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## THE IMPACT OF CAUSE-OF-DEATH QUERYING

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FOREWORD

Although the industrialized countries have achieved virtually complete registration of deaths, the need remains to improve the quality of reporting on death certificates, particularly in reported information on causes of death. Good information on causes of death is considered essential as much of our knowledge on mortality patterns in these countries is based on the causes of death reported on death certificates.

One technique for improving causes of death data is by querying, which means going back to the certifying physician for additional information regarding the medical certification of death. This Technical Paper looks at the impact of querying. The paper was originally prepared for the Workshop on Improving Cause-of-Death Statistics, October 15-17, 1989, in Virginia Beach, Virginia, U.S.A. The paper includes results of a State survey conducted by the Association for Vital Records and Health Statistics and compiled by the Registration Methods Branch, National Center for Health Statistics (NCHS), U.S.A.

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## THE IMPACT OF CAUSE-OF-DEATH QUERYING

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Cause-of-death querying can be one of the more effective means for improving the quality of cause-of-death information on the death certificate, as indicated in the study by Hopkins and others (1,2). Querying means going back to the certifying physician for additional information regarding the medical certification of death. Why would one go back to the physician after a death certificate has been filed? There are several reasons: (1) illegible entries, (2) imprecise or non-specific entries, (3) entries that have serious public health implications, and (4) quality control. Examples of imprecise entries are a cause of death attributed to "natural causes" or respiratory arrest. A non-specific entry is, for example, a death attributed to cancer without indication of primary site. An entry of sufficient public health concern to be immediately queried is a communicable disease such as cholera, or a radiation death.

The rationale for querying cause of death from the death certificate is described in the National Center for Health Statistics' (NCHS) instruction manual for cause-of-death querying (3) as follows:

"For many years, vital statistics offices have utilized programs to query death certificates as a means of improving the completeness and accuracy of mortality statistics. It has long been recognized that querying is a necessary part of the registration process and that particular attention must be paid to the correctness of the medical certification portion of the death record.

The purpose of querying should be two-fold: (1) to obtain the information needed to properly classify the cause of death, and (2) to educate the certifier about the proper method of completing future medical certifications."

Query procedures are also important to ensure that the information on the death certificate is adequate for administrative and legal uses. For example, in medico-legal cases involving trauma, it is important to have accurate information on the time, place, and manner of death.

It is very important that all physicians, medical examiners, or coroners who may be certifying deaths be properly oriented to the principles of medical certification and the importance of accuracy and to recognize that cause-of-death certification constitutes "a medical-legal opinion, not necessarily an absolute fact, since it is not always possible to make a precise determination of interacting diseases or conditions. Thus, "to the best of my knowledge" is included in the certification statement of the death certificate; since the certifier is considered to be in a better position than anyone else to make a judgement as to the chain of events leading to death, but he/she cannot always be presumed to have a clear cut "absolute answer(3)."

### Levels of Querying

Under the vital statistics agreement between NCHS and the States, all vital statistics registration areas are encouraged to operate cause-of-death query programs effective with deaths occurring in 1989. Guidelines for Cause-of-death querying are made available by NCHS to the States in the form of an NCHS instruction manual(3). Several levels of querying have been developed, in recognition that State resources for this activity vary widely. The six priority levels range from Levels 1 and 2, which should always be queried as a minimum, to Level 6, which is an optional category. Some States have expanded the range of conditions covered by their querying programs including, for example, cause-of-death entries suggestive of AIDS when HIV infection or terms synonymous with AIDS are not explicitly reported as the cause of death.

Priority Level 1 includes "pending cases," that is a death certificate with an incomplete or unknown cause pending the results of an autopsy or other investigation. If a complete medical certification is not furnished by the physician, medical examiner/coroner within a reasonable period (usually about 30 days), the record should be queried. Also included are "rare" causes, which are mainly infectious diseases, rare in this country, that constitute public health threats including leprosy, plague, and smallpox. Also included are querying neoplasms for primary site and/or histological type when not reported. There are also a large number of conditions that would rarely, if ever, cause death by themselves; and when symptoms, signs, and ill-defined conditions are reported without a specific cause (coma, shock, cardiac failure, natural causes, old age, senility). Also at Level 1 are included queries for the reason for surgery if not clearly reported, and when only the nature of injury is reported without mention an external cause such as a motor vehicle accident. Finally, this level of query includes questionable formats making selection of underlying cause of death difficult. An implausible sequence of conditions is an example.

Level 2 includes conditions not usually considered as the underlying cause of death, such as peritonitis, which is usually caused by another condition such as a ruptured organ (appendix, peptic ulcer, etc.). Level 3 provides more detailed information that enables a more precise classification of cause of death; for example, chronic liver disease should be specified as alcoholic cirrhosis, biliary cirrhosis, chronic hepatitis, etc. Both Level 4 and Level 5 are for providing more detailed information regarding the site or location of a stated condition, such as specifying for an embolism whether it occurred in the brain, lung, or coronary arteries. Level 6, which is the most thorough level recommended, again emphasizes the need for obtaining more explicit statements in order to minimize the use of certain assumptions that are made for classification such as assuming that tuberculosis is of the lung unless otherwise specified.

#### Impact of Querying

The impact of querying on reported cause of death can be substantial, as indicated in a recent report of the Oregon cause-of-death querying program(1). There, about one of ten records are queried annually. To these queries, physician response rates are very high, about 95 percent. As a result of querying, about half of the cause-of-death entries are changed, mainly to increase specificity, but sometimes to modify the cause of death much more substantially, resulting in some cases in a major change in cause-of-death classification.

The benefits of querying can be several: (1) improving the quality of the reported data, such as greater specificity and accuracy, (2) providing feedback to the certifying physician by letting him or her know that the reported information is being scrutinized and will be used for health and research purpose, and (3) by giving guidance to the physician on properly completing the cause-of-death certification.

An important lesson from the Oregon experience is the training impact of querying. Over time, it was noted that smaller percentages of the records need to be queried, suggesting that physicians learn what information is sought on the death certificate, and are providing it.

#### Survey on State Querying Practices

So that attendees at the Workshop for Improving Cause-of-Death Statistics would be better informed of the activities States are currently engaged in and how the death registration process may differ from State to State, the Association for Vital Records and Health Statistics (AVRHS) sent out a survey in April 1989 to the State vital registration and statistics executives in 54 registration areas (the 50 States, the District of Columbia, New York City, Puerto Rico and the Virgin Islands). The respondents were asked to provide information about the death registration process in their area, especially with regard to those activities that relate to improving the quality of cause-of-death data. The following information on querying cause of death is from the responses for 46 of the areas:

Results of the survey indicate that while many States have query programs, there is wide variation in the percent of records queried. Some States query very few records; others a substantial proportion of the death records. Almost one-third of the 38 areas responding to the question queried less than three percent of the death records. About half the areas queried fewer than 10 percent; and nine of ten areas queried less than 15 percent of the records. About one-fourth of the areas queried between 10 and 14 percent. Two States reported querying about one-third of the death certificates.

It can be expected that the more timely the query, that is, the briefer the interval between the physician's report of cause of death on the death certificate and the follow-up query, the more likely a timely and accurate reply. A long delay can result in recall difficulty or in problems of locating medical records relevant to the death. Information on the time interval between the date of death and date of query was reported for 38 registration areas. The interval varied greatly among the areas. About ten percent of the areas queried within ten days; about half within about a month, and 90 percent within three months. For three areas, the interval was four months; and for one, over six months. The most frequent interval, about a month, characterized nine registration areas.

Most of the States obtain additional information on cause of death as a result of the query, according to information from the 37 areas. About half the States received additional information on 80 percent or more of their queries. About eight of ten States received additional information for at least half of the inquiries. The yield on querying was low for only a few areas; only six of the 37 received additional information on less than 10 percent of queries.

Queries can be carried out by telephone or mail. The most common method is by mail. About nine of ten States used mail. Only three areas relied mainly on the telephone; these areas include a city and two sparsely-settled Southwestern States.

The information from queries resulting in changes in cause of death can be added to the death certificate, as an amendment. The Survey shows this happens about two-thirds of the time; for the remaining deaths, the additional cause-of-death information is only used for statistical purposes, and does not appear on an amended death certificate filed with the State.

The survey reveals that querying is an essential process for obtaining additional information on the death certificate; physicians rarely provide additional information on a voluntary basis. For over one-third of the areas, there were no cases of additional information being supplied voluntarily by physicians, without being queried. For another one-third, there were rare instances of voluntary changes. The remaining States reported some experience with voluntary submissions, but this was the exception rather than the rule.

Obtaining additional cause-of-death information was more difficult in some settings and from some types of physicians than others. From the survey, responses were received on this question from 32 areas. The most frequent concerns were in dealing with coroners; four out of ten areas identified coroners as a problem in getting responses to cause-of-death queries. Nursing homes were identified almost as frequently. Also singled out separately by about 15 percent of the areas were VA hospitals, facilities serving Native Americans (including hospitals of the Indian Health Service), and military facilities. In addition, three respondents to the survey stated that querying was difficult when certifiers were student doctors and interns at teaching hospitals who move when there is no attending physician. Others who were identified as difficult to query were emergency room doctors, neurologists, and physicians who "moonlight" at several hospitals.

A total of 43 areas responded to a question on ways of spotting problems with cause-of-death information. About three-quarters of the areas found problems through editing procedures; half through feedback from NCHS quality control programs; about one-quarter from user feedback; and half from the statistical staff of the State. Six States reported that nosologists normally identified problems. One State reported using autopsy findings to identify problems with cause-of-death data.

#### Directed Querying and Random Querying

Cause-of-death querying may be either directed or random. The approach recommended as a minimum to the States by NCHS is a directed one, with the goal of correcting records that are likely to require modification. Many other records with possible problems cannot be identified through a directed approach, since their entries fall outside the querying guidelines. While their entries may appear to be acceptable for further processing, an inquiry to the medical certifier could result in an improved or a changed statement of cause of death. The need for such changes can only be identified through a random querying program. Such a program was operated by NCHS some twenty years ago, but was discontinued because of resource considerations. Improvements in the quality of cause-of-death reporting on the death certificate can be enhanced by a combination of directed and random cause-of-death querying.

## Costs

While querying is of the more effective tools for improving the quality of cause-of-death information, it is costly: it entails selecting death records on either a directed or random basis, or both; writing to the certifying physicians; following up initial mailings with additional mailings or telephone calls; receiving the additional information; and processing the additional information through changes in the filed death record and through statistical reporting to NCHS. NCHS shares in the cost of querying at Priority Level 2. Better cause-of-death reporting would result from high levels of querying as practiced in a number of States; but implementing higher levels of querying would entail higher costs.

## Current Extent of Querying

A 1987 survey revealed wide variation in the extent and nature of cause-of-death querying among the States(4). About half the States did not query at the minimum priority level; about 20 percent queried at Level 1; about the same proportion at Levels 2 and 3, and the remainder at higher levels. The more recent AVRHS survey, carried out in 1989, suggests the beginnings of a broader and more uniform application of querying. In the 1989 Survey, a total of 41 areas provided examples of information queried; the examples indicate that Level 2 querying is now being broadly implemented as encouraged under the new Vital statistics Cooperative Agreement.

As part of their survey response, several States also provided detailed lists of queried conditions used by nosologists, or used as computer flags for automated inquiries of physicians for additional information. Many States carry out intensive querying on the circumstances of death associated with trauma, such as the nature and means of poisoning, how trauma was sustained, and whether the person involved in a motor vehicle death was a driver, passenger, pedestrian. Examples of lists of queried conditions for two States are shown in Appendix I. Some States add conditions not listed by NCHS (Appendix II), as well as terms suggestive of AIDS when AIDS is not mentioned on the death certificate (Appendix III).

## Is Querying Sufficient?

Is querying a sufficient way to obtain complete and accurate information on death certificates? And is it a sufficient way to train medical certifiers on proper cause-of-death certification? In response to the first question, querying is not sufficient if only a directed approach is used, since directed querying detects only probable errors that constitute a relative small proportion of all death certificates. A random approach is a useful complement to the directed approach; but it too is likely to affect only a fraction of the records that need to be changed. Nevertheless, querying is essential to addressing the most serious problems of quality and completeness in reports of cause of death.

As an educational mechanism, querying can be very useful; but, again, it is not sufficient to ensure that many physicians are reached, and that those who are are reached most effectively. The limitations of querying as a training tool is described well by one of the survey respondents:

"The query system is very limited for training, because only a small percentage of all certificates can be queried. The 75-100 queries our Division sends out each month is actually only a small fraction of the certificates that could "use" more complete information. There are two other limitations with using queries for training; they are sent after the certificate has been completed and submitted, and they are only sent for detectable errors.

Invitations to speak in front of certifiers can be helpful but are often accompanied by short, strict time limits that preclude any detailed instructions or answering many questions. Also, attendance at the two coroners' meetings I was invited to was not mandatory, and less than a fourth of the States's coroners were present at either meeting.

Submitting articles to coroners' newsletters or local medical journals can be useful, not only because more certifiers can be reached, but also because they take information more seriously when published in their own profession publications."

## Summary and Conclusions

Almost all States query medical certifiers when a death certificate is filed with questionable or incomplete cause-of-death certification. This practice serves to improve the quality of the death certificate and also serves as a training tool as to what is a proper cause-of-death certification.

Records to be queried are normally identified by State nosology staff as they are coding or during initial computer processing. Level 2 querying, which is now encouraged as a minimum, calls for querying such entries as cancer without indication of primary site, symptoms and ill-defined conditions, incomplete injury and surgery information, rare conditions, and improbable sequences.

The percent of records queried by States varies widely from less than five percent to 30 percent. If States move toward Level 2 querying, then it can be expected that the percent queried will move toward 10-20 percent of all records. Almost all queries are sent through the mail, although a few are handled by telephone. Queries are most frequently sent within 30 days of the date of death.

While a few States indicated that the queries resulted in few changes to the cause of death, most States indicated that a very high percent of the queries resulted in information being received to either change or supplement the cause of death originally reported. The majority of the States indicated that the additional information obtained through the query is made part of the death certificate; but for about one-third it is only incorporated into the statistical file.

All States allow certifiers to provide additional information without being queried; however, it appears that few certifiers are aware of this option or choose to exercise it.

As States gain experience with cause-of-death querying programs and as they implement higher levels of querying, there should be observable benefits in the form of better trained medical certifiers and improved cause-of-death statistics.

## References

1. Hopkins, David D., Grant-Worley, Joyce A., and Bollinger, Terrie L., "Survey of Cause-of-Death Query Criteria Used by State Vital Statistics Programs in the U.S. and the Efficacy of the Criteria Used by the Oregon Vital Statistics Program," American Journal of Public Health, Vol. 79, No. 5, May 1989, pp. 570-574.
2. Rosenberg, Harry M., "Improving Cause-of-Death Statistics," American Journal of Public Health, Vol. 79, No. 5, May 1989, pp. 563-564.
3. National Center for Health Statistics, Instruction Manual, Part 20, "Cause-of-Death Querying, 1985," Hyattsville, Maryland: U.S. Department of Health and Human Services, June 1985.
4. Health Division, Oregon Department of Human Resources, "Questioning the Physician: A Survey of Cause of Death Query Criteria Used by Centers for Health Statistics in the United States and the Efficacy of the Criteria used by Oregon Center for Health Statistics," Portland, Oregon, September 1987.

APPENDIX 1. Examples of Conditions Queried in Two States

State 1

1. All neoplasms when unspecified as to nature (malignant, benign, etc.)
2. Ill defined conditions, usually, and especially gangrene
3. Seizures
4. Traumas--when not specified as to how injury occurred
5. Women of childbearing age with conditions that could be cause by pregnancy
6. Hematoma--when not specified as traumatic or nontraumatic and "natural" is not entered in #33a and other rules do not apply
7. One term entity--when the condition is of an unspecified nature
8. Other--any other certificate per the coder's judgement including:
  - Aspiration
  - Cardiac arrest, respiratory arrest, etc.
  - Hemorrhage NOS (not otherwise specified)
  - GI Hemorrhage
  - Pulmonary embolism
  - Surgery and therapy when the underlying disease is not specified
  - Renal failure
  - Hepatic failure
  - Fatty liver
  - Hepatitis NOS (viral or other cause?)
  - Hydrocephaly (congenital or other cause)
  - Paraplegia/quadruplegia (what disease or trauma?)

Four Main Areas Most Often Questioned:

- Seizures/convulsions
- Hypo or hyper thermia
- Cardiac arrest/pulmonary embolism
- Neoplasm--not specified benign or malignant
- Senility, old age--too many birthdays

State 2 (from query letter forms sent to physicians)

In order to be sure that we assign this death to the disease or condition which you believe to be the underlying cause, please supply the information, if known, indicated in the paragraph(s) marked with red pencil. Please record this information in the space provided below or in the appropriate boxes (item 27) on the copy of the death certificate duplicated above. Please sign (item 22a, below) and mail the reply to the local health department in the county in which the death occurred. A prompt reply will be appreciated.

1.  CARCINOMA, SARCOMA, MELANOMA, RHABDOSARCOMA, OSTEOGENIC, SARCOMA, etc.--State primary site.
2.  CELLULITIS, GANGRENE, PERITONITIS, SEPTIC ENDOCARDITIS, SEPTICEMIA, LUNG ABSCESS, UREMIA, etc. - State the underlying disease or condition.
3.  ECLAMPSIA, BACTERIAL OR SEPTIC ENDOCARDITIS, ENDOMETRITIS, NEPHRITIS, PERITONITIS, SEPTICEMIA, UREMIA, etc. - State whether due to pregnancy or child-birth, or to what other cause the condition could be attributed.
4.  HEART FAILURE, EDEMA OF LUNGS, CONVULSIONS, UREMIA, etc. - Alone, these terms are insufficient. Please state the underlying cause.
5.  INTESTINAL OBSTRUCTION - Specify the cause of the obstruction and, if due to malignancy, the exact site or specify organ involved.
6.  OPERATION - What initial disease, condition, or injury necessitated the operation?
7.  COMPLICATION FROM ANESTHESIA, INFUSION OR TRANSFUSION, X-RAY AND RADIOACTIVE SUBSTANCES, DRUGS AND BIOLOGICALS - What disease or condition necessitated the procedure, use, or prescription?
8.  TUMOR OR NEOPLASM - Specify organ or part affected. Was it malignant?
9.  NEPHRITIS, PYELONEPHRITIS - Was the disease acute or chronic?
10.  HEPATITIS - Viral? Other than viral (specify other condition)? Contracted through infusion, transfusion, injection, etc.? Explain circumstances as fully as possible.



APPENDIX 1 (continued)

- PERFORATION, RUPTURE, STRICTURE - State underlying cause.
- MENINGITIS - State type: meningococcal, H. Influenzae, Pneumococcal, other specified organism.
- ANEURYSM - State type, location (if aorta-abdominal or thoracic) and underlying cause.
- PNEUMONIA - Was it viral, lobar, broncho, bacterial (state type), other?
- To what was the \_\_\_\_\_ due? If of gonorrheal, syphilitic puerperal or traumatic origin, please state the facts as fully as possible.
- ENCEPHALITIS - Was it infectious? arthropod-borne? (please state type--Eastern, Western, St. Louis, etc.)
- HYDROCEPHALUS - Was it congenital?
- SEIZURE - Was it an epileptic seizure?
- PLEURAL EFFUSION, PLEURISY WITH EFFUSION - Tuberculous? Non-tuberculous (give cause)?
- CEREBRAL PALSY - Was it infantile, traumatic (state facts as fully as possible), other?
- UNDERLYING CAUSE OF \_\_\_\_\_  
(if traumatic, please complete item 27 above.)
- ASPHYZIA, SUFFOCATION - State if by illuminating gas, etc., or by bed clothes, overlying, etc. If cause by inhalation or ingestion of an object such as food, foreign body, vomitus, etc., so state and name the object.
- MOTOR VEHICLE ACCIDENT - State whether the deceased was a pedestrian, driver, passenger, motorcyclist, etc. Name the kind of accident such as motor vehicle in collision with another motor vehicle, bridge, tree, railroad train, or ran off roadway, overturned, etc. The place and municipality where the accident occurred should be given.
- BURNS - State whether due to conflagration in private dwelling or other building, or ignition of clothing or of highly inflammable material (benzine, gasoline, matches, etc.). If caused by an explosion of a pressure vessel, explosive material, or a hot substance or electric current, so state.
- DROWNING - If accidental, state whether swimming, fishing, skin/skuba diving, etc., or an accident involving a boat.
- FALL - State whether a fall on stairs, ladder, from chair, tree, from stumbling, etc. If aboard ship, describe fully.
- POISONING - Name the drug or substance ingested or inhaled which caused death.
- OTHER \_\_\_\_\_

APPENDIX II. Causes of Death Queried by the Oregon Center for Health  
 Statistics in Addition to Priority Level 4

<u>Cause</u>	<u>ICD Code</u>
Septicemia	038
Serum hepatitis	70.2-.3
Malnutrition	263
Dehydration and electrolyte disorders	276.5,.7-.9
Aplastic anemia	284
Hydrocephalus not specified as congenital (or with a duration since birth)	331.3-.4
Pulmonary embolism among persons under age 65 years	415.1
Pulmonary heart diseases (except Kphoscoliotic heart disease)	416.9
Varicose veins of esophagus	456.0-.1
Pneumonia in categories 481, 482, 485 or 486 with mention in Part II of carcinoma	481, 482, 485, 486, 507.0
Any pneumonia stated to be terminal	480-486,507.0
Rupture of the esophagus	530.4
Intestinal obstruction with or without mention of adhesions	560.8-.9
Aspiration not indicated as addidental or due to a disease condition	911,912
Liver disease not specified as alcoholic when not selected as the underlying cause of death	571.5,.7-.9
Type of gun used in intentional and unintentional deaths	922.9, 955.4, 985.4
Passenger status in selected transportation accidents	800-839, .9s only
Hemorrhage of any site except cerebral or related to childbirth	
Any external cause of death with items 36a-36f not completed	
Females in the following age and cause of death categories for maternal deaths	Ages 17-35 303 571.0-571.3 Ages 17-39 001.0-139.9 240.0-302.9 304.0-337.9 341.0-358.9 360.0-429.9

APPENDIX III: Causes of Death Suggestive of AIDS and Queried when HIV Infection and AIDS are not Mentioned on the Death Certificate

Atypical mycobacteria (Mycobacterim, avium or intracellulare)  
bronchial, pulmonary or esophageal candidiasis  
Chronic lymphoid interstitial pneumonitis  
Coccidioidomycosis  
Cryptococcal meningitis  
Crypsospondiosis  
Cytomegalovirus infection  
Disseminated histoplasmosis  
Hemophilia  
Herpes virus infection  
Immune deficiency  
Immunoblastic sarcoma or lymphoma  
Isosporiasis  
Kaposi's sarcoma  
Lymphoma limited to the brain  
Non-Hodgkin's lymphoma in a person under age 60  
Pneumocystic pneumonia  
Pneumonia in a person between the ages of 1 to 50 and no clear  
alternative to AIDS as an explanation for the person's unusual  
susceptibility to pneumonia (i.e., leukemia, splenectomy)  
Progressive multifocal leukocephalopathy  
Salmonella (non-typhoid)  
Small non-cleaved lymphoma (Burkitts' tumor or Burkitt-like lymphoma)  
Stronglyloidosis  
Toxoplasmosis  
Tuberculosis in a person under age 60

## PUBLICATIONS OF THE IIVRS TECHNICAL PAPERS

1. A Programme for Measurement of Life and Death in Ghana, D.C. Mehta and J.B. Assie, June 1979
2. Vital Statistics System of Japan, Kozo Ueda and Masasuke Omori, August 1979
3. System of Identity Numbers in the Swedish Population Register, Karl-Johan Nilsson, September 1979
4. Vital Registration and Marriage in England and Wales, Office of Population Censuses and Surveys, London, October 1979
5. Civil Registration in the Republic of Argentina, Jorge P. Seara and Marcelo E. Martin, November 1979
6. Coordinating Role of National Committees on Vital Health Statistics, World Health Organization, Geneva, January 1980
7. Human Rights and Registration of Vital Events, Nora P. Powell, March 1980
8. The Organization of the Civil Registration System of the United States, Anders S. Lunde, May 1980
9. Organization of Civil Registration and Vital Statistics System in India, P. Padmanabha, July 1980
10. Registration of Vital Events in Iraq, Adnan S. Al-Rabie, September 1980
11. Generation of Vital Statistics in Mexico, General Bureau of Statistics, Mexico, November 1980
12. Age Estimation Committee in Qatar, Sayed A. Taj El Din, December 1980
13. The Development of the Vital Statistics System in Egypt, Gamal Askar, January 1981
14. Vital Statistics Data Collection and Compilation System: Hong Kong, Donna Shum, March 1981
15. Major Obstacles in Achieving Satisfactory Registration Practices and Vital Events and the Compilation of Reliable Vital Statistics, IIVRS, May 1981
16. Methods and Problems of Civil Registration Practices and Vital Statistics Collection in Africa, Toma J. Makannah, July 1981
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25. The National Importance of Civil Registration and the Urgency of Its Adaptation to a Modern Society, Committee on Legal and Organizational Requirements for a Civil Registration System in Latin America, August 1983
26. Study of A Civil Registration System of Births and Deaths – An Experiment in Afghanistan, B.L. Bhan, October 1983
27. Actions for the Improvement of Civil Registration and Vital Statistics, IIVRS, December 1983
28. Urgently Needed Reforms in Civil Registration in Asian Countries, IIVRS, October 1986
29. Organization and Status of Civil Registration and Vital Statistics in Various Countries of the World, IIVRS, December 1986
30. The Status of Civil Registration and the Collection of Vital Statistics through Alternative Sources in Papua New Guinea, M.L. Bakker, July 1987
31. Organization and Status of Civil Registration in Africa and Recommendations for Improvement, IIVRS, April 1988
32. Registration of Vital Events in the English-speaking Caribbean, G. W. Roberts, June 1988
33. Organization and Status of Civil Registration and Vital Statistics in Arab Countries, IIVRS, October 1988
34. Recommendations from Regional Conferences and Seminars on Civil Registration and Vital Statistics: An Update, IIVRS, November 1988
35. Health Data Issues for Primary Health Care Delivery Systems in Developing Countries, Vito M. Logrillo, N.Y. State Department of Health, May 1989
36. Considerations in the Organization of National Civil Registration and Vital Statistics Systems, Iwao M. Moriyama, July 1989
37. Approaches to Data Collection on Fertility and Mortality for the Estimation of Vital Rates, December 1985, United Nations Statistical Office, September 1989
38. Publicity Plans for Registration Promotion, K. K. Rastogi, Office of Registrar General, India, November 1989
39. Some Observations on Civil Registration in French-speaking Africa, Michel Francois, Institut National de la Statistique et des Etudes Economiques/Centre Francais sur la Population et le Developpement, February 1990
40. Automation of Vital Registration Systems in the United States; A Summary of Selected States' Activities, Vito M. Logrillo, N.Y. State Department of Health, April 1990
41. The Development and Organization of Civil Registration in Sri Lanka, D.S. Munasinghe, July 1990
42. Computerisation of the Indexes to the Statutory Registers of Births, Deaths, and Marriages in Scotland, David Brownlee, October 1990.
43. Measurement of Birth and Death Registration Completeness, Iwao M. Moriyama, November 1990
44. Reforms in the Civil Registration and Vital Statistics Systems of Morocco, Violeta Gonzales-Diaz, United Nations Statistical Office, April 1991.
45. The Impact of Cause-of-Death Querying, H.M. Rosenberg, Ph.D., National Center for Health Statistics, U.S.A., June 1991.