time that the marriage is celebrated
- religious or other validly celebrated marriages must be registered within 30 days
- the model law specifies that divorces are to be registered within 30 days of becoming final
- the model law also addresses the time period allowed for filing the statistical report

TIME REFERENCE

- the recommendation is to present final tabulations based on the events that occurred during the time period specified
- if it becomes necessary to tabulate final figures on date of registration rather than date of occurrence, then an evaluation of the degree of difference to be expected between the two types of tabulation should be done
- the results of this analysis should be published with the final tabulations

TIME REFERENCE

- the recommendation to use date of occurrence is for final tabulations
- for current weekly, monthly or quarterly summaries, it may be quicker to compile the data by date of registration, thus, events registered in the first week of January could be compiled during the second week of January
- events occurring in the first week of January might not be reported until early February, according to the legislative limits established depending on the time limits and reporting procedures of a system, using the date of registration could make data available with a substantial increase in timeliness

TIME REFERENCE

- when this is done, it must be made clear that the data are being tabulated by registration date rather than date of occurrence
- it is also important to identify, from a historical perspective, how closely the data based on date of registration approximates the data based on date of occurrence

TIME REFERENCE

- the recommendation to do final tabulations by date of occurrence brings with it the necessity to establish what is known as a “cut-off” date
- the different time limits for registering and forwarding statistical reports require that a waiting period be allowed to be certain that all or almost all events have been reported
- establishing the cut-off date requires the consideration of a number of issues

TIME REFERENCE

- reports that are received after the cut-off date should be reviewed to analyse the reason for delay
- If for some reason, a sizable number of reports are received after the cut-off date, it is wise to include them in the national tabulations; this would be particularly important for smaller data sets, such as infant deaths or foetal deaths

GEOGRAPHIC REFERENCE

- geography is also an influence on tabulation coverage
- the basic principle relative to geography is that each vital event occurring within the country must be registered and have a statistical report filed
- this allows tabulation of vital statistics for the entire country, intermediate and minor civil divisions, large cities and towns, and sub-population groups

GEOGRAPHIC REFERENCE

- during the development or improvement of the quality of a vital statistics system, countries may decide to do detailed tabulations only on geographic areas of known coverage completeness levels
- this approach can serve as an incentive for the lower-quality areas to improve their local systems
- such an approach, however, should be clearly identified as an interim measure
- the goal of the country's vital statistics system is complete coverage of the total population in its geographic area

GEOGRAPHIC REFERENCE

- during the period when there is not complete geographic coverage by the vital statistics system, the data does not represent the country as a whole
- while this situation persists, there should be efforts made to make the statistics more representative through the use of statistical adjustment for under-reporting, or by collecting supplementary data in the incomplete coverage areas by field surveys

GEOGRAPHIC REFERENCE

- there are a number of issues to consider relative to the geographic classifications used in the compilation of vital statistics
- one assumption that is normally made is that there is relatively little difference for vital statistics purposes between a country's resident population and the population present in the country at any particular time

GEOGRAPHIC REFERENCE

- the assumption discussed refers to tabulations for the total national territory
- final tabulations for geographic civil divisions of the country and for large cities should be done by place of usual residence
- this will tend to geographically reassign events occurring in medical facilities that are outside the civil division of the usual residence
- data by place of occurrence may also prove useful, and the compilation of such data is also recommended for these subnational geographic areas

GEOGRAPHIC REFERENCE

- tabulation by place of occurrence is the recommendation for these data, however, it is also useful to divide the occurrence data into events occurring to residents of the geographic area and events occurring to non-residents of the geographic area

GEOGRAPHIC REFERENCE

- all of the issues discussed presume the existence of a legal definition of usual residence
- variation from country to country on the definition of usual residence is enough that no international definition of usual residence is feasible; it is, however, recommended that the definition of usual residence for vital statistics match the definition used by the census authority in the country
- this will bring the numerators and denominators into agreement when calculating vital statistics rates for the country

GEOGRAPHIC REFERENCE

- although there is no recommendation for an international definition of place of usual residence, an attempt at international consistency exists relative to determining the place of usual residence for specific vital events
  - Live births
    - place of residence of mother at time of delivery of live birth
  - Foetal deaths
    - place of residence of woman at time of delivery of dead foetus

GEOGRAPHIC REFERENCE

- Infant deaths
  - place of residence of mother at time of death of infant (or of infant, if mother is dead)

- Deaths
  - place of usual residence of decedent at time of death

DISSEMINATION

Presentation of Results and Data Dissemination from the Vital Statistics System

- the tabulation programme of the national vital statistics system should provide annual data in those classifications required for the study of the frequency distributions of vital events, time trends and geographical differentials for the most important characteristics of vital events

- these data must be made available on a timely basis through publication or other means of dissemination, such as ad hoc tabulations, CDs, diskettes, on-line or via other electronic media, as appropriate

Presentation of Results and Data Dissemination from the Vital Statistics System

1. ANNUAL PUBLICATIONS

- the calendar year period is typically used in the compilation, processing, tabulation and presentation of vital statistics data
- careful and well designed publication of the data on an annual basis is important to the vital statistics programme
- annual publications offer the user a regular and dependable source for vital statistics data; such publications offer the vital statistics agency visibility for its national need and purpose and for its importance to society

Presentation of Results and Data Dissemination from the Vital Statistics System

1. ANNUAL PUBLICATIONS

- the annual publication provides yearly information to local, municipal and county-level administrations that allows them to update their population data base by sex and age in interaction with the population census database
- geographic information systems are also useful to enhance dissemination of vital statistics
- timeliness is an important factor in availability of vital statistics data
- an attractively printed report, complete with data tables, graphs, charts, maps and analyses, is a worthy goal for the vital statistics system

Presentation of Results and Data Dissemination from the Vital Statistics System

1. ANNUAL PUBLICATIONS

- annual data should also be made available in other formats that are more immediately or more conveniently useful to those needing the vital statistics data; examples of these other formats include
  - computer printouts of more detailed unpublished data
  - public use data tapes containing individual records with identifiers removed
  - on-line access to de-identified data for internal users or via the Internet for external users
  - data sets on disks, diskettes and CD ROMs

Presentation of Results and Data Dissemination from the Vital Statistics System

1. ANNUAL PUBLICATIONS

- the printed report should also include appendices that offer copies of the statistical collection forms for each type event, technical notes concerning coding and classification schemes, definitions of vital statistics items, an explanation of formulas used in generating vital statistics rates contained in the report, and notes on the strengths and limitations of the published data

- the annual publications should also include delayed and late registration, by year of occurrence, to assist users and researchers in reconstructing the time series of vital events

Presentation of Results and Data Dissemination from the Vital Statistics System

2. MONTHLY AND QUARTERLY BULLETINS

- speed in the release of monthly and quarterly data can be gained if the information is generated by place of occurrence rather than refining the data to place of usual residence
- the quick release of vital statistics data through the use of monthly and quarterly bulletins meets several needs additional to the needs served by the annual publication of the data
- this quick release data can alert officials to unusual changes in the numbers or patterns of vital events

Presentation of Results and Data Dissemination from the Vital Statistics System

2. MONTHLY AND QUARTERLY BULLETINS

- such reports are of great importance for epidemiologic surveillance; they also serve as a quality control tool to allow the early detection of missing data or data that is being seriously miscoded
- publication of monthly and quarterly data can be in printed and/or electronic format
- speed can be gained in the compilation and tabulation of the monthly and quarterly data by using date of registration rather than date of occurrence for tabulation

Presentation of Results and Data Dissemination from the Vital Statistics System

2. MONTHLY AND QUARTERLY BULLETINS

- appropriate technical notes should accompany the data to allow for making an approximation of the data by date of occurrence from the data by date of registration
- selected vital statistics totals should be included in the monthly and quarterly data to respond to the two purposes mentioned above for the publication of current data
- the cross-tabulation and analyses of the monthly and quarterly data need not be as exhaustive as that in the published annual report

Presentation of Results and Data Dissemination from the Vital Statistics System

2. MONTHLY AND QUARTERLY BULLETINS

- a 12-month measure that users of current monthly and quarterly data find useful is the 12-month moving average
- each month, this calculation drops the oldest month's frequency and replaces it with the value of the most recent month
- each month then has an estimated vital rate based on the latest 12-month time period

Presentation of Results and Data Dissemination from the Vital Statistics System

3. ELECTRONIC MEDIA FOR DISSEMINATION

- published reports of vital statistics data and machine copies of printouts of smaller but more detailed segments of unpublished data are increasingly being augmented by electronic methods of dissemination
- vital statistics agencies offer researchers and administrative users individual vital statistics records on computer tape, diskette or CD-ROM
- often these data are released for public use, with individual identifiers removed from the records; alternatively, individual data with identifiers may be released in such formats when appropriate approvals and written research agreements are in place

Presentation of Results and Data Dissemination from the Vital Statistics System

4. SPECIAL TABULATIONS

- there are occasions when neither the annual publication, the monthly and quarterly bulletins nor the data available on electronic media completely answer the needs of the user

- it is advantageous in such cases for the vital statistics agency to be able to offer special tabulations to meet the user's specific needs

Presentation of Results and Data Dissemination from the Vital Statistics System

5. TECHNICAL MEETINGS

- good communication between the staff of the vital statistics agency and potential users of vital statistics data is essential
- this becomes even more urgent when the agency releases data in electronic formats or offers the preparation of special tabulations
- both these services tend to generate numerous questions on the part of users
- it is also true that frequent users of the printed publications that the statistical agency produces will develop questions about ways to use the data

Presentation of Results and Data Dissemination from the Vital Statistics System

5. TECHNICAL MEETINGS

- for all these reasons, it is recommended that the statistical agency periodically hold group meetings to discuss the availability and proper use of the data
- such group meetings can efficiently respond to questions on a one-time basis, as opposed to answering the same question posed by multiple users contacting the office separately
- the meetings can also serve as a forum to obtain direct user input concerning how well the agency is meeting user needs

Presentation of Results and Data Dissemination from the Vital Statistics System

6. DIRECTORY OF USERS

- the directory should include names and addresses required for mailing purposes and, when available, telephone numbers and e-mail addresses
- the user information should also list specific categories of interest, e.g., all annual statistics, or specific subsets of annual data, current vital statistics bulletins, electronic data and special tabulations

Presentation of Results and Data Dissemination from the Vital Statistics System

6. DIRECTORY OF USERS

- the directory can be used as a basic source for notifications concerning technical meetings, although such meetings should be announced widely in order to reach potential users not yet included in the directory
- some users may have a time-limited need for specific vital statistics services, or there may be changes of which individual within an organization is responsible for using the vital statistics data
- it is important to update the directory regularly in order to adjust to such changing conditions

KEYPOINTS TO REMEMBER

- 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