

**National vital statistics needs : a report ; an analysis of the role of the national vital statistics agency, with recommendations concerning the procurement and production of regular annual data, the need for special studies, provision of technical services to the States, and other policy questions.**

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Vital and Health Statistics

DOCUMENTS AND COMMITTEE REPORTS

# National Vital Statistics Needs

A Report of the United States National Committee on Vital and Health Statistics

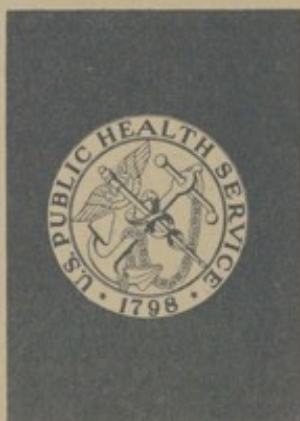
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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
Public Health Service



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**VITAL and HEALTH STATISTICS**

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## A Report of the United States National Committee on Vital and Health Statistics

An analysis of the role of the national vital statistics agency, with recommendations concerning the procurement and production of regular annual data, the need for special studies, provision of technical services to the States, and other policy questions.

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Washington, D.C.

September 1965

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HEALTH, EDUCATION, AND WELFARE

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# National Vital Statistics Needs

## A Report of the United States National Committee on Vital and Health Statistics

### SUMMARY OF REPORT

#### Introduction

The Committee was requested by the U. S. Public Health Service to make a comprehensive study of the objectives and the program of national vital statistics, to report its findings, and to make recommendations for the future development of the program. It was asked, also, to undertake a special study of the needs for marriage statistics and the extent to which existing data satisfy these needs.

The Committee's findings and recommendations are based on:

1. An extensive questionnaire survey of the principal users of the various kinds of vital statistics and a special questionnaire survey of the major users of marriage statistics.

2. Participation in a panel discussion at a meeting of the American Association of Registration Executives on the subject, "A National System of Vital Statistics."

3. Intensive studies of particular phases of the problem.

4. Frequent long discussion meetings of the subcommittees.

This report is in three parts—the summary, the detailed report, and the appendixes containing the detailed information upon which the report is based.

The Committee has examined the major areas of responsibility of the National Office of Vital Statistics (NOVS) and for each area has outlined the

goals to be achieved. This is followed by a statement of the principal deficiencies in the present system with respect to these goals, and finally by the recommendations.

#### The Role of the National Office of Vital Statistics

In this country, the registration of vital events is the responsibility of the States. Each State also has the responsibility for tabulating and publishing its own data so as to meet its special needs. The tabulation and publication of national data on births, deaths, notifiable diseases, marriages, and divorces and annulments are functions of the National Office of Vital Statistics, a branch of the Division of General Health Services, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare.

The functions of the NOVS should not be regarded as confined to the routine processing and publication of historic series of data. The justification for publishing data is that they serve some useful purpose. Vital statistics are essential for administrative purposes in both business and government, and also for research. Used in conjunction with population data, they provide a background for public health programs and medical research; for making projections of the size and composition of the population; and for the study of trends regarding family formation, composition and dissolution, and other aspects of our society. The NOVS has major responsibilities both for making available the



kind of data that will be most useful in these areas and for stimulating widespread and fruitful application of these data. These responsibilities call for foresight and flexibility to meet changing needs. Further, although many of the uses of vital statistics lie in the field of public health, the data also have important applications to demography.

The fact that the NOVS is a part of the Public Health Service insures full recognition of the health interests in vital statistics. This implies an obligation and responsibility to maintain a national vital statistics program that is not overshadowed by health interests but also meets the justifiable needs in the demographic and other areas of interest.

#### Major Recommendations and Observations

A complete list of the recommendations is given in the main body of this report. Of these, the Committee wishes to draw particular attention to the following which appear to deserve the highest priority.

1. Immediate priority should be given to the processing and procurement of data so as to achieve a schedule of processing which permits the release for printing of final data within 15 months after the close of the data year, and this schedule should be maintained or improved upon in the future.

2. Statistical studies that contribute to knowledge in public health, fertility, marriage, divorce, and mortality should be developed as part of the regular program of the NOVS. In particular, attention should be given to the influence of population characteristics, such as sex, age, marital status, and occupation. The program should include collection of new data and development of new methods of analysis that are needed for program planning, administrative, and research purposes.

3. The NOVS should be given sufficient fiscal resources to provide more adequate technical services to the States in the following areas: professional advisory and consultant service on technical and management problems; expanded information and clearinghouse services on technical subjects and methodology; educational programs directed towards improvement of source data; national program for recruiting and training professional vital statistics personnel; and work with State health department program divisions in promoting effective utilization of vital statistics data.

4. The Committee has also examined two alternative methods of producing national vital statistics,

in particular the use of data pretabulated by the States and of punched cards supplied by the States. Recommendations with regard to these alternatives are as follows:

- A. The NOVS should reject any data procurement method that limits or restricts the use of vital statistics records for research or that prevents it from controlling the quality of national vital statistics tabulations. Specifically, the NOVS should procure transcripts of the individual vital records for processing.
- B. The NOVS should reject the proposal to produce national vital statistics from data pretabulated by the States because:
- (1) the available national data would shrink to those obtainable from a minimum rigid list of tabulations;
  - (2) it would become very difficult to make national studies based upon information obtainable only from transcripts of the individual records or from individual punched cards;
  - (3) it would add to the cost of State operations without a compensatory decrease in the cost to the NOVS.
- C. The NOVS should reject the punched-card method of collecting vital statistics data as a general method applicable to all States because:
- (1) it restricts the freedom of action both of the State offices of vital statistics and of the NOVS, thus making vital statistics less useful rather than more useful;
  - (2) effective leadership in national and international vital statistics will be sacrificed due to the loss of technical skills and knowledge in the NOVS;
  - (3) the scope and detail of national vital statistics cannot be greater than those of the participating State ranking lowest in these respects;
  - (4) the possible savings in cost are outweighed by the disadvantages of the method;
  - (5) the overlapping of State and Federal vital statistics procedures, tabulations, and needs is not great enough to make this method possible without serious disadvantages to both parties.

D. The NOVS should abandon any further experimentation with the punched-card method in the collection of mortality statistics and if the use of this method to collect birth statistics is continued at all, should limit it to the few States where it can be shown to be mutually advantageous and where it will not adversely affect the scope, quality, continuity, and usefulness of national vital statistics.

E. The NOVS should continue to cooperate with the States in studies of ways to improve the division of labor in the national vital statistics system. Changes in the system should be made only after full consideration of:

- (1) the basic requirements for national vital statistics specified on page 231 of this report;
- (2) safeguards for the continuity of operation;
- (3) opportunities to improve the final product and to render maximum services.

5. The Committee also notes that marriage and divorce (including annulment) statistics are in a highly unsatisfactory state as regards geographic coverage, uniformity of reporting, accuracy and amount of detail. A program for the improvement of these data should be consistent with the above recommendations and receive the same level of priority, but it is recognized that it is not possible to carry out such a program under the present budgetary position. The Committee recommends that:

- A. The NOVS work actively to establish a Marriage Registration Area through implementation of the four criteria established for admission to the area, and to extend it until every State is included.
- B. Methods of collecting marriage statistics be explored with a view to assuring (a) complete coverage of the United States, (b) uniform data both between and within States, (c) comparability of time series, and (d) accuracy of information.
- C. The NOVS obtain copies of marriage records from the States and local areas to be processed in the NOVS.

Similar actions are needed for national statistics on divorces and annulments. However, specific recommendations are deferred until a thorough study of this problem can be made.

## Other Recommendations

### Completeness of data

The NOVS should stimulate and assist in special studies of birth registration completeness in areas where completeness of registration is still a problem.

The NOVS should endeavor to develop methods for measuring incompleteness of death and late fetal death registration adaptable to those areas where this problem is important. If practical techniques can be found, they should be applied to obtain more information on the extent of incompleteness and on means for attaining more complete reporting.

Efforts toward improvement of notifiable disease reporting should be concentrated first on those diseases that are major health problems and are amenable to control procedures.

The NOVS should cooperate with the States in the development and application of tests to determine the completeness of the reporting of marriages and divorces and annulments to the central offices, and the accuracy of the information given on the report forms.

### Uniformity of data

The NOVS and the State vital statistics offices should continue their efforts to obtain complete coverage of all items on the standard certificates.

### Scope and detail of data

The NOVS should keep in closer touch with the users of its data when planning the scope and detail of its tabulations and publications and making decisions on fundamental issues.

### Explanatory and interpretive text

The analytical functions of the NOVS should be strengthened to make available more explanatory and interpretive material useful to consumers.

### Cyclical schedule of tabulations

The concept of cyclical collection and tabulation of data should be firmly established as a part of the regular program of the NOVS with adequate safeguards for the continuity of the various tabulation cycles.

### Utilization of Data by Consumers

Questionnaires were sent to 369 persons selected for their presumed interest in some aspect of vital statistics data. Replies were received from 254. Although the Committee was aware of the limitations of a questionnaire of this type, information was sought regarding the relative frequency with which various types of vital statistics are used and the different sources from which these data are obtained, the extent to which the respondents regard available vital statistics as adequate for their uses, and ways of reducing the quantity of material published by the NOVS yet still meeting the important needs of consumers.

The results of the questionnaire may be summarized as follows (see Appendix A for details):

1. Frequency of use of types of data.—Mortality and natality statistics are the data issued by the National Office of Vital Statistics which are used most frequently by the persons replying. Next in order of frequency of use are the statistics on marriages and notifiable diseases. The consumers surveyed showed the least interest in fetal death statistics and divorce statistics. This generally corresponds to the requests for data received by the NOVS.

2. Geographic categories used.—An overwhelming majority of the consumers surveyed indicated use of statistics for the country as a whole and for States. Also, the majority of respondents appeared to have need for data on all of the other geographic areas listed.

3. Use of State and local publications.—Excluding State registrars of vital statistics, relatively little reference appears to be made to State and local publications. However, this may be due, in part, to the composition of the list of persons and agencies surveyed.

4. Secondary references.—Of the secondary references, the Statistical Abstract of the United States published by the Bureau of the Census is most frequently used, followed by the United Nations Demographic Yearbook and by the World Almanac.

5. Unpublished data.—About one-half of the respondents stated that they have requested unpublished data from the NOVS.

6. Timeliness.—The dissatisfaction expressed most frequently and most strongly concerning the NOVS publications related to the lack of timeliness of their issuance. The release of unpublished data to those requesting them appears to have softened the reactions of some of the respondents. Considerable understanding and appreciation of the problems faced by the NOVS in the early publication of data were evident, but the general opinion was that the data would be much more useful if they could be issued on a more timely schedule.

7. Accuracy.—Most of the respondents did not express any opinion concerning accuracy, except to indicate general satisfaction with the quality of data. Most of the defects mentioned were those that have been already recognized by the NOVS, namely, errors in residence allocation of births and deaths, and incompleteness of notifiable disease statistics.

8. Scope and detail.—A large proportion of respondents indicated satisfaction with the existing scope and detail of the published data. There were relatively few suggestions for reducing the quantity of data published.

Another questionnaire devoted exclusively to marriage statistics, was sent to 539 persons and organizations to obtain information concerning uses and needs of consumers of marriage statistics. Replies were received from 262 or 49 percent.

Since users of marriage statistics were selected as respondents it is to be expected that use would be reported in ways proportionate to the kind of persons included in the mailing list, namely, business men, university people, private researchers, and government officials. In the judgment of the Committee the mailing list of business users stressed national organizations, and the survey may have failed to reach local users in business fields. While one question dealt with potential uses if statistics were available, it is doubtful that the full effect of supply on demand is revealed. Perhaps improved statistics must actually be available in order to call out full expression of demand from consumers. Probably the questionnaire survey was most effective in revealing the varied uses of marriage statistics, in indicating the scope of the desired data, and in eliciting new suggestions (see Appendix B for details).

There are four general findings of the survey on marriage statistics:

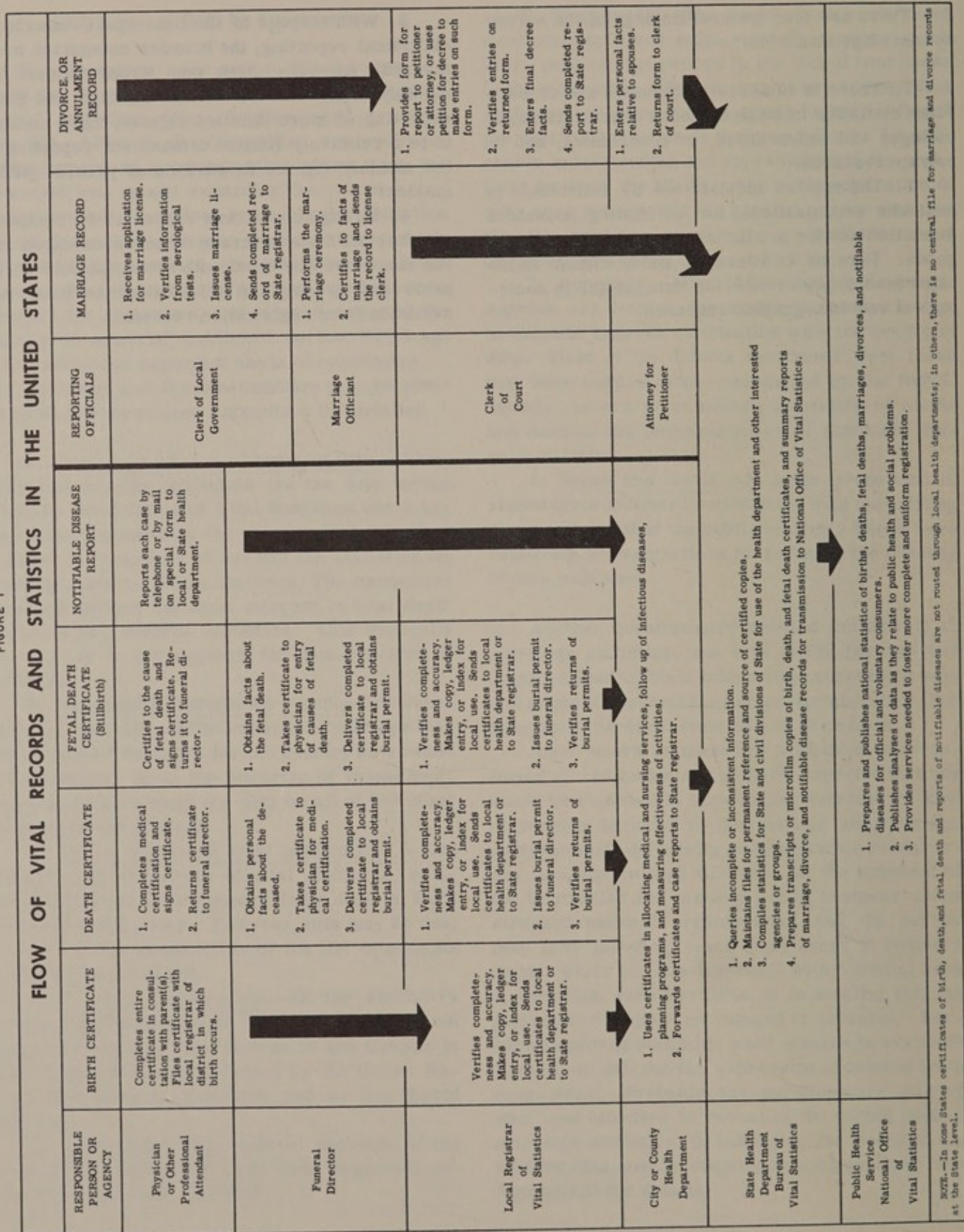
1. There is evidence of extensive use of marriage statistics in large business organizations, in colleges and universities, in government, and in private research.

2. The returns indicate use by individuals in business organizations for estimating household formation and for predicting demand for consumer goods. Persons in research and academic fields expressed a preference for data useful in sociological and demographic research.

3. With respect to the time-space aspects of statistical reporting, the broader categories were favored. Although there was strong support for monthly totals and for annual national and State reporting of more detailed figures, there seemed to be a relatively limited demand for reporting of the monthly figures in advance of present publications.

4. Strong support was expressed for complete national and State coverage on an annual basis and for more specific data, with cross-tabulations by bride and groom, and information on items not available from registration records.

FIGURE 1



Note.—In some States certificates of birth, death, and fetal death and reports of notifiable diseases are not routed through local health departments; in others, there is no central file for marriage and divorce records at the State level.

## DETAILED REPORT

### Scope and Method of Study

The U. S. National Committee on Vital and Health Statistics was asked by the U. S. Public Health Service to make a critical study of the objectives and the program of national vital statistics, and to report its findings, and to make recommendations on the following topics:

1. The effectiveness of the National Office of Vital Statistics in meeting the major consumer needs in all fields of use, with respect to timeliness, degree of accuracy, periodicity, et cetera.

2. Types of data and analytical studies to be produced routinely and as special studies, with suggestions on proportion of total budget that should be allocated to special studies.

3. Program of technical assistance to States.

4. Coordination of vital statistics activities at various levels of government—Federal, State, and local, and interrelation between these levels.

5. General blueprint outlining goals to be achieved by the national vital statistics system.

In addition to making various studies of different aspects of the program and operations of the NOVS, an inquiry was conducted among 369 principal users of national vital statistics, by means of a questionnaire designed to discover what types of data published by the NOVS are most frequently used and what deficiencies, if any, the users have found in these data (see Appendix A). Information along the same lines was also sought from business news services.

At the request of the special Subcommittee on Vital Statistics Needs, the American Association of Registration Executives held a panel discussion on "A National System of Vital Statistics" at its Omaha meeting, June 14, 1955. Three members of the Subcommittee participated and obtained a helpful sounding of the views of registration officials.

The National Committee also undertook a special study of the status of national marriage statistics with emphasis on (a) the uses of marriage data by business, government, research, and other interests, and (b) the extent to which existing statistics on marriages meet consumer needs.

A questionnaire survey of 539 organizations and individuals to determine present uses of and needs for marriage statistics was conducted by the special Subcommittee on Utilization of Marriage Statistics. The survey findings were presented at meetings of the Working Group on Marriage and Divorce and of the Council of the Public Health Conference on Records and Statistics.

Although it was recognized that a similar study on statistics of divorces and annulments is needed, the investigation of this subject was deferred. The Committee suggests that a survey of consumer needs for divorce and annulment statistics be conducted.

### The Present National Vital Statistics System

This section presents a brief account of certain aspects of the present national vital statistics system, as a background for the discussion leading to the findings of the Committee.

### Legislative authority

The method of producing national vital statistics in the United States differs from those of a large majority of other countries. Registration of vital events in the United States has been established as part of the public health responsibilities that are included within the general powers reserved to the States. The legal authority for the production of national vital statistics is found in a law of Congress (1904) which requires the U. S. Bureau of the Census to collect "statistics of the births and deaths in registration areas annually, the data for which shall be obtained from and restricted to such registration records of such States and municipalities as in the discretion of the Director possess records affording satisfactory data in necessary detail . . ." This authority was transferred to the Federal Security Agency, now the Department of Health, Education, and Welfare, in 1946. The language of the reorganization plan that made this transfer, in referring to vital statistics, included marriages, divorces, and annulments along with births and deaths. However, there is no specific statutory authority to pay for marriage, divorce, and annulment records. The Surgeon General of the Public Health Service has statutory authority to collect morbidity and mortality statistics. All of the present activities of the NOVS derive from these authorizations.

Under this system, a major problem faced by the NOVS is to develop procedures that will produce adequate national vital statistics in a situation where the legal authority over the registration or collection of the original information rests with the States.

### Functions of the National Office of Vital Statistics

Collection of data.—This office tabulates and publishes data on births, deaths (including fetal deaths), notifiable diseases, marriages and divorces (including annulments). Figure 1 taken from Volume I of Vital Statistics of the United States, 1950, shows the flow for each of these items from the original record to its processing in the NOVS.

Copies of individual records of births, deaths, and fetal deaths filed in the State registration offices are received by the NOVS in the form of microfilm reproductions of the record or as transcriptions. In addition to the microfilm copies,

punched cards for births were received in 1954 from 11 reporting areas, and punched cards for deaths were obtained on a trial basis from California and Oregon. The numbers of records collected for 1954 from the State vital statistics offices in the various forms are as follows:

	Total	Micro-film	Punched cards and microfilm	Transcripts
Total --	5,717,854	4,274,795	1,028,036	415,023
Births --	4,119,313	2,923,551	904,043	291,719
Deaths--	1,502,364	1,262,853	123,993	115,518
Fetal deaths-	96,177	88,391	-	7,786

Data on marriages and divorces and annulments are provided by the registration areas on table forms prepared by the NOVS. The number of States and other areas providing tables for 1954 data varied for marriages from 37 areas giving data by month to 19 areas providing data by ages of bride and groom and number of previous marriages. For divorces, the number of areas varied from 38 giving data by county to 7 providing statistics by ages of husband and wife.

Publications.—The publications issued by the NOVS may be classified into three types: current, annual, and special reports.

The Morbidity and Mortality Weekly Report, and an accompanying press release Communicable Disease Summary, are issued at the end of each week following the week to which the data refer. The Monthly Vital Statistics Report, issued about 6 weeks after the end of the month to which the data refer, gives summary data for each State and the entire country on total births, deaths, infant deaths, and marriages. Divorce and annulment data are included for slightly more than one-half of the States. In addition, mortality statistics for the country are classified by cause of death, age, sex, and color, for a 10-percent sample of the death certificates. All data in these publications are provisional.

The regular, comprehensive compilation of vital statistics for this country is the publication, Vital Statistics of the United States, which is issued annually by the NOVS. It contains the most comprehensive and detailed vital statistics for the United States and individual States and local areas.

It is the basic statistical reference source for research workers concerned with the study of mortality, natality, fetal mortality, marriage, and divorce and annulment.

Special reports on particular subjects are published in Vital Statistics—Special Reports. One volume of this series comprises 20 or so separate reports issued for the year, and subtitled National Summaries. Typical titles in such a volume are: "Births by Age of Mother, Race, and Live-Birth Order: United States, 1954"; "Divorces and Annulments: Detailed Statistics for Reporting Areas, 1954"; "Infant Mortality: United States, 1954." While these reports are devoted primarily to data for the most recent year, they frequently contain summary tables with rates or other index figures for earlier years.

Another volume of the Vital Statistics—Special Reports series is subtitled Selected Studies. It is devoted entirely to special analytical studies of vital statistics subjects in which detailed analysis and interpretation of the statistics are emphasized as much as the presentation of the data. An example of this type is "Weight at Birth and Its Effect on Survival of the Newborn in the United States, Early 1950," Vol. 39, No. 1, 1954.

Occasionally, an entire volume of the Vital Statistics—Special Reports is devoted to one major subject. An example is Volume 32, "Cancer Mortality in the United States, 1900-1945."

Technical services.—The NOVS has two continuing programs of technical service to the State vital statistics offices (see Appendix D). One program includes the training of cause-of-death coders through quarterly comparisons of State and NOVS cause-of-death codes; monthly publication of a column on cause-of-death coding problems in The Registrar, a NOVS publication for State and local registrars; and a monthly issue of 10 coding problems and answers for cause-of-death coders. The other program pertains to serving the Public Health Conference on Records and Statistics and the working groups of the Conference in a secretariat and consulting capacity.

Other technical services are rendered upon request. These include "loan" of personnel to international and State organizations, as well as consultation on various problems in registration, statistical processing, machine tabulation procedures, and analytical methods. Requests for technical opinions are generally handled by correspondence.

Coordination and standards.—In order to produce uniform national vital statistics, the NOVS must coordinate registration and statistical practices of the States insofar as they affect interstate and international comparability of data. The principal mechanism utilized by the NOVS for coordination is the Public Health Conference on Records and Statistics. In collaboration with the Public Health Conference on Records and Statistics, the NOVS develops, for adoption by States, recommendations on basic items such as the model vital statistics law, and standard certificates of live birth, fetal death, death, marriage, and divorce. The NOVS participates in the development of uniform definitions on other specific aspects such as motor-vehicle accidents and home accidents, for national use. In the international field, the NOVS contributes to the formulation of international standards and assumes the responsibility for interpretation of these standards and practices for national use. The NOVS participation in the development of the International Statistical Classification of Diseases, Injuries, and Causes of Death, and of the international recommendations of definitions of live birth and fetal death are examples of its activities in the international field.

Status of national marriage statistics.—In recent years many efforts have been made to improve national marriage data. Transcripts of marriage records for the years 1939 and 1940 were purchased from the State vital statistics offices in those States which maintained central files of marriage records. Some of the data obtained from these transcripts were published in reports showing data on marriages by various characteristics of brides and of grooms. This program was discontinued in the early years of the war.

Beginning with data for the year 1948, a cooperative program was inaugurated under which certain States provide the NOVS with completed tables on marriages classified by age, previous marital status, race, and other characteristics of individuals at the time of marriage. There has been considerable expansion in this program, but the coverage remains far from complete. Many States lacking central files of marriage records provide no detailed data on marriages. The States that cooperate in the program complete varying numbers of tables so that coverage is not uniform either within one year or from year to year. One reason for this variation is the lack of uniformity in State marriage records. This is being changed.



In cooperation with the Public Health Conference on Records and Statistics (PHCRS), an organization of State statistical and registration officials, the NOVS has developed a Standard Record of Marriage. To further encourage uniform tabulations, the NOVS and the Public Health Conference have drafted a Manual for Registration of Marriages to serve as a guide to the States on definitions of terms, registration procedures, and coding, punching, and tabulation of data. It is expected that a Marriage Registration Area will be established to promote improvement in marriage statistics and stimulate all States to provide for central State registration of marriages. This would follow the pattern of the Birth and Death Registration Areas.

To obtain information on important social and economic characteristics of recently married persons for the United States, the facilities of the Current Population Survey (CPS) of the Bureau of the Census have been used. In the first of these surveys (April 1953), data were obtained for the United States on demographic and economic characteristics of persons who married between 1950 and the survey date.<sup>1</sup> The second survey (June 1954) provided data on education, occupation, number of marriages, and residence status of persons marrying between 1947 and the survey date.

Status of national statistics on divorces and annulments.—The development of national statistics on divorces and annulments has proceeded along lines similar to marriage statistics. Transcripts of divorce records for the years 1939 and 1940 were obtained from the State vital statistics offices in those States which maintained central files of divorce records, and a report was issued.

Beginning with the data year 1948, a cooperative program was started where certain States provide the NOVS with completed tables on divorces classified according to certain characteristics. While there has been expansion in this program, the coverage is even less complete than for marriages. The States that participate in the program prepare varying numbers of tables so that data are not entirely comparable from year to year, or from State to State. One reason for this is the lack of uniformity in the State records of divorces and

annulments. The recent development of the Standard Record of Divorce or Annulment will promote more uniform tabulations. Also, the Manual for Registration of Divorces which is being drafted will contribute further to uniformity in tabulations. It is anticipated that a Divorce and Annulment Registration Area will stimulate States to provide for central registration.

#### Organization, budget, and personnel of the National Office of Vital Statistics

The NOVS is organized in several large service sections and in professional sections established on subject-matter lines. About three-fourths of the approximately 200 employees are in the Statistical Processing Section which is responsible for the operations involving receipt, checking, and processing of data from the States, including coding, punching, tabulating, computing, table posting, editing, and typing for reproduction. There is an administration section with about 16 employees which handles personnel, budget, data procurement, travel, supplies and equipment, correspondence files, messenger service, and routine inquiries for information. The remaining sections are staffed with from 2 to 6 persons, chiefly of professional grade, who are responsible for planning statistical tabulations and published reports, conducting analyses of data, and planning and conducting special studies. These sections are: Mortality, Natality, Marriage and Divorce, Actuarial Analysis, Morbidity, and State Consulting Service. Overall technical and administrative coordination and relations with the Public Health Conference on Records and Statistics are the responsibilities of the Office of the Chief, staffed by 8 persons.

The total annual budget for the fiscal year 1955 has been about \$1,300,000. Of this sum, about \$740,000 is used for personnel salaries; \$200,000 for purchase of data; \$160,000 for communication costs, chiefly penalty mail; \$70,000 for equipment rental; \$60,000 for printing; \$35,000 for travel; and the remainder for miscellaneous items.

#### Findings and Recommendations

In its directive, this Committee was asked to prepare findings on the five distinct topics mentioned in the section on Scope and Method of Study (p. 227). As a matter of presentation, it was decided to use topic 5—general blueprint outlining goals to be achieved by the national vital statistics

<sup>1</sup>National Office of Vital Statistics, Vital Statistics—Special Reports, Vol. 39, No. 3, "Demographic Characteristics of Recently Married Persons: United States, April 1953," 1954; and No. 5, "Economic Characteristics of Recently Married Persons: United States, April 1953," 1955.

system—as a frame into which to fit the discussion of the other topics.

In the detailed consideration of these goals, the Committee recognizes four major types of problems which are pertinent to work of the NOVS:

1. Production of national vital statistics.
2. Statistical studies of public health and population characteristics (including the development of new data).
3. Coordination of the national vital statistics system.
4. Economy and efficiency of operations.

Subsequently in this report, each type of problem is examined in turn. Under each, the Committee presents a statement of the goals to be achieved as it sees them, a statement of the principal deficiencies in the present system with respect to these goals, and its recommendations.

Two other items were discussed. These were the level of the NOVS in the organizational hierarchy of the Public Health Service and the channel of communications to the State vital statistics offices. While it was agreed that these were problems that have an important bearing on the effectiveness of operation of the NOVS, they were considered to be outside of the scope of the Committee's assignment.

#### Regular production of basic national vital statistics

The responsibility for producing national vital statistics carries an obligation to make them of maximum value for administrative, public health, research, and other purposes which they should serve. In the postwar years the importance of the need for detailed national vital statistics for research in the social sciences and in the medical and allied sciences has increased greatly. For example, detailed birth, death, and marriage statistics are basic for the study of determinants of population trends and for making population projections. Government at its several levels is concerned with population projections in planning for schools, for public health services, for housing development, for power development, for the national defense, for agricultural needs, and in administering its social security program. Population projections are used by business for gauging potential markets and determining the locations for

plants. With the greatly intensified efforts by both private and public agencies to promote health and reduce mortality, the medical and allied sciences have increased their demands for detailed national vital statistics in order to detect problems requiring study, to design health studies or programs, to evaluate the results of such studies or programs, and also to study the relation of disease to environment.

In the production of national vital statistics the responsible agency should make every effort to publish statistics which:

1. Cover the entire country.
2. Are based on as complete reports as it is feasible to obtain, with measurement of the degrees of completeness achieved.
3. Are based on as accurate reports as it is feasible to obtain, with measurement of the degree of accuracy achieved.
4. Are based on records which are essentially uniform with respect to all items of statistical information needed for national vital statistics.
5. Are compiled according to uniform classifications and classification rules.
6. Give sufficient detail, in terms of cross-classification of items, to serve adequately not only administrative needs, but also research interests.
7. Are available for public use at the earliest practicable time.
8. Are accompanied by adequate explanations of factors bearing upon the interpretation of the statistics.

The current status of national vital statistics data with respect to these eight objectives is as follows:

Geographic coverage.—The U. S. Death Registration Area was established in 1900 and the U. S. Birth Registration Area in 1915, in each case with 10 States and the District of Columbia. Additional States were added year by year so that nationwide coverage was achieved in 1933. The situation with respect to marriage and divorce statistics is similar to that for birth and death statistics prior to the establishment of the registration areas, except for the publication by the NOVS of data tables showing marriages performed or divorce or annulment decrees granted which are based on tabulations supplied by some States.



In order to extend coverage there is need for the organization of registration areas for marriage and divorce at an early date. One necessary step in this process is the centralization of marriage and divorce records in each State. There are now 30 States, 4 Territories and one independent reporting city with central registration of both divorces and marriages. In addition, there are 6 States with central registration of marriages but not divorces. (See figure 2.) It would be particularly desirable for the latter group of States to establish central records of divorces and annulments in the near future because of the close interrelationship between the two subjects. Eventually, all States should have central files of both marriage and divorce records.

**RECOMMENDATION:** The NOVS should increase its efforts to obtain nationwide marriage and divorce statistics through the establishment of registration areas based on central files of marriage and divorce records which contain specified items.

Completeness of data.—Excellent progress has been made toward the goal of complete birth registration for the country as a whole. The 1950 test showed that the problem of unrecorded births is now limited to a few States and to certain rural areas and population groups in those States.

**RECOMMENDATION:** The NOVS should stimulate and assist in special studies of birth registration completeness in areas where completeness of registration is still a problem.

In death and fetal death registrations, there are indications that underregistration, particularly of infant deaths, is significantly high in certain rural areas, as in the case of birth registration. For fetal deaths, a study made in New York City<sup>2</sup> indicates that reporting is seriously incomplete. Even for late fetal deaths (28 weeks or more) reporting may be more than 20 percent incomplete for the country as a whole.

It is recognized that there are technical difficulties involved in measuring completeness of death registration. The problems are even more difficult in testing completeness of fetal death registration. Nevertheless, the increased attention being given to the reduction of fetal and early neonatal mortality emphasizes the need for improvement of death and late fetal death registration. There seems to be little possibility of obtaining complete registration of early fetal deaths.

**RECOMMENDATION:** The NOVS should endeavor to develop methods for measuring incompleteness of death and late fetal death registration adaptable to those areas where this problem is important. If practical techniques can be found, they should be applied to obtain more information on the extent of incompleteness and on means for attaining more complete reporting.

In notifiable disease reporting, most, if not all, notifiable diseases are incompletely reported. In many instances, the administration of therapeutic measures before a definitive diagnosis is made makes it very difficult to obtain complete reporting of illness due to certain diseases. In other instances, failure to report arises from oversight on the part of the physician or from lack of interest or appreciation of the need for reporting.

The purpose of notifiable disease reporting is to provide data that will aid in the control of communicable diseases. Some of these diseases have become of minor significance as public health problems in this country. The importance of having complete data is greatest for diseases such as poliomyelitis, typhoid fever, and tuberculosis, which are still major public health problems amenable to control procedures, or for potentially dangerous epidemic diseases such as smallpox.

**RECOMMENDATION:** Efforts toward improvement of notifiable disease reporting should be concentrated first on those diseases that are major health problems and are amenable to control procedures.

The degree of completeness of marriage and divorce registration is unknown. The NOVS has prepared plans to cooperate with the States in checking the completeness with which certificates of marriage and divorce are actually filed. The

<sup>2</sup>Baumgartner, Leona, Wallace, Helen M., Landsberg, Eva, and Pessin, Vivian, "The Inadequacy of Routine Reporting of Fetal Deaths," *American Journal of Public Health*, Vol. 39, No. 12, December 1949, pp. 1549-1552.

successful execution of these plans will constitute an important step toward the establishment of a sound base for national statistics on marriages and divorces.

**RECOMMENDATION:** The NOVS should cooperate with the States in the development and application of tests on the completeness of the reporting of marriages and divorces to the central offices.

Accuracy of data.—Accuracy of the information on the records, and of the statistics based on it, is of crucial importance. It is also difficult to measure. There is evidence of significant errors in the reporting of certain items—cause of death, place of residence, and age. For other items such as race, nativity, and marital status of the deceased (or of the parents in the case of births), there is virtually no knowledge of the quality of reporting. Several general methods of evaluating statements on vital records may be used. One is to compare the entries on the certificates with the corresponding information for the same persons on another record, such as the population census schedule. For example, a comparison of the occupation information on birth and death certificates with that on the census schedule is now being done by the Scripps Foundation for Research in Population Problems. The correspondence of other items should be measured. Another method is to reinterview the informant who gave the information on the certificate, or to interview another person who may be able to make a more accurate report than the first informant. This method was used with at least partial success in the Census Post-Enumeration Survey.

**RECOMMENDATION:** Studies designed to measure the accuracy of the information on the original records should be an essential part of the regular NOVS program.

Uniformity of data.—It is essential that all State certificates contain the items needed for national statistics and that these items be defined in substantially the same form. In order to accomplish uniformity in the report forms, the NOVS has issued standard certificates of birth, death, and fetal death. More recently, standard records of marriage and of divorce or annulment have been recommended by the NOVS and adopted by several of the States. For national statistics, the information must also

be processed according to uniform classifications with uniform rules for classifying the specific facts given on each record.

The NOVS and the States are to be congratulated on the impressive degree of uniformity which has been achieved for most of the items used in national birth, death, and fetal death statistics. The few exceptions occur mainly on the birth certificate, where the legitimacy item is omitted by 14 States, chiefly owing to prohibition by State laws, and birth order and birth weight are omitted from the Massachusetts certificate.

Because the standard records of marriage and divorce have been available only recently, considerable diversity exists among the record forms in use. Uniformity in coverage and definition of items is essential for production of satisfactory national statistics.

**RECOMMENDATION:** The NOVS and the State vital statistics offices should continue their efforts to obtain complete coverage of all items on the standard certificates.

Uniformity of classification.—Uniform classification of the information on the birth, death, and fetal death certificates has been achieved for the entire country by having copies of all of these vital records available in one central office and classified according to a uniform set of instructions and procedures. This has meant that the data for all parts of the country have been coded in the same way.

The classification procedures used by the various States in compiling tables for consolidation in national statistics of marriages and divorces are not uniform. Greater uniformity could be obtained if the NOVS and the participating States develop and adopt uniform definitions and classification procedures. However, it is much more difficult to maintain uniform practices when the operations are performed in many separate offices.

The value of national vital statistics depends greatly upon uniformity and consistency in the classification of the various items. This is particularly true for interstate comparisons of data.

**RECOMMENDATION:** Uniformity of classification of the items is essential in the production of national vital statistics, and continuous efforts should be made to maintain and increase the degree of uniformity. Special attention should be given to this problem in statistics of marriages and divorces.

Scope and detail.—There are certain general principles which, in the opinion of the Committee, should be followed in determining the detail and scope of tabulations. These are:

- a. Vital statistics should be available for the United States, each State, each county, and each city above a specified population size (e. g., 10,000 or 25,000).
- b. Statistics for the country as a whole should be in the maximum detail, with less detail for the individual States and large cities and least detail for counties and small cities. This gradation is justified by three considerations: National data are subject to the most extensive use; the higher frequencies at the national level than for the geographic subdivisions allow more detailed classification for the former; and in intercensal years annual population data, which are necessary for computing vital statistics rates, are available in detail only for the country as a whole.
- c. For all geographic areas, the most detailed tabulations requiring a population base for analysis should be made for the decennial census year (or 2- or 3-year period centering on the census) when the maximum amount of population data is available.
- d. Certain statistics should be tabulated annually; for others the needs may be satisfied by less frequent tabulations (see Cyclical schedule of tabulations, p. 239). For intercensal years, there is now some evidence that a 50-percent sample of the births may be adequate for most purposes. Where less-than-annual tabulations are scheduled, they should be given the same priority as those scheduled annually, in order to avoid eventual loss of information.

In addition to these general principles applicable to all vital statistics, there are specific suggestions for much needed improvement in the scope and detail of national marriage statistics. For instance, annual data on marriages showing the characteristics of brides related to corresponding characteristics of grooms should be made available. This is especially important for information on age, race, previous marital status, and number of times previously married. In addition, data on occupation, attained years of schooling, and number of children under 16 years of age from prior marriages should be available periodically. It is recog-

nized that some of this information would not be available from the Standard Record of Marriage.

Information on marriages by place of residence of bride and groom, as contrasted with place of occurrence of the marriage, is also important, especially if linked to the characteristics of the persons who are married in States other than the one of usual residence. The possibility of tabulating marriages by place of intended residence after marriage should be explored because of the obvious value of such data to numerous groups, including market research organizations.

In the past, the NOVS has relied on the following guides in making decisions regarding the scope and detail of its tabulations and publications: advice of professional leaders in the various subject fields, interests and needs of administrative and research programs, specific requests for data from important organizations, and occasional mail surveys of representative consumers of the statistics. There have also been instances where proposals for the discontinuation of a publication series were submitted to the consumers on the mailing lists for the publications, and action taken on the basis of the responses received.

**RECOMMENDATION:** The NOVS should keep in closer touch with users of its data when planning the scope and detail of its tabulations and publications and making decisions on fundamental issues.

Timeliness.—The weekly and monthly publications of the NOVS giving current vital statistics are being issued on a satisfactory schedule, and present no special problems in regard to timeliness.

For some types of data, useful particularly for research studies or in long time series, the existence of an annual repetitive series is more important than the time at which the figures become available. On the other hand, the effective application of data pertinent to public health and administrative problems depends on the promptness with which the figures reach the consumers.

If the records are received within the specified time from the States, the special reports and the annual volumes (Vital Statistics of the United States) of the National Office of Vital Statistics can be released for printing from 12 to 18 months after the end of the calendar year to which the data apply. Starting with the data year 1949, however, increasing delays occurred in the issuance of the annual publications. The 1949 annual volumes were released

to the printer 25 months after the close of 1949, whereas the usual schedule prior to that period was about 18 months after the year. Thereafter, the situation became worse. The poorest record was set with the 1951 annual volumes which were released for printing 32 months after the close of the year. Three factors contributed to the delays in the annual processing schedules, namely: unchanged budget appropriations during a period of increasing personnel and material costs, the diversion of personnel to conduct several special census-related projects, and the increase in the number of records to be processed.

After the data year 1952, a special effort was made to catch up to the normal processing schedule. The release for printing of death statistics in the annual volume (Volume II) for 1953 was on normal schedule (18 months) but the release of birth data (Volume I) occurred 23 months after the end of the data year. For 1954 and thereafter, it is expected that the annual volume on mortality will be released to the printer 15 months after the close of the data year, and on births, 18 months. The projected processing schedule, if maintained, will be as prompt as it has ever been. The principal problem now in maintaining operations on schedule appears to be in the procurement of data from the State vital statistics offices according to the specified time schedule.

The contract schedule for delivery of transcripts of birth and death records from the State vital statistics offices to the NOVS calls for delivery of data for each month within 90 days after the end of the month. For example, data for December are due on March 31 of the year following. Several reporting areas usually fall behind in the delivery schedule. The following table shows the delays in delivery of transcripts as of December 1954:

	On sched- ule	MONTHS BEHIND DELIVERY SCHEDULE						
		1	2	3	4	5	6	7
Births:								
Reporting areas	40	6	2	2	2	2	1	1
Deaths:								
Reporting areas	41	7	2	1	2	1	2	-
Fetal deaths:								
Reporting areas	36	5	6	2	1	3	3	-

The schedule for obtaining statistical tables giving 1954 data on marriages and divorces (including annulments) from the State office was as follows: Table forms were mailed by the NOVS early in February 1955 with a requested return date of June 15; and followup letters were sent to the States in July with a suggested deadline of November 1. Actually, the 1954 tables were received from some States as early as April 1955 and as late as January 1956. An effort will be made by the NOVS to obtain 1955 data for all participating States by October 1, 1956. If this goal is met, it should be possible to publish consolidated reports early in 1957.

The delay in the issuance of NOVS publications was the most frequent criticism of consumers responding in the questionnaire survey. Most of the consumers indicated considerable understanding and appreciation of the difficulties faced by the NOVS during the period of maximum delay. Nevertheless, it was felt that the data would be more useful if made available more currently.

**RECOMMENDATION:** Immediate priority should be given to the processing and procurement of data to achieve a schedule of processing which permits the release for printing of final data within 15 months after the close of the data year; and this schedule should be maintained or improved upon in the future.

Explanation of factors bearing on interpretation of data.—Statistics may be relatively complete, accurate, comparable, detailed, and timely but still fall short of their potential value. It is also necessary to explain the various factors which may affect the meaning of the figures so that the statistics can be correctly used and interpreted. Population coverage, definitions, classifications, rules for allocating individual events to classes, known biases in reporting, changes in reporting practices or rules which may affect comparability, and any other sources of error or misunderstanding need to be fully discussed.

In addition, there are many professional and lay users of vital statistics who have limited knowledge of the ways in which statistics can be correctly used. For this large group, it is important that the tables be accompanied by a clearly written text describing the trends or difference indicated by the statistics and, where possible, pointing out

their implications in terms of the relevant subject, that is, health, population changes, social problems, economic considerations, et cetera. Such explanations should be provided regularly by the NOVS.

**RECOMMENDATION:** The analytical functions of the NOVS should be strengthened to make available more explanatory and interpretive material useful to the consumer.

#### Statistical studies of public health and population characteristics

The annual repetitive series of publications make available a considerable body of statistics. However, not all of the data tabulated can be or need to be published regularly. Also, there are certain valuable items of information on the vital records that have not been fully exploited for statistical purposes. Examples are the occupation items on the birth, death, and fetal death certificates; the hospital and medical items on the birth and fetal death certificates; and the associated cause information on the death certificate. Both untabulated data and unpublished tabulations should be exploited periodically, and the results made available in the form of special studies.

Two kinds of studies may be distinguished. The first type of study is a program-oriented analysis wherein data relating to a specific program are brought together. The series of reports on cancer mortality and on cardiovascular-renal disease mortality, prepared in collaboration with the National Cancer Institute and with the Division of Public Health Methods, respectively, are examples of program-oriented studies.

The second type relates to the presentation and analysis of data with primary emphasis on making available new information which may serve a variety of interests. Examples are studies of mortality by marital status and by occupation and industry; neonatal mortality by cause, race, and sex; the fertility of birth cohorts of women by age and number of children borne; births according to birth weight; and special studies based on matched marriage and divorce or annulment and other vital records.

The development of a program of special studies should be an important goal of any vital statistics office. The vital statistics offices are in a unique position to make important contributions to knowledge regarding health and population growth,

and to the furtherance of the various public health programs. The program-oriented studies in particular represent valuable services to public health activities. Such studies should also have important side effects in pointing to needed improvements in the data, to new areas for study, and to regular tabulations which should either be eliminated or reshaped.

The National Office of Vital Statistics has conducted a number of such studies in the past but not on a regular basis.

A program of more complete interpretation of vital phenomena will require from time to time the development of new data not obtainable from the present records. The decennial revisions of the standard certificates by the NOVS provide an opportunity to introduce new items on the vital records, although this approach can be taken only on a limited number of items that are needed for at least a 10-year period. A more flexible method is to follow back on a sample of vital records for additional information. By use of this follow-back procedure, it may be possible to obtain additional medical information from hospital records and/or from the physician. The supplemental data may relate to illness history, verification of diagnoses, and other facts about medical care and hospitalization. Certain other pertinent social facts, such as economic status, medical costs, education, number of dependents, et cetera, may be secured from the family. Although much will have to be learned about the practical application of this approach, it appears to us potentially very useful.

Surveys of the general population provide another source of new data. The National Office of Vital Statistics has already utilized the Current Population Survey for obtaining supplemental data on child spacing as related to certain socioeconomic factors, and on the various characteristics of newly married persons.

Surveys of the general population possess the great advantage of providing the population base at the same time that new data, which should be related to this base, are being collected. On the other hand, the sample size may not be adequate for measurement of the characteristics under study and there may be problems of underreporting. If a population base is not needed, the use of a sample of existing vital records may provide a more efficient means than a survey for collecting additional data.



Further research is needed in developing new methods of analysis of data, including statistical measures of mortality, fertility, and marriage and divorce. For example, more intensive research is needed in methods of projecting birth, death, and marriage rates which are useful in planning health and social programs and are essential to population projections.

**RECOMMENDATION:** Statistical studies that contribute to knowledge in public health, fertility, mortality, marriage, and divorce should be developed as part of the regular program of the National Office of Vital Statistics. In particular, attention should be given to the influence of population characteristics, such as sex, age, marital status, and occupation. The program should include collection of new data and development of new methods of analysis that are needed for program planning, administrative and research purposes.

#### Coordination of the national vital statistics system

**Responsibilities of the NOVS.**—The production of national vital statistics in the United States by the NOVS is dependent on the cooperation of the States, since the collection of primary data by means of registration is a State responsibility. Neither the legislation enacted by the States nor by the Federal Government defines the responsibility of the States to the Federal Government in vital statistics matters since the provisions are permissive rather than mandatory.

Over the years there has developed a fair degree of uniformity in the State laws on birth and death registration with respect to authorizing the State to furnish copies of vital records to the Federal Government for national statistics. This uniformity stems from the fact that the States have enacted into their laws the essential portions of the various "uniform" and "model" vital statistics acts. The State laws usually specify that their certificates of birth and death are to contain as a minimum the items on the standard certificates recommended by the Federal Government.

The subjects of marriage and divorce registration were not included in the "model" acts until 1942. Furthermore, no standard certificates for these events were issued by the Federal Government until 1954. For these and other reasons, State laws on marriage and divorce registration vary greatly.

In view of these considerations, the national vital statistics system must be based on close cooperation between the Federal Government and the States through mutual understanding of the national and State interests and responsibilities for vital statistics. Enlightened self-interest is necessary on all sides and agreements must be enforced by moral suasion.

The Committee stresses the essential importance of minimizing the intrinsic complexity of the national vital statistics system and its operation by developing a clearer understanding and appreciation by all concerned of the respective aims, functions, and responsibilities of the NOVS and the State vital statistics offices.

The production of national vital statistics requires an effective central office at the national level. Therefore, it is essential that the necessary authority and responsibility of that office in relation to the statistical services desired be clearly defined. There is not now, in fact, an agreement or uniform understanding concerning the responsibilities of the national office.

The following functions are recommended as necessary duties (in addition to its usual operating functions) of the national vital statistics office, if reasonably adequate national statistics and related services are to be regularly available:

1. Determination of the scope and content of the national vital statistics tabulations and publications.
2. Recommendation and promotion of uniform definitions of vital events and standard forms for reporting these events.
3. Determination of the classifications and classification rules used in preparing national vital statistics.
4. Assistance to the States in improving and maintaining the quality and timeliness of the primary vital records.
5. Measurement of the degree of accuracy of all of the procedures which enter into the production of national vital statistics; completeness of reporting, accuracy of reported information, accuracy and consistency of classification of information, and accuracy of statistical compilation.
6. Maintenance of direct regular contacts with national groups representing the major interests in vital statistics.
7. Maintenance of control over the accuracy of processing of records used in national vital statistics tabulations.

These are basic responsibilities of the national office, regardless of whether all of the specific operations involved are performed by the national office personnel or whether some are done by State office personnel. Certain operations have always been and will continue to be done by the States—the securing of complete and accurate registration of vital events, direction and instruction of local registrars and other persons responsible for the original reports, and transmission of data to the national office.

There are many other operations which are performed by State vital statistics offices to serve State health department needs or to provide the legal registration services for which they are responsible. Insofar as these operations affect or are related to the services necessary to produce national vital statistics, their proper performance is of direct interest to the national office.

Technical services to States—As mentioned on page 229, the NOVS maintains programs of technical services to the States. The services that are given and that might be given are discussed more fully in Appendix D. In summary, such programs are of great value to the national system of vital statistics in two ways. The system benefits directly from improvements in the quality of data collection and processing at State and local levels. Of equal importance is the more effective utilization of these data by State and local agencies in the planning of health programs or in special studies which correlate vital statistics with other health, social, or demographic data.

**RECOMMENDATION:** The NOVS should be given sufficient fiscal resources to provide the States upon request with more adequate technical services in the following areas: professional advisory and consultant service on technical and management problems; expanded information and clearinghouse services on technical subjects and methodology; educational programs directed toward improvement of source data; national program for recruiting and training professional vital statistics personnel; and work with State health department program divisions in promoting effective utilization of vital statistics data.

#### Observations on economy and efficiency of operations

Increasing efficiency of processing methods.—Full achievement of the preceding objectives, within the usual limitations of available facilities, requires that the NOVS have an active program for the development of more efficient and flexible statistical processing methods. Such a program should include experimentation with the high speed electronic computers, the new record-reading machines, methods and applications of sampling, methods of obtaining better information on the source documents, and more efficient coordination of record-collecting procedures at the local, State, and national levels.

Cyclical schedule of tabulations.—In an annual vital statistics tabulation and publication program, consideration must be given to the various consumer needs and uses. Certain basic tabulations are essential each year, whereas data of more specialized interest can be made available periodically, perhaps every 3 to 5 years. There are also data that change slowly over the years. It would seem unnecessary to tabulate and publish such data every year.

The usefulness of almost all vital statistics is enhanced to a great degree by the existence of corresponding population data to permit the computation of rates. The usefulness of some items depends entirely on the possibility of computing rates, and for such items, tabulation is warranted only in the years when population data are available or can be estimated reliably.

There are certain statistics that are of value on an annual basis, but are so expensive that they can be prepared only at infrequent intervals.

These factors—the need for data, the availability of population data, and the cost of production—should be basic considerations in determining the frequency with which various statistics are produced. Ideally, a complete cyclical program of collection of data and tabulation of them should be planned so as to maintain a level budget operation. In practice, this is difficult to achieve. New items cannot be introduced and old ones deleted from the original vital records at frequent intervals. Even if this were possible, it would be very unlikely that the vital records filed for any particular year would be returned on the same form. Cyclical shifts in

items to be collected and/or tabulated entail the danger of forever losing the information on an item once it is dropped. Another limiting factor is that long range planning is needed, with an annual review in order to assure that changing conditions and demands are being met. This is not an insurmountable difficulty although serious problems may arise if there is loss of flexibility of operation through decentralization of statistical processing. Perhaps a more serious problem relates to the fact that a long range program is difficult to execute because of the uncertainties of annual appropriations. Anticipated funds needed for a planned project may not materialize at the appointed time. This could throw certain phases of the cyclical program out of line.

Despite the problems and difficulties of carrying out a cyclical program of tabulations, such an approach to tabulation represents the most efficient use of resources consistent with meeting the major consumer demands.

**RECOMMENDATION:** The concept of cyclical tabulation of data should be firmly established as a part of the regular program of the NOVS with adequate safeguards for the continuity of the various tabulation cycles.

#### Methods of producing national vital statistics

As part of its study, the Committee investigated (a) various methods of producing national vital statistics from the standpoint of relative costs and the scope and quality of the end product, and (b) the question of duplication of effort between the State vital statistics offices and the NOVS. The findings are as follows (for details, see Appendix C):

1. Similarity and overlapping in State and Federal vital statistics procedures, tabulations, publications, and needs have not in the past and do not now cause sufficient "duplication" so that this merits consideration as a major or controlling factor in planning the program of the NOVS.

2. The transcript method for producing national vital statistics now in operation in the NOVS meets the basic requirements for national vital statistics specified on page 231 of this report. It is efficient to administer, and, because of the large

volume of records processed, operates at a low unit cost per record.

3. The NOVS needs a transcript of each individual vital record in order to maintain control of the quality of national vital statistics tabulations and to provide a source of data for research in medicine, public health, and population growth.

4. The punched-card method for producing birth statistics was initiated with the belief that significant savings to the NOVS would result from the elimination of an assumed duplication in processing between the States and the NOVS. Existing duplication alone is not sufficient to make it a decisive factor in planning the program of the NOVS. Precise statements of savings by the elimination of such duplication are not available and existing estimates vary widely. In the judgment of the Committee, any savings which are likely to occur will be insufficient to counterbalance the following disadvantages of the punched-card method: (a) the punched-card method undesirably restricts the freedom of action both of the States and of the NOVS in planning their programs; (b) the scope and detail of national vital statistics cannot be greater than those of the participating State with the least scope and detail; (c) the NOVS would gradually lose its position of leadership in national and international vital statistics due to the loss of technical skills and knowledge and no other agency would gain a corresponding leadership; and (d) there is no way of ensuring that a State may not suddenly withdraw from the plan at a time when the NOVS is unprepared to expand its work.

The Committee has been unable to discover any advantages that cannot be realized by methods that are free from the defects of the punched-card method. It can foresee no way to obviate the disadvantages of the punched-card method in the procurement of mortality statistics. It recognizes that it may be possible for the NOVS to work out a mutually advantageous punched-card program for birth statistics with a few State or city vital statistics offices that will obviate most of the defects of the method as originally proposed. It sees no possibility of extending this program to all, or even a majority, of State and city vital statistics offices without jeopardizing the scope, quality, and usefulness of national vital statistics.

5. The pretabulation method of collecting national vital statistics has all of the disadvantages mentioned above on the punched-card method. In addition, the pretabulation method is inflexible. If it were applied to births and deaths, the available national data would shrink to a minimum and to a rigid list of tabulations. With pretabulation, it would become extremely difficult to make studies of importance to the country's health and welfare that are based upon information which has been obtainable only from copies of the original birth and death records. The pretabulation method would increase costs of State operations without a compensatory decrease in costs to the NOVS.

State pretabulated data have been used by the NOVS to provide statistics on marriages and divorces. In the absence of resources necessary to process copies of the individual records, use of pretabulated data has been necessary. However, use of this method over a 6-year period has demonstrated clearly its serious limitations. No data presented in a uniform way for all States are available. Additional tabulations of the data to answer requests or make special studies have not been possible.

**RECOMMENDATIONS: The NOVS should—**

A. Reject any data procurement method that limits or restricts the use of vital statistics records for research or that prevents it from controlling the quality of national vital statistics tabulations. Specifically, the NOVS should procure transcripts of the individual vital records for processing.

B. Reject the proposal to produce national birth and death statistics from data pretabulated by the States because:

- (1) the available national data would shrink to those obtainable from a minimum rigid list of tabulations;
- (2) it would become very difficult to make national studies based upon information obtainable only from transcripts to the individual records or from individual punched cards;
- (3) it would add to the cost of State operations without a compensatory decrease in the cost to the NOVS.

C. Reject the punched-card method of collecting vital statistics data as a general method applicable to all States because:

- (1) it restricts the freedom of action both of the State offices of vital statistics and of the NOVS, thus making vital statistics less useful rather than more useful;
- (2) effective leadership in national and international vital statistics will be sacrificed due to the loss of technical skills and knowledge in the NOVS;
- (3) the scope and detail of national vital statistics cannot be greater than those of the participating State ranking lowest in these respects;
- (4) the possible savings in cost are outweighed by the disadvantages of the method;
- (5) the overlapping of State and Federal vital statistics procedures, tabulations, and needs is not great enough to make this method possible without serious disadvantages to both parties.

D. Abandon any further experimentation with the punched-card method in the collection of mortality statistics and, if the use of this method to collect birth statistics is continued at all, limit it to the few States where it can be shown to be mutually advantageous and where it will not adversely affect the scope, quality, continuity, and usefulness of national vital statistics.

E. Continue to cooperate with the States in studies of ways to improve the division of labor in the national vital statistics system. Changes in the system should be made only after full consideration of:

- (1) the basic requirements for national vital statistics specified on page 231 of this report;
- (2) safeguards for the continuity of operation;
- (3) opportunities to improve the final product and to render maximum service.

6. The NOVS should observe the preceding recommendations in its efforts to develop adequate national statistics of marriages and divorces,

while recognizing that existing conditions may not permit immediate adoption of all procedures that are now feasible in the case of births and deaths.

Specifically:

- A. The NOVS should work actively to establish a Marriage Registration Area through implementation of the four criteria established for admission to the area,<sup>3</sup> and to extend it until every State is included.
- B. Methods of collecting marriage statistics should be explored with a view to assuring complete coverage of the United States, uniform data both between and within States, comparability of time series, and accuracy of information.
- C. The NOVS should obtain copies of marriage records from the States and local areas to be processed in the NOVS.

Similar actions are needed in the field of national divorce statistics. However, specific recommendations are deferred until a thorough study of this problem can be made.

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<sup>3</sup>The NOVS and the Public Health Conference on Records and Statistics have agreed that the Marriage Registration Area will be comprised of those States meeting the following criteria:

1. Central record files for marriages in State office containing items on Standard Record of Marriage form.
2. Adoption of report form of marriage containing the items on the Standard Record of Marriage form.
3. Reporting by all local areas regularly to the State office.
4. Agreement between State office and National Office of Vital Statistics on joint testing of reporting for completeness and accuracy.

## APPENDIX A

### Consumer Views on National Vital Statistics

A consumer survey was conducted on the uses made of national vital statistics and on their adequacy. Questionnaires were mailed to 369 individuals including (a) persons or agencies selected from the membership lists of the American Statistical Association, the American Marketing Association, and the Population Association of America; (b) actuaries; (c) State registrars of vital statistics; and (d) various Federal agencies concerned with health and demography.

Opinions were solicited on the following questions:

1. The frequency with which the principal types of vital statistics data are used.
2. How well the published NOV'S statistics meet the consumer requirements in terms of content, timeliness, accuracy, and frequency of publication.
3. Suggestions for reducing the quantity of material published by the National Office of Vital Statistics.

The number of responses from the various groups were as follows:

<u>Group</u>	<u>Sent</u>	<u>Returned<sup>4</sup></u>
Actuaries -----	12	9
Economists -----	96	56
Federal agencies -----	42	42
American Statistical Association -----	104	64
Population Association -----	55	35
State registrars -----	60	48
	369	254

<sup>4</sup>Includes 30 questionnaires returned uncompleted; of these, 8 indicated that the respondent used vital statistics, and 22 that he had made no use of vital statistics.

The persons or agencies to which questionnaires were sent were selected for their known interest in order to secure informed opinion on the subject. In general, the respondents appeared to have given careful thought to the questions presented to them. Many of them seemed to have a genuine appreciation of the problems involved in the production of national vital statistics. Tabular summaries of the responses to the various questionnaires are shown in tables A-1 through A-6 at the end of this section.

#### Use of vital statistics

Mortality and natality statistics (table A-1) are the data issued by the National Office of Vital Statistics which are used most frequently by the respondents. Next in order of frequency of use are the statistics on marriages and notifiable diseases. The consumers surveyed showed the least interest in fetal death statistics and divorce statistics. This generally corresponds to the requests for data received by the NOV'S. However, there are indications that if certain inadequacies could be corrected in the data for notifiable diseases, marriages, divorces, and fetal deaths, more use would be made of them.

An overwhelming majority of the consumers surveyed indicated use of statistics for the country as a whole and for States (table A-2). Also, the majority of respondents appear to have need for all of the other geographic data listed. A number of respondents stated that they were interested in data only for a specific county or city.

Question I(c) together with question I(d) (tables A-3 and A-5) was designed to determine the extent of use of sources other than the NOV'S for vital statistics data. As may be expected, the most frequent users of publications of State and local agencies were the State registrars of vital statistics. They constituted one-half of the "frequent" users of State and local publications. A comparison of ta-

bles A-2 and A-3 with respect to all the people reporting the use of State data indicates that only about one-quarter of them refer "frequently" to State publications as the source, less than one-half do so "occasionally," and the remainder "practically never." However, this may be due, in part, to the composition of the list of persons and agencies surveyed.

Of the secondary references, the Statistical Abstract of the United States, published by the Bureau of the Census, is most frequently used (table A-5). This is followed by the United Nations Demographic Yearbook and the World Almanac. These yearbooks and the almanac are apparently convenient references. Because of the nature of yearbooks and almanacs, it is likely that references to these secondary sources are more for national figures than for State, city, and county data.

About one-half of the respondents stated that they have requested unpublished data from the NOVS (table A-4). A number of those that had not tried to obtain unpublished data either were not aware of the availability of unpublished data or stated that they did not consider their needs important enough to justify a special request.

#### Scope or detail of subject matter, timeliness, and accuracy

Scope or detail of subject matter.—A large proportion of respondents indicated satisfaction with the existing scope and detail of the published data (table A-6). There were, however, a number of unmet needs mentioned. Some of the more frequently mentioned ones are as follows:

Births by (a) interval since marriage, (b) interval since last previous birth, (c) educational attainment of one or both parents, (d) order of birth by single years of mother's age, and (e) occupation of father.

Deaths by (a) occupation and (b) in more detail for local areas.

Fetal deaths by (a) late fetal deaths by cause and (b) data on early fetal deaths.

Notifiable diseases by (a) age, sex, and other personal characteristics; and (b) in greater detail with respect to cause. There were a

number of suggestions that morbidity statistics be extended to include disabling illnesses of various kinds.

Marriages and divorces by characteristics such as age, previous marital status, literacy or level of education, occupation, et cetera. The lack of complete geographic coverage was mentioned frequently as a serious defect in present statistics.

Timeliness.—The dissatisfaction expressed most frequently and most strongly concerning the NOVS publications related to the lack of timeliness of their issuance (table A-6). The release of unpublished data to those requesting them appears to have softened the reactions on the part of some of the respondents. Considerable understanding and appreciation of the problems faced by the NOVS in the early publication of data were evident. However, the general opinion was that the data would be much more useful if issued on a more timely schedule. It seems unlikely that any reasonable current schedule of the NOVS operations would meet some of the needs indicated.

Accuracy.—Most of the respondents did not express any opinion concerning accuracy except to indicate general satisfaction with the quality of data (table A-6). The defects mentioned were those that have been already recognized by the NOVS, namely, errors in residence allocation of births and deaths, and accuracy of notifiable disease statistics.

#### Reduction in quantity of material published by the National Office of Vital Statistics

There were relatively few suggestions for reducing the quantity of data published. In most cases, the respondents appeared satisfied with the data now being published and questioned the desirability of cutting out data. In instances, suggestions were made to increase the volume of published data.

In a sense, the question on reducing the quantity of material now published by the NOVS was a difficult one to answer. The respondent is more readily able to see the value of data in his specific area of interest, but appears to have less appreciation of other data.

Table A-1. Question I(a): Do you refer to the publications of the National Office of Vital Statistics for information on births, deaths, fetal deaths, morbidity, marriages, and divorces?

SUMMARY OF REPLIES

(F. = Frequently; O. = Occasionally; P.N. = Practically never; N.S. = Not stated)

GROUP	BIRTHS				DEATHS				FETAL DEATHS			
	F.	O.	P.N.	N.S.	F.	O.	P.N.	N.S.	F.	O.	P.N.	N.S.
TOTAL-----	95	103	15	11	106	89	19	10	38	67	86	33
American Statistical Association-----	16	36	5	7	24	31	5	4	8	11	32	13
Social and medical-----	7	19	3	3	16	12	2	2	7	9	12	4
Other-----	9	17	2	4	8	19	3	2	1	2	20	9
Population Association-----	22	11	1	-	20	11	3	-	6	15	12	1
Federal agencies-----	11	16	2	1	16	14	-	-	3	10	16	1
State registrars-----	30	17	-	1	34	13	-	1	19	21	5	3
Society of Actuaries-----	3	3	1	1	4	4	-	-	2	3	2	1
Economists-----	13	20	6	1	8	16	11	5	-	7	19	14

GROUP	MORBIDITY				MARRIAGES				DIVORCES			
	F.	O.	P.N.	N.S.	F.	O.	P.N.	N.S.	F.	O.	P.N.	N.S.
TOTAL-----	48	78	70	28	48	99	65	12	29	73	99	23
American Statistical Association-----	13	26	17	8	9	27	22	6	2	21	33	8
Social and medical-----	11	15	4	2	1	13	16	2	-	11	19	2
Other-----	2	11	13	6	8	14	6	4	2	10	14	6
Population Association-----	5	8	21	-	12	16	6	-	10	12	12	-
Federal agencies-----	8	13	8	1	5	3	21	1	4	3	22	1
State registrars-----	18	18	7	5	10	28	7	3	10	25	9	4
Society of Actuaries-----	1	6	-	1	2	4	1	1	2	2	3	1
Economists-----	3	7	17	13	10	21	8	1	1	10	20	9

Table A-2. Question I(b): Do you use the following geographic categories of data: National, State, county, city, cities grouped by size of population, and urban-rural?

SUMMARY OF REPLIES

(N.S. = Not stated)

GROUP	NATIONAL			STATE			COUNTY			CITY			CITIES GROUPED BY SIZE OF POPULATION			URBAN AND RURAL		
	Yes	No	N.S.	Yes	No	N.S.	Yes	No	N.S.	Yes	No	N.S.	Yes	No	N.S.	Yes	No	N.S.
TOTAL-----	218	2	4	192	20	12	128	68	20	147	54	23	124	69	31	149	48	27
American Statistical Association-----	61	1	2	54	6	4	34	19	11	42	14	8	30	21	13	38	14	12
Social and medical-----	30	1	1	29	1	2	20	7	5	23	4	5	18	8	6	22	4	6
Other-----	31	-	1	25	5	2	14	12	6	19	10	3	12	13	7	16	10	6
Population Association-----	34	-	-	27	6	1	20	12	2	26	8	-	26	8	-	30	4	-
Federal agencies-----	30	-	-	24	4	2	15	12	3	15	11	4	16	9	5	21	5	4
State registrars-----	46	1	1	46	1	1	33	12	3	35	9	4	29	17	2	31	15	2
Society of Actuaries-----	8	-	-	7	-	1	2	4	2	3	3	2	3	3	2	6	1	1
Economists-----	39	-	1	34	3	3	24	9	7	26	9	5	20	11	9	23	9	8



Table A-3. Question I(c): Do you refer to publications of State and local agencies as sources for vital statistics data?

## SUMMARY OF REPLIES

(F. = Frequently; O. = Occasionally; P.N. = Practically never; N.S. = Not stated)

GROUP	F.	O.	P.N.	N.S.
TOTAL-----	50	95	76	3
American Statistical Association--	16	26	21	1
Social and medical-----	10	16	5	1
Other-----	6	10	16	-
Population Association-----	5	17	12	-
Federal agencies-----	2	11	17	-
State registrars-----	23	18	6	1
Society of Actuaries-----	1	1	6	-
Economists-----	3	22	14	1

Table A-4. Question I(e): Have you ever tried to obtain unpublished data from the National Office of Vital Statistics?

## SUMMARY OF REPLIES

GROUP	Yes	No	Not stated
TOTAL-----	113	109	2
American Statistical Association-----	29	34	1
Social and medical-----	18	14	-
Other-----	11	20	1
Population Association-----	18	16	-
Federal agencies-----	27	3	-
State registrars-----	29	18	1
Society of Actuaries-----	4	4	-
Economists-----	6	34	-

Table A-5. Question I(d): Do you use secondary references (e. g., almanacs, yearbooks, encyclopedias) as sources for vital statistics data?

## SUMMARY OF REPLIES

(F. = Frequently; O. = Occasionally; P.N. = Practically never; N.S. = Not stated)

GROUP	STATISTICAL ABSTRACT				UNITED NATIONS DEMOGRAPHIC YEARBOOK				WORLD ALMANAC				OTHER				NOT STATED			
	F.	O.	P.N.	N.S.	F.	O.	P.N.	N.S.	F.	O.	P.N.	N.S.	F.	O.	P.N.	N.S.	F.	O.	P.N.	N.S.
TOTAL-----	17	35	2	-	12	9	-	-	4	13	1	-	31	54	62	1	-	2	9	8
American Statistical Assoc.--	5	10	-	-	3	2	-	-	1	5	1	-	11	14	24	-	-	-	1	3
Social and medical-----	2	4	-	-	1	2	-	-	1	3	1	-	6	7	11	-	-	-	1	3
Other-----	3	6	-	-	2	-	-	-	-	2	-	-	5	7	13	-	-	-	-	-
Population Association-----	4	6	2	-	6	4	-	-	1	1	-	-	4	5	9	-	-	1	2	-
Federal Agencies-----	3	4	-	-	2	2	-	-	-	2	-	-	4	3	12	-	-	1	2	1
State registrars-----	2	7	-	-	1	1	-	-	1	3	-	-	4	9	26	-	-	-	3	2
Society of Actuaries-----	-	2	-	-	-	-	-	-	-	1	-	-	-	2	3	-	-	-	1	1
Economists-----	3	6	-	-	-	-	-	-	1	1	-	-	8	21	8	1	-	-	-	1

Table A-6. Question II: Are the data published by the National Office of Vital Statistics adequate for your uses in scope or detail of subject matter, timeliness, and accuracy?

SUMMARY OF REPLIES

(N.S. = Not stated)

GROUP	BIRTHS			DEATHS			FETAL DEATHS			MORBIDITY			MARRIAGES			DIVORCES		
	Yes	No	N.S.	Yes	No	N.S.	Yes	No	N.S.	Yes	No	N.S.	Yes	No	N.S.	Yes	No	N.S.
SCOPE OR DETAIL OF SUBJECT MATTER																		
TOTAL-----	162	30	32	150	38	36	116	14	94	99	40	85	119	32	73	104	25	95
American Statistical Association-----	40	6	18	40	8	16	27	3	34	22	15	27	32	4	28	27	2	35
Social and medical-----	23	2	7	20	5	7	20	3	9	12	12	8	17	2	13	17	1	14
Other-----	17	4	11	20	3	9	7	-	25	10	3	19	15	2	15	10	1	21
Population Association-----	22	9	3	23	6	5	17	1	16	12	4	18	13	12	9	14	10	10
Federal agencies-----	22	6	2	18	11	1	17	2	11	17	8	5	8	7	15	10	4	16
State registrars-----	42	6	-	39	9	-	37	8	3	33	9	6	35	5	8	34	5	9
Society of Actuaries-----	6	-	2	6	2	-	5	-	3	5	1	2	5	1	2	4	1	3
Economists-----	30	3	7	24	2	14	13	-	27	10	3	27	26	3	11	15	3	22
TIMELINESS																		
TOTAL-----	109	70	45	102	73	49	79	36	109	89	30	105	95	40	89	82	37	105
American Statistical Association-----	32	16	16	30	18	16	21	10	33	25	11	28	30	7	27	24	7	33
Social and medical-----	17	9	6	13	13	6	15	9	8	16	9	7	17	3	12	16	3	13
Other-----	15	7	10	17	5	10	6	1	25	9	2	21	13	4	15	8	4	20
Population Association-----	15	13	6	14	11	9	10	4	20	9	2	23	10	11	13	10	10	14
Federal agencies-----	21	4	5	20	7	3	15	1	14	18	3	9	11	2	17	12	1	17
State registrars-----	15	30	3	13	32	3	18	20	10	24	12	12	19	16	13	19	16	13
Society of Actuaries-----	5	1	2	7	-	1	5	-	3	5	-	3	6	-	2	5	-	3
Economists-----	21	6	13	18	5	17	10	1	29	8	2	30	19	4	17	12	3	25
ACCURACY																		
TOTAL-----	147	10	67	143	11	70	94	12	118	86	26	112	103	16	105	92	13	119
American Statistical Association-----	38	1	25	38	3	23	24	3	37	19	11	34	28	2	34	25	1	38
Social and medical-----	21	-	11	22	-	10	18	2	12	12	8	12	16	-	16	15	-	17
Other-----	17	1	14	16	3	13	6	1	25	7	3	22	12	2	18	10	1	21
Population Association-----	21	1	12	20	-	14	12	3	19	9	3	22	12	6	16	12	6	16
Federal agencies-----	22	1	7	20	4	6	11	3	16	15	3	12	8	3	19	8	3	19
State registrars-----	40	2	6	40	2	6	34	2	12	31	4	13	34	-	14	33	-	15
Society of Actuaries-----	6	-	2	7	-	1	4	-	4	5	2	1	5	-	3	4	-	4
Economists-----	20	5	15	18	2	20	9	1	30	7	3	30	16	5	19	10	3	27

## APPENDIX B

### Consumer Views on National Marriage Statistics

A survey was conducted of persons who might be expected to use marriage statistics in their work. The major purpose was to obtain information on uses and needs for marriage statistics. The survey was directed to persons in four major areas of activity: business, colleges or universities, private research, and government. Information was obtained from individuals representing widely divergent groups and interests.

#### Major findings of survey

The major findings of the survey on marriage statistics are:

1. More than four-fifths of all respondents (84 percent) reported that they had used marriage statistics in their work within the last year.

2. Respondents fell into 2 major groups emphasizing 2 distinct types of needs. Respondents in business organizations stressed the need for complete coverage of marriage and for data by age. Respondents in research fields stressed needs for data on characteristics of brides and grooms.

3. More than two-thirds of all users reported that they used marriage statistics for estimating the number of households; more than one-half, in analyzing social trends; and two-fifths, in estimating future markets for products.

4. Additional marriage data for the United States requested most frequently by users were: (a) previous marital status of brides and grooms, (b) age at marriage, and (c) various cross-classifications of characteristics of brides and grooms.

5. Comments on the national program fell into broad categories the most important of which were: (a) expressions of need for more data, (b) requests for expanded coverage, and (c) statements of usefulness of present data.

#### Description of survey

Mailing lists.—Mailing lists totaling 539 names were, for the most part, provided by members of the Subcommittee on Utilization of Marriage Statistics. A few names were suggested by private individuals who had received questionnaires. About one-half of the persons on the mailing lists were individuals in business organizations, mostly heads of research departments or officers of the company. In general, the survey mailing list of business users was limited to those in national organizations. The important group of users of local data in the business field were not included.

Questionnaire style.—The questionnaire was designed insofar as possible to provide for a check type of response.

Questionnaire tally.—The numbers of questionnaires mailed, returned, and not returned are as follows:

Questionnaires mailed -----	539
Questionnaires returned -----	262
Questionnaires tabulated -----	256
Reporting use -----	214
Reporting nonuse -----	42
Questionnaires not tabulated ---	6
Questionnaires not returned -----	277

Tabulated questionnaires represented 47.5 percent of the total mailed, 51.4 percent were not returned, and 1.1 percent were received too late to be included in the final tables. It is possible that a higher response rate could have been achieved but no followup was made of the nonrespondents. Furthermore, no information was obtained to indicate reasons for failure to respond.

### Analysis of questionnaire returns

Of the 256 questionnaires tabulated, 84 percent were from persons who had used marriage statistics during the preceding year and 16 percent were from nonusers. Summaries of the responses to the questionnaires are shown in tables B-1 through B-10 at the end of this section.

Types of users of marriage statistics.—Table B-1 shows the users and nonusers of marriage statistics classified by type and size of organization and title of the person answering the questionnaire. Close to one-half of the 256 responses were from persons in business organizations; one-third from persons in colleges or universities; a tenth, in government; an eighth, in private research; and 1 in 50 failed to indicate the type of organization.

Most of the respondents indicated they used marriage statistics. This was true of 9 out of 10 respondents working in colleges, universities, and in government; 8 out of 10 persons in business organizations; and 7 out of 10 in private research. Two-thirds of the respondents in business organizations and in private research were connected with organizations employing 100 persons or more, and 19 respondents were in organizations with fewer than 100 employees.

The largest single group of responses (71) were from "directors or managers of research departments" of whom 4 out of 5 reported that they used marriage statistics in their work. The next largest group (54) represented professors in educational institutions of whom 96 percent were users. Nearly all economists were users, as were most statisticians, and a majority of the persons classified as "officer of company."

Of the 42 respondents who were nonusers of marriage statistics, 15 were "directors or managers of research departments." The remaining 27 nonusers were scattered among the other categories listed under "position of respondent" in table B-1.

Specific uses of marriage statistics.—These cover a wide range as indicated in table B-2. Many of the 214 users indicated more than one use of the data. Estimating the number of households was the use reported by the largest number of users; and this was followed by use of marriage statistics in

analyzing social trends. Third, and including two-fifths of the users, was the use of marriage statistics to estimate future markets for products. One-fourth of the users utilized the data for teaching materials, lectures, sociological research, and miscellaneous purposes. Other specific uses of marriage statistics include: estimating future school needs, determining needs for public utilities, actuarial studies, and analyzing insurance costs.

Potential uses of marriage statistics.—Users of marriage statistics were asked what uses they would make of statistics on marriages, assuming that all data needed were available. Uses listed by the 214 respondents are given in table B-3 classified by type of use and by type of organization with which the respondent was affiliated.

The two largest groups of users indicated two widely divergent groups of uses. Of the individuals in business organizations, 38 indicated that the data would be used in making housing estimates, and 35, in market analysis which includes estimating for merchandising of household appliances and home furnishings, and sales promotional plans. Of the individuals working in colleges or universities, 31 listed uses of the data for materials for teaching and lectures, 29 mentioned sociological research, and 21, demographic research. Possible uses were also listed by persons in government and in private research.

Degree of usefulness of published tables of marriage statistics.—Respondents were asked to check 1 of 3 degrees of usefulness (very useful, moderately useful, not useful) for each of the principal tables on marriages published in the reports of the National Office of Vital Statistics (tables B-4 and B-5). A large number of respondents answered this question in part, indicating the degree of usefulness of some tables and leaving others blank. These omissions were classified as "not stated."

All of the tables listed in this question were checked as very useful by some of the respondents. Four out of 5 persons checked as very useful annual totals of marriages in the United States; and 3 out of 5 placed in this category data available for some States on marriages by age, race, and sex; and on marriages by previous marital status and sex. About one-half indicated as very useful tables published annually on marriages by State; mar-

riages by number of previous marriages, age, and sex; and marriages cross-tabulated by age of bride and groom. Also indicated as very useful were monthly data on marriages for the United States by 3 out of 5 respondents and on marriages or marriage licenses by State and marriage licenses in major city areas by 1 out of 3 respondents. All of the published tables were found moderately useful by some users. Monthly data on marriages or marriage licenses by State were reported moderately useful by close to one-half of those who checked this table. The remaining tables listed were found moderately useful by one-fifth to two-fifths of the persons who checked the degree of usefulness. A negligible number (less than 1 percent) checked the annual total of marriages in the United States as not useful. Annual data on marriages by county and monthly data on marriage licenses in major city areas were found not useful by about one-third of the persons who checked these tables. The remaining tables were checked as not useful by one-fifth of the respondents or less.

Type of national data on marriages requested by respondents.—In response to the question of what useful information on characteristics of brides and grooms should be collected for the United States, many suggestions were received. Table B-6 shows these suggestions by type of user making them. The data most frequently requested by all types of users—business, private research, college or university, government—were cross-tabulations of various characteristics of brides and grooms, as follows:

- (1) Age by previous marital status.
- (2) Race of bride by race of groom.
- (3) Age of bride by age of groom.
- (4) Previous marital status by age and race.
- (5) Previous marital status of bride by previous marital status of groom.

Other requests for cross-tabulated data include religion, occupation, and education tabulated with various factors such as age, race, previous marital status, and residence. The most frequently requested single items of data for the United States were for national data on marital status and age at marriage. A large number of requests were

also received for data on occupation or industry of brides and grooms, their education, and religious denomination.

The categories listed under "single items" also include a few requests for related data. These categories and related data are:

- (1) Income: savings at marriage and financial status of couple.
- (2) Marital status: year of last marriage, length of time since dissolution of last marriage, and number of times widowed or divorced.
- (3) Nationality: nativity, national cultural group, place of birth, and ethnic origin.
- (4) Religious denomination: type of ceremony and degree of agreement on religion.
- (5) Residence: urban, rural-farm, and rural-nonfarm residence, census tracts, and size of place.

Frequency of publication.—Respondents were asked to indicate their preferences for frequency of publication of data on number of marriages. Annual publication was the first preference of the largest number of respondents (table B-7). Monthly publication was the second choice of close to one-half of the respondents, and weekly publication, the third choice. Quarterly and semiannual publications were preferred by a few persons, either as first or as second choice.

Geographic categories.—Respondents were asked to number, in order of importance, their needs for data on marriages by various geographic categories. Table B-8 shows for each of the areas the choices of the respondents and the medians of these choices. Data for the entire United States was the first choice of three-fourths of all persons who indicated a geographic preference. Data by State was the second choice of slightly less than one-half of the respondents. Other data by order of choice were data by region, county, standard metropolitan area, and major city areas.

Advance release of monthly data.—Respondents were asked to state whether it was important for them to receive monthly data on marriages 2 weeks prior to their publication in the Monthly Vital Statistics Report. More than four-fifths of the

respondents to this question (172 out of 202) indicated that they did not need an advance release. Table B-9 shows both the distribution by type of organization of the 30 respondents who indicated that an advance release was important to them, and the distribution of those who indicated no need for an advance release.

Comments on the national program of marriage statistics.—Respondents were asked to make com-

ments or observations on the national program of marriage statistics. Table B-10 shows these comments classified under broad categories and by type of organization with which the respondent is affiliated. They emphasize three points: (a) present available statistics are useful, (b) complete geographic coverage is needed, and (c) more detailed information on characteristics is needed.

Table B-1. RESPONDENTS REPORTING USE OR NONUSE OF MARRIAGE STATISTICS, BY TYPE AND SIZE OF ORGANIZATION, AND POSITION OF RESPONDENT

TYPE AND SIZE OF ORGANIZATION AND POSITION OF RESPONDENT	NUMBER			PERCENT DISTRIBUTION		
	Total	Use	Nonuse	Total	Use	Nonuse
<b>TYPE OF ORGANIZATION</b>						
Total respondents-----	256	214	42	100.0	83.6	16.4
Business-----	121	100	21	100.0	82.6	17.4
College or university-----	84	76	8	100.0	90.5	9.5
Government-----	26	23	3	100.0	88.5	11.5
Private research-----	20	14	6	100.0	70.0	30.0
Not stated-----	5	1	4	100.0	20.0	80.0
<b>SIZE OF ORGANIZATION<sup>1</sup></b>						
Total respondents-----	141	114	27	100.0	80.9	19.1
Less than 5 employees-----	3	3	-	100.0	100.0	0
5-99 employees-----	16	14	2	100.0	87.5	12.5
100 employees or more-----	92	83	9	100.0	90.2	9.8
Not stated-----	30	14	16	100.0	46.7	53.3
<b>POSITION OF RESPONDENT</b>						
Total respondents-----	256	214	42	100.0	83.6	16.4
Officer of company-----	20	13	7	100.0	65.0	35.0
Professor (educational institution)-----	54	52	2	100.0	96.3	3.7
Director or manager of research department-----	71	56	15	100.0	78.9	21.1
Statistician-----	15	13	2	100.0	86.7	13.3
Economist-----	30	28	2	100.0	93.3	6.7
Other-----	48	39	9	100.0	81.3	18.7
Not stated-----	18	13	5	100.0	72.2	27.8

<sup>1</sup>Business and private research only.

Table B-2. SPECIFIC USES OF MARRIAGE STATISTICS AS LISTED BY 214 RESPONDENTS

TYPE OF USE	Number of users	Percent of respondents
Estimating number of households-----	149	69.6
Analysis of social trends-----	116	54.2
Estimating future markets for products-----	87	40.7
Estimating future school needs-----	30	14.0
Determining needs for public utilities-----	18	8.4
Other-----	59	27.6
University teaching and lectures-----	18	8.4
Sociological research and miscellaneous-----	26	12.1
All other-----	15	7.0

Table B-3. POTENTIAL USES OF MARRIAGE STATISTICS AS LISTED BY 214 RESPONDENTS, BY TYPE OF ORGANIZATION

TYPE OF USE	Total	Business	College or university	Government	Private research
Housing estimates-----	48	38	5	3	2
Market analysis-----	41	35	3	1	2
Demographic research-----	49	13	21	12	3
Lectures and teaching materials-----	33	-	31	-	2
Articles and textbooks-----	21	1	17	1	2
Sociological research-----	41	3	29	5	4
Other-----	41	22	7	8	4
Community needs-----	7	3	1	3	-
Public utilities-----	10	9	-	-	1
Credit and insurance-----	5	5	-	-	-
Special studies-----	8	2	2	1	3
All other-----	11	3	4	4	-

Table B-4. DEGREE OF USEFULNESS OF MARRIAGE STATISTICS PUBLISHED BY THE NATIONAL OFFICE OF VITAL STATISTICS AS REPORTED BY RESPONDENTS, BY TYPE OF DATA

TYPE OF DATA	Total	Very useful	Moderately useful	Not useful	Not stated
Annual data for the United States:					
Total marriages-----	209	154	37	1	17
Marriages by State-----	209	77	55	13	64
Marriages by county-----	209	41	49	47	72
Annual data for reporting States:					
First marriages and remarriages by age, race, and sex----	209	80	33	26	70
Marriages by age, previous marital status, and sex-----	209	83	40	21	65
Marriages by age, number of previous marriages, and sex--	209	66	41	31	71
All marriages by age of bride by age of groom-----	209	70	51	24	64
First marriages by age of bride by age of groom-----	209	69	44	23	73
Monthly data:					
Total marriages in the United States-----	209	101	60	14	34
Marriages or marriage licenses by State-----	209	51	68	29	61
Marriage licenses in major city areas-----	209	42	57	46	64

Table B-5. PERCENT DISTRIBUTION OF DEGREE OF USEFULNESS OF MARRIAGE STATISTICS PUBLISHED BY THE NATIONAL OFFICE OF VITAL STATISTICS, AS REPORTED BY RESPONDENTS

(Percents based on data shown in table B-4, omitting "not stated")

TYPE OF DATA	Total	Very useful	Moderately useful	Not useful
Annual data for the United States:				
Total marriages-----	100.0	80.2	19.3	0.5
Marriages by State-----	100.0	53.1	37.9	9.0
Marriages by county-----	100.0	29.9	35.8	34.3
Annual data for reporting States:				
First marriages and remarriages by age, race, and sex-----	100.0	57.6	23.7	18.7
Marriages by age, previous marital status, and sex-----	100.0	57.6	27.8	14.6
Marriages by age, number of previous marriages, and sex-----	100.0	47.8	29.7	22.5
All marriages by age of bride by age of groom-----	100.0	48.3	35.2	16.6
First marriages by age of bride by age of groom-----	100.0	50.7	32.4	16.9
Monthly data:				
Total marriages in the United States-----	100.0	57.7	34.3	8.0
Marriages or marriage licenses by State-----	100.0	34.5	45.9	19.6
Marriage licenses in major city areas-----	100.0	29.0	39.3	31.7



Table B-6. TYPE OF NATIONAL DATA ON MARRIAGES REQUESTED BY 214 RESPONDENTS, BY TYPE OF ORGANIZATION

TYPE OF DATA	Total	Business	College or university	Government	Private research
Cross-tabulations of various characteristics-----	173	22	98	35	18
Single items:					
Age-----	39	13	17	4	5
Color or race-----	17	1	12	1	3
Education-----	30	7	17	4	2
Income-----	16	8	7	1	-
Marital status-----	42	9	20	6	7
Military status-----	10	5	2	3	-
Nationality-----	14	-	11	1	2
Occupation or industry-----	32	3	20	6	3
Religious denomination-----	27	1	22	-	4
Residence-----	22	1	15	5	1
Other socioeconomic data-----	17	12	4	1	-
All other-----	41	9	24	2	6

Table B-7. RECOMMENDED FREQUENCY OF PUBLICATION OF MARRIAGE STATISTICS BY ORDER OF RESPONDENTS' PREFERENCE

FREQUENCY OF PUBLICATION	Total	First choice	Second choice	Third choice	Not stated
Annually-----	164	123	26	6	9
Monthly-----	135	68	55	3	9
Weekly-----	61	1	2	55	3
Quarterly-----	11	3	5	-	3
Semiannually-----	2	1	-	-	1

Table B-8. RECOMMENDED GEOGRAPHIC CATEGORIES FOR PUBLICATION OF MARRIAGE STATISTICS BY ORDER OF RESPONDENTS' PREFERENCE

GEOGRAPHIC CATEGORY	Total	First choice	Second choice	Third choice	Fourth choice	Fifth choice	Sixth choice	Not stated	Median choice
National-----	187	108	13	6	5	6	8	41	1.0
Regional-----	112	1	29	20	8	15	22	17	3.4
State-----	161	27	50	25	16	5	2	36	2.2
County-----	113	7	14	26	25	13	17	11	3.7
Major city area-----	108	5	13	21	12	30	11	16	4.1
Standard metropolitan area-----	124	11	13	24	30	9	14	23	3.6

Table B-9. RESPONDENTS LISTING NEED FOR ADVANCE RELEASE OF MONTHLY DATA ON MARRIAGES BY TYPE OF ORGANIZATION

TYPE OF ORGANIZATION	Total	Needs advance release	Does not need advance release
TOTAL-----	202	30	172
Business-----	97	12	85
College or university-----	71	8	63
Government-----	20	6	14
Private research-----	13	4	9
Other-----	1	-	1

Table B-10. COMMENTS OF RESPONDENTS ON NATIONAL PROGRAM OF MARRIAGE STATISTICS, BY TYPE OF ORGANIZATION

COMMENT	Total	Business	College or university	Government	Private research
TOTAL-----	108	43	43	13	9
Expanded geographic coverage-----	22	4	12	5	1
More data-----	34	13	14	4	3
Improved data-----	6	3	1	1	1
Present statistics useful-----	24	15	9	-	-
All other-----	22	8	7	3	4

## APPENDIX C

### Survey of Methods of Producing National Vital Statistics

#### Methods of producing national vital statistics

Three such methods were considered by the Committee:

1. Transcript method. This involves the complete processing by the NOVS of data on copies of individual records received from State vital statistics offices. Recently the use of microfilm has superseded handwritten individual transcripts in all but 5 States, Puerto Rico, and the Virgin Islands. In this report, the term "transcript method" applies to both the use of handwritten transcripts and microfilm copies. The transcript method has been in use in the United States for more than 50 years.

2. Punched-card method. The coding of data and card punching is done in the State vital statistics offices; copies of punched cards are sent to the NOVS for verification and tabulation. Verification is effected by comparison with transcripts or microfilm copies of the original vital records which also are sent to the NOVS by the States. This procedure was introduced experimentally in 1951. In 1955, 18 State and independent registration areas participated in the State-produced birth punched-card program, and two States in the State-produced death punched-card program.

3. Pretabulation method. Experience with the application of this method in the processing of birth and death records is not available, since no State has yet submitted pretabulated data. The NOVS has been receiving pretabulated statistics of marriages and divorces for years and comments on this experience are presented later.

The pretabulation method would involve still further decentralization of the production of national birth and death statistics. The State vital statistics offices would furnish the NOVS with pre-

tabulated data and/or summary punched cards. From these, the NOVS would prepare national tabulations. If the States were to furnish pretabulated data in tabular form, the NOVS would prepare punched cards from them in order to make national tabulations and tables for publication most efficiently. By this method, the NOVS would not have available either copies of the individual records or the detailed punched cards from which the pretabulated data were prepared.

These three methods of producing national vital statistics will be evaluated primarily, but not exclusively, with reference to the preparation of national birth statistics, since no comprehensive experience in the use of the punched-card method for the compilation of national mortality statistics is available. The problems in processing death statistics are more complex than those of birth statistics; hence, any negative conclusions concerning the birth punched-card program will apply at least equally to a punched-card program for deaths. There is no experience in the use of State-prepared punched-cards for production of national statistics of marriages or divorces. However, the processing problems are comparable in complexity to those for births.

The proposals for the alternative methods of producing national birth and death statistics arose from the view that considerable duplication of effort in processing and tabulating data existed between the NOVS and the State vital statistics offices. It was further believed that the total national expenditure for the production of vital statistics could be reduced materially if the processing that the States do for their own purposes could be modified so as to simultaneously produce the data required for the national vital statistics program.

### The problem of duplication

The problem of duplication is often oversimplified. Careful examination is needed to ascertain whether the duplication is apparent or real, and also whether any existent duplication is unnecessary or undesirable. While some aspects of State and Federal needs overlap, the complete elimination of all duplication which may now exist may actually increase the total cost and even result in a loss in efficiency if both State and Federal needs are to be met satisfactorily.

Studies of duplication.—Two comparative studies have been made of the birth and death statistics in State publications. The purpose of the first study was to determine the number of States which published each of 14 selected basic tables for births and deaths. The study was conducted in 1947 by a committee of the Conference on Vital Records and Vital Statistics under the chairmanship of Dr. Joseph V. DePorte, Director of Statistical Services and Research, New York State Department of Health, and was based primarily on State reports for the years 1940 to 1945.

The Committee headed by Dr. DePorte concluded, *inter alia*, "We feel, in general, that national statistics should be compiled by the NOVS for the whole United States. Secondly, we feel that the NOVS should compile and publish tables of basic figures for States for comparative purposes. There are certain deviations in every State and we cannot compare figures compiled by one State with those of another. Thirdly, we feel that States should compile and publish their own local statistics . . . ."

The second study, made by the NOVS in 1954, analyzed in detail the birth and death statistics published by 42 State offices and the District of Columbia. Most of the reports considered related to years from 1950 to 1952. The results of this study, presented in tables C-1 and C-2 at the end of this section, are not directly comparable with those of the first study; however, the general picture is similar.

Of 18 basic birth topics in table C-1, no State publication contained more than one-half and only 14 States published data on as many as one-third. For mortality, 2 States published statistics on 11 of the 16 topics in table C-2 but the published reports of only 9 States contained more than one-half of these topics.

The most common birth classification, sex, was found in the reports of 29 of the 42 States; data on month of birth, and city and county of birth were published by 25. Statistics about other basic topics were published by still fewer States, that is, age of mother by only 12 and birth order by only 6. Corresponding variations existed for the specific mortality topics. Only 35 States published statistics for cause of death for counties and cities and only 28 States published them by age. Twelve States published the number of deaths by month.

The two comparisons show that most of the statistics published by NOVS are not duplicated by those published by the States.

Qualifications to these studies.—Both studies were focused on the extent of similarity of the topics covered in State publications. Although no study was made of the similarity between the tabulations prepared by the States and those of the NOVS, the detail and scope of the latter undoubtedly exceed by far those of any State.

The summary data presented in tables C-1 and C-2 exaggerate any apparent duplication. For example, table C-2 indicates that 35 States published data by cause of death for cities and counties. However, the number of causes given by the States for this tabulation ranged from 6 to 185. Similarly, any of the items shown in tables C-1 and C-2 may be presented in a variety of classifications based on different editing or coding procedures. In particular, there are rather wide differences in common items such as the geographic code and classification, and the cause-of-death classification.

In general, tables C-1 and C-2 lead to the conclusion that the needs of individual States for published data vary over a wide range and that widespread systematic duplication between the tables published by the States and those published by the NOVS does not exist.

Processing practices.—Another source of possible duplication may be found in some of the preliminary steps, for example, coding and punching. A thorough survey of the latter would entail a study of the editing, coding, and punching procedures of each State. Although such a survey has not been made, some evidence is provided in the responses to a letter from the NOVS to the States concerning uniform codes and procedures. For each inquired item regarding births, a number of States differed from the NOVS in their codes or coding rules to

such an extent that further discussion was required for reconciliation. The items for the 31 States that provided detailed information are:

<u>Subject</u>	<u>No. of States differing</u>	<u>Comment</u>
Geographic code ---	15	Other States also had differences but indicated that these could be reconciled by adoption of proposed uniform procedures.
Sex -----	5	-
Month of birth ----	6	-
Race-----	10	-
Age of father-----	3	-
Age of mother ----	3	This includes 1 State without this item.
Nativity of mother -	12	This includes 7 States without this item.
Number of children	12	None of these States had the item in the same form as NOVS.
Attendant -----	7	-
Length of pregnancy	3	-
Birth weight -----	8	This includes 1 State without this item.
Legitimacy -----	12	This includes 3 States without this item.
Plural births -----	8	None of these States had this item in same form as NOVS.

The foregoing evidence, though not conclusive, indicates wide differences in State and Federal practices.

On the other hand, the 18 areas participating in the experimental punched-card program for births in 1955 have brought their procedures into essential conformity with those of the NOVS. If the existing variation among the remaining States reflects valid differences based upon individual needs, then it is not desirable for States to change their procedures

so that they will conform with those of the NOVS. In fact, a few States already have decided not to make the changes required for the punched-card program. The Committee did not conduct any inquiry among the remaining States with regard to the desirability of conformity.

Conclusion regarding duplication.—At the present time, overlapping in State and Federal vital statistics procedures and tabulations is not great enough to make such apparent "duplication" a major or controlling factor in planning the program of the NOVS.

#### The transcript method

For more than 50 years, the compilation of national statistics has been based on copies of each individual vital record sent to the NOVS (or its predecessor, the Division of Vital Statistics in the Bureau of the Census) by the separate States or registration cities. This method may be evaluated from the viewpoint of the basic requirements for national vital statistics (specified on page 231 of this report), efficiency of administration, and cost.

Meeting the basic requirements for national vital statistics.—By central processing of transcripts or microfilm copies of individual records, national tabulations can be prepared more easily according to uniform classifications and rules than by either the punched-card or the pretabulation method. Central processing also makes it possible to measure inexpensively the degrees of completeness and accuracy achieved in producing the statistical end-results. The knowledge thus acquired provides the background for the NOVS to explain and interpret the statistics it publishes. Such explanations and interpretations should be incorporated in the publication of national vital statistics. The availability of copies of the basic records enables the NOVS to cross-classify its tabulations in sufficient detail to meet not only administrative requirements, but also the interests of research. Central processing has the further advantage of flexibility and adaptability to meet unanticipated needs.

Efficiency of administration.—Compared to the punched-card and pretabulation methods, the use of transcripts places the minimum burden upon the 56 State and city vital statistics offices for the production of national vital statistics. With the transcript method, the timetable for compiling national vital statistics depends mainly upon the re-

sponsible national agency, provided that the transcripts are received when due. It is subject in a lesser degree to the varying timetables of 56 State and city offices, to their varying degrees of efficiency and accuracy, and to their administrative vicissitudes. In particular, except when changes are required on the original record, it is not necessary to enter into extensive negotiation with the 56 vital statistics offices preliminary to making changes in the national vital statistics program in order to meet new needs. By fixing at a single point the responsibility for producing adequate and timely national vital statistics, the possibility of a serious interruption or breakdown of the system is minimized.

**Cost.**—Considered as a data processing procedure, the transcript method is inexpensive and efficient. At present, the rate of payment to the States for individual copies of vital events is 3 cents per record. This is somewhat more than the unit cost of making a microfilm transcript. The unit cost for processing the record, which includes coding, punching, verification, correction, and supervision (all stages up to tabulation) is about 3 cents. Thus, the total cost of getting the birth record ready for tabulation is a fraction under 6 cents per record. The low costs are made possible by the large volume of records (about 4,000,000 annually) processed in a continuous and efficient operation. The volume is sufficient to require the full-time attention of specialized clerks, continuous and expert supervision, and the development of exact production records and controls.

#### The punched-card method

The experimental plan initiated in 1951 for births involved not only the preparation of punched cards by the State vital statistics offices for the use of the NOVS, but also the shipment to the NOVS of microfilm copies of all records from which the cards were punched. By this arrangement, the NOVS was able to verify the results of the State operations of coding, punching, and reproducing the cards, and also to make any necessary corrections.

**Cost.**—Cost estimates of the punched-card method should not be related to the total cost to the States for the preparation of the punched cards but only to the extra cost to the States preparing punched cards as required by the NOVS. This includes the

cost of coding and punching items required by the NOVS which a State does not need for its own use as well as the cost of reproducing the punched cards for the NOVS. Counterbalancing these extra costs to the States, are the savings to the NOVS in coding the data and punching the cards, together with supervising these actual operations.

As yet, the NOVS has not reimbursed all of the States that have submitted punched cards. Estimates of the extra cost vary widely. The Subcommittee on Compensation to States for Copies of Vital Statistics Data of the Association of State and Territorial Health Officers recommended that States be reimbursed for punched cards at the rate of \$7.50 per 1,000 cards. To this must be added the cost of the card stock, shipping charges, verification, correction of errors, and the field and administrative work necessary to maintain the system. The best estimate available to this Subcommittee on these extra costs is about \$17.00 per 1,000. The estimated total cost to the NOVS for punched cards prepared by the States would be about \$24.50 per 1,000 compared to about \$31.00 per 1,000 punched cards prepared by the NOVS. In 1954 the punched cards furnished the NOVS by the States represented slightly less than one-fourth of the total birth records filed in the United States. Assuming that the number of State-prepared punched cards could be increased to 1,000,000, the estimated annual savings to the NOVS would be about \$6,500 during the years when all births are tabulated. The estimated annual savings would be cut approximately one-half for the years when the 50-percent sample of births is tabulated.

**Advantages.**—The decentralized punched-card method may raise the general level of quality of statistics produced by the State vital statistics offices. Each State preparing to enter the punched-card program necessarily must make a careful, detailed review of procedures in order to determine if they conform to the requirements of the NOVS. At present, many States do not have written detailed procedures. Participation in the program may result, as some States have already found, in more efficient processing procedures. However, this increase in efficiency is a by-product that can be secured in other ways. Another advantage is the improved consistency and comparability resulting from the continuous process of verification of the State punched cards by the NOVS.

Disadvantages to the States.—The national requirements for data place the individual State vital statistics offices in a "strait-jacket" in terms of the classifications used and, in certain instances, in terms of the scope of what a State can do in its own program. Indeed, some States have declined to enter the plan for this reason. It is already clear that the uniform geographic code developed under the "minimum core" program has increased the cost of coding and tabulation to both the NOVS and the States. In order to accommodate the needs of both, a 7-digit geographic code is required. This is one digit more than is needed by the NOVS for its national tabulations; and 3 or 4 digits more than is usually needed by the States for their own purposes. Moreover, the national system of allocation of geographic residence requires each State to classify nonresident events according to the detailed geographic subdivisions of other States with which it is not familiar and in which it has no interest. Another example of the rigidity of the system arises when a State is using its punched card to full capacity for its own program. Such a State has the alternative of not accommodating fully its own program needs or of preparing a second punched card. A second punched card may be advantageous but the total cost obviously is not reduced.

Disadvantages to the production of national vital statistics.—The punched-card method has the following defects insofar as the production of high quality national vital statistics is concerned.

- a. It is relatively inflexible. At no time has the NOVS ever completely tabulated all of the information entered on the original birth and death records or even all of the coded information on punched cards. The maximum utilization of the available data can be obtained most efficiently by a cyclical tabulation plan whereby certain items are coded and tabulated annually while other items are coded and tabulated at periodic intervals. In addition, demands for previously uncoded or untabulated data arise as new health programs are developed, and more socioeconomic problems require study. To introduce changes in coding specifications, especially those requiring modification of or additional columns on the punched card, would be regarded as impracticable by many States. Changes in coding specifications often would require the training of coders in all States. In view

of the difficulties in making a change, it is almost inevitable that the list of items coded as well as the details of the codes would shrink to the minimum level acceptable to all States cooperating in the program. For example, it is inconceivable that the current study of occupational and social class mortality now being made by the NOVS could have been undertaken if it had been necessary to depend upon the States to code and punch the data.

- b. There is no way of ensuring that a State may not suddenly withdraw from the plan. A State may find it impossible or undesirable from its point of view to continue the preparation of punched cards for national tabulations. Since the staffing and training of the processing unit of the NOVS are tied to a budget prepared more than a year in advance, the withdrawal of a State would impose an additional workload for which the NOVS would be unprepared either with respect to budget or, more serious, with respect to trained personnel.
- c. Loss of leadership. The continued high standing of the national vital statistics system in the United States depends on the quality of leadership and technical skills provided by the NOVS. A complete conversion to the State-produced punched-card system would result in a loss of direct contact with the original data and the loss of coding knowledge and skills. The NOVS would have less control over the scope of the national program for it could not introduce any changes beyond those acceptable to all cooperating States, many of which might have no interest in the information desired.

Modifications of punched-card methods.—In reviewing costs, the Advisory Committee on Vital Statistics Methods<sup>5</sup> noted that so long as the NOVS purchased microfilm copies of all records for verification purposes, little or no savings would result from the punched-card method. A significant reduction in total cost would be possible only if the

<sup>5</sup>This committee, composed of State office representatives, was appointed by the NOVS in 1951 to assist in the study of methods by which the States and the NOVS might cooperate more efficiently in the production of national vital statistics.

verification of State punched cards were on a sample basis. Two methods of sample verification have been proposed, one based on certificates for a fixed 3-month period and the other on a 10-percent random sample of certificates.

A substantial reduction in cost undoubtedly would result from verification on a sample basis. However, this proposal provides only for measurement of error. Sample measurement of error without specific provision for replacement of incorrect cards in the rejected lots is not quality control. Provision for such replacement then becomes a matter of negotiation with the States. Therefore, any sampling scheme of verification, such as the proposed 3-month sample or 10-percent random sample, cannot yield a product of comparable quality to that derived by the centralized microfilm processing method or by a decentralized punched-card method with access to all the individual records.

Copies of the original vital records are important to the NOVS for many purposes. Among these are special investigations of relatively rare diseases. An example is furnished by the uses being made and to be made of death certificates by the National Institute of Neurological Diseases and Blindness to help estimate the prevalence of the many disabling neurological and sensory disorders such as multiple sclerosis, amyotrophic lateral sclerosis, and cerebral palsy; it is expected that natality information will be used in a proposed study of mental retardation that may develop during pregnancy or at birth. The National Cancer Institute is using copies of original death certificates in a study currently in progress with the Railroad Retirement Board and the Brotherhood of Railroad Trainmen to trace cancer mortality among groups of workers in covered industries. The copies of the original death certificates in the NOVS are being used in another study by the National Cancer Institute based upon a suggestion that Mexican women may have higher death rates from cancer of the lung than other white women. The basic records in the NOVS have provided, in addition, detailed information for studies of selected types of accidents, poisonings, and deaths from new drugs; the last is of considerable interest to the Food and Drug Administration. The original records have also been used for a special study of the cause-of-death classification system and will be used for a study of multiple causes of death. The National Heart Institute is interested in the latter in connection with its studies of cardiovascular disease.

From these examples, it is evident that the central collection of copies of individual vital records can significantly assist medical and public health investigations. The cost of maintaining such a file in the NOVS is small compared with the health needs served and the investment in those needs. Opportunity for wide variety of detailed studies from individual punched cards and copies of original records has given the NOVS a knowledge of coding and tabulation problems to which is largely due its present influence in promoting improved vital statistics, both nationally and internationally.

Conclusions regarding the punched-card method.—Although the punched-card method was started in 1951, the Committee has been unable to obtain reliable figures, based upon broad experience, from which it could determine whether or not a significant decrease in the cost of preparing national birth statistics has resulted. Based upon the rate of reimbursement recommended by the Subcommittee of the Association of State and Territorial Health Officers, the estimated annual savings might be \$6,500 as the program is now operated. This sum would be considerably larger if verification were limited to a 10-percent sample and no provision were made for the correction of errors. This potential saving would be false economy since the value and efficiency of national vital statistics would be impaired if the NOVS did not receive a copy of the original vital record and if complete quality control were abandoned.

If cost is to be the decisive factor in determining the method of preparing national vital statistics, then consideration should be given to the centralization in the NOVS of the editing, coding, punching, and tabulation of all vital records for both State and Federal uses. The utilization of modern, high-speed electronic equipment made economical by a centralized operation in combination with the advantages of mass production almost certainly would yield more extensive and detailed statistics for both the States and the NOVS at a substantially smaller total cost than the decentralized production of punched cards by the States.

Although cost is important, the differences in the amounts of money involved by the adoption of alternative methods are not large enough to be decisive. The decisive factor is the effect of alternative methods upon the scope, quality, continuity, and usefulness of national and State vital statistics. The Committee has noted a number of serious disadvantages of the punched-card method when



judged by this criterion; disadvantages that far outweigh monetary considerations. It has been unable to discover any advantages that cannot be realized by methods that are free from the defects of the punched-card program.

The Committee can foresee no way to obviate the defects of the punched-card method in the procurement of mortality statistics. The decision is not so clear cut with respect to birth statistics. The preparation of birth punched cards is largely a keypunch code operation. The advantages of a cyclical program of processing are not so great. The Committee recognizes that it may be possible for the NOVS to work out a mutually advantageous punched-card program with a few State or city vital statistics offices. If undertaken, this should be done on an individual basis and only after appropriate safeguards against the disadvantages noted above. The Committee sees no possibility of extending this program to include all State and city vital statistics offices without jeopardizing the scope, quality, and usefulness of national vital statistics.

There has been no experience with the use of prepunched cards for marriages and divorces. However, the statistical processing problems for these subjects are similar to those for births.

#### The pretabulation method

In addition to the essentials of the pretabulated method, as described earlier, there is the requirement that each State, conforming to nationwide uniform specifications, edit and code the individual vital records and punch a card with standard items. The experience of every developed country of the world indicates that national vital statistics have been prepared effectively only when the responsible central office, or the branch offices under its direct administrative control, work from an individual record for each event.

Where the subnational offices are not administratively dependent upon the national office, and the national office is dependent on pretabulated data, the available national statistics are highly deficient, and characterized by a paucity of cross-classifications, irregularity of publication, and a rigidity of types of information available.

The pretabulation method will be considered from the point of view of the basic requirements for national vital statistics specified on page 231 of this report, efficiency of administration, and cost.

Meeting the basic requirements for national vital statistics.—The advantages and disadvantages of the punched-card method previously mentioned are equally applicable to the pretabulation method. Only the additional disadvantages of the latter method will be mentioned here.

- a. The pretabulation method is even more inflexible than the punched-card system. Since the tabulations would be prepared for national purposes, they would not meet the direct operating needs of the States and hence would represent extra, unproductive work. The tendency to reduce the tabulations to a minimum rigid list would be difficult to overcome.
- b. The NOVS would lose control of the quality of national vital statistics. Without access either to original records or to individual punched cards, the NOVS would have no means of ascertaining and controlling the accuracy of the pretabulated data. Moreover, since the States could not directly use much of the data for their own needs there would be little incentive for them to spend much time and effort in maintaining a system of quality control.
- c. National vital statistics would become less useful rather than more useful. It is impossible to foresee all of the useful purposes which national vital statistics may serve and to devise a tabulation program to provide the desired information. Consequently, the NOVS continually uses the individual punched cards to answer requests for information not provided by the regular annual tabulations from other Federal agencies, the Congress, and other public and private organizations and individuals. The retabulation of mortality punched cards for 1949-51 now under way is an example of this use. The last Congress authorized the Public Health Service to undertake studies of the health hazards of air pollution. As one part of this program, the individual punched cards for 1949-51 are being retabulated in order to obtain mortality data for residents of the central part of large metropolitan areas, for residents of the adjacent densely populated areas, and for residents of nonmetropolitan areas. The tabulation is also being done in a manner to

permit the analysis of geographic variations of mortality and of variations between various economic regions of the United States. Studies of this nature could not be done if the NOVS did not have individual punched cards available. This is only one of many special studies requiring the use of individual punched cards that have been carried out. Requests for such studies will continue to be received with the expansion of research into health problems.

- d. Some of the defects of the pretabulation method are exemplified by the use of this method to collect statistics of marriage and divorce. The method was adopted by the NOVS in order to start the development of national data concerning marriage and divorce. So far, however, no consistent body of data is available either for a specified group of States or for the United States as a whole. There is no uniformity of definitions, of classification of items tabulated, nor of amount of detail tabulated; and the number of States for which data can be published varies from item to item. Although the data made available by the pretabulation method are better than no data at all, this is not an appropriate standard for judging the national vital statistics of the United States. With respect to marriage and divorce statistics, the United States ranks among the less developed nations of the world.

Efficiency of administration.—The pretabulation method is administratively cumbersome. The timeliness of the national tabulations would depend entirely upon the timetable of the slowest State. If, for any reason, a State should wish to withdraw, the NOVS could not easily reinstate the prior system since it would have lost its budget, personnel, and administrative machinery. When modification in the pretabulation method is necessitated by new needs, the NOVS would be required

to enter into time-consuming negotiations with 56 vital statistics offices.

Cost.—The individual States would incur a very large increase in cost since none edits, codes, punches, and tabulates for its own needs in the detail required for national purposes. Each State would be required to make tabulations or to prepare summary punched cards not only for all vital events within the State, but it also would be required to repeat this procedure for the vital events among non-residents, preparing summary cards for each State of residence separately. This additional detail would be needed by the NOVS since its publications present State data on the basis of place of residence. At present, the allocation of vital events to place of residence is made by the NOVS.

Since pretabulation for national vital statistics would entail a large increase in cost to the individual States over their own requirements, they undoubtedly would expect to be reimbursed by the NOVS. On the other hand, the NOVS would bear the cost of consolidating the tabulations or summary punched cards of the 56 vital statistics offices. If any of these offices should send its data in tabulated form, then the NOVS would almost certainly prepare summary punched cards from them. Thus, if there were savings in cost to the NOVS by pretabulation, they would be offset by the reimbursement it would have to make to the States.

Conclusions concerning pretabulation.—The pretabulation method has disadvantages of its own as well as those inherent in the punched-card method. Although precise cost data are not available, it is clear that pretabulation would add to the costs of State operations without a compensatory decrease in the costs to the NOVS. National studies based on information obtainable only from copies of the individual records or from individual punched cards would be impossible. The available national vital statistics would shrink to those provided by a minimum rigid list of tabulations. This method should not be considered further by the NOVS.



Table C-1. BIRTH STATISTICS PUBLISHED IN STATE REPORTS: 42 STATES, SPECIFIED YEARS—Continued

STATE	Year	Total items	Sex	Month	Place of residence by	COUNTY AND CITY		Plural births	Births in hospitals or at home, by county	Age of mother	ATTENDANT AT BIRTH			ILLEGITIMATE BIRTHS			PERIOD OF GESTATION			
						Total	Race				County and city	County and city by race	Race	Total	County	Age of mother	Race	Birth order	Total	Birth weight
Iowa-----	1952	4	X	X		X							X							
Kansas-----	1953 <sup>1</sup>	4	X			X							X							
Kentucky-----	1951	4	X					X	X											
Massachusetts-----	1951	4	X	X	X			X												
Minnesota-----	1952	4		X	X				X					X						
Tennessee-----	1951	4	X						X					X						
Georgia-----	1951	3						X	X					X						
Indiana-----	1952	3		X				X						X						
Maine-----	1951	3	X	X		X														
New Jersey-----	1949	3		X		X													X	
Ohio-----	1950	3	X						X	X										
South Dakota-----	1952	3						X		X										X
Alabama-----	1952 <sup>1</sup>	2						X												
Arizona-----	1952	2						X												X
Arkansas-----	1949	2		X										X						
California-----	1950	2			X															
Delaware-----	1949-50	2		X					X											
Texas-----	1949	2	X																	
Illinois-----	1952	1			X															
Maryland-----	1953 <sup>1</sup>	1												X						

<sup>1</sup>Provisional data.

Table C-2. DEATH STATISTICS PUBLISHED IN STATE REPORTS: 43 STATES, SPECIFIED YEARS

STATE	Year	TOTAL DEATHS													INFANT DEATHS							
		Total items	Age, race, and sex	Month	Place of residence by	Race	Race and sex	Sex	County and city	Age	Sex	Month	Detailed list	Leading causes of death	Accidental deaths by cause of death and place of accident	Maternal deaths by cause of death	Total items	County and city	Cause of death by age	Neonatal and postneonatal deaths by county		
TOTAL		11	13	12	21	12	9	5	35	28	24	10	20	5	6	19	19	15		33	26	16
Connecticut	1950		X		X			X <sup>1</sup>	X	X	X	X	X		X	X	X			X	X	
New York	1949				X			X <sup>1</sup>	X	X	X	X	X		X	X	X	X		X	X <sup>2</sup>	X
New Jersey	1949	10		X			X		X	X		X	X		X	X	X	X		X	X <sup>2</sup>	
California	1950	9	X		X		X		X	X		X	X		X	X	X	X			X	X
North Carolina	1951	9	X		X	X			X	X		X	X		X	X	X	X		X <sup>3</sup>	X	
Virginia	1951	9	X		X	X			X	X		X	X		X	X	X	X		X <sup>3</sup>	X	
Massachusetts	1951	8			X			X <sup>1</sup>	X	X		X	X		X	X	X	X		X <sup>3</sup>	X	X
Oklahoma	1952	8				X			X	X		X	X		X	X	X	X		X <sup>3</sup>	X	
South Carolina	1951	8	X		X		X		X	X		X	X		X	X	X	X		X <sup>3</sup>		
Arkansas	1949	7	X	X						X			X		X	X	X	X		X <sup>3</sup>		
Florida	1951	7			X				X	X		X	X		X <sup>4</sup>	X	X	X		X <sup>3</sup>	X <sup>2</sup>	X
Kentucky	1951	7			X				X	X		X	X		X	X	X	X			X	
Louisiana	1952	7	X		X				X	X		X	X		X	X	X	X		X <sup>3</sup>	X <sup>2</sup>	
Michigan	1951	7			X		X <sup>5</sup>		X	X		X	X		X	X	X	X		X	X	X
Minnesota	1952	7		X	X				X				X		X	X	X	X		X		
Mississippi	1952	7	X		X	X			X	X		X	X		X	X	X	X		X <sup>3</sup>	X <sup>2</sup>	
Missouri	1948	7	X		X	X			X	X		X	X		X	X	X	X		X <sup>3</sup>	X <sup>2</sup>	
New Hampshire	1951	7		X					X	X		X	X		X	X	X	X		X	X	X
Ohio	1950	7	X						X	X			X		X	X	X	X		X		X
Wisconsin	1951	7			X				X	X		X	X		X	X	X	X		X		X
Maine	1951	6						X	X	X		X	X		X	X	X	X				1

<sup>1</sup>Sex and age.

<sup>2</sup>Cause of death by age and race.

<sup>3</sup>County and city data by race.

<sup>4</sup>Race and age.

<sup>5</sup>Race, sex, and age.



## APPENDIX D

### Technical Services to States

The primary authorized function of the National Office of Vital Statistics is the collection of copies of vital records from the States and the production from these records of national vital statistics meeting national requirements. In consequence, first priority in the NOVS program for providing technical assistance to the States should be given to activities related to this function. More specifically, emphasis should be laid on projects which:

1. Improve the quality of original data both in completeness and in content.
2. Keep the basic information collected in line with that required in the national interest.
3. Decrease the time lag between the event and the publication of reports.
4. Increase the utility of national vital statistics.

In carrying out these, technical assistance should concentrate heavily on the problems of data improvement and analysis. At the same time, the assistance program could very well touch only lightly on the operations aspects of records management as they relate to legal amendments and other aspects of the registration office that are largely custodial in nature.

In recent years, the subject-matter specialists in the NOVS have been used extensively for consultative aid to States. This is largely because general consultants have been in short supply, budgets have been small, and needs have changed. This should not be interpreted as implying that NOVS should no longer use general consultants. Some States have indicated that they feel routine visits by general consultants would be helpful. An important advantage to the NOVS of a routine visiting plan would be a better understanding of the limi-

tations of the basic data which would make possible a more informative analysis of national statistics.

#### Types of services

The means which may be used for providing technical assistance include professional advisory and consultant service on technical and management problems; personnel development through in-service training institutes; expanded information and clearinghouse service on technical subjects and methodology; national educational programs directed toward improvement of source data; and a national program for recruiting and training professional vital statistics personnel. The primary source of this technical assistance should be the National Office of Vital Statistics, which, however, should utilize and make available to State and local offices trained personnel from other Federal agencies and from universities and foundations.

To provide more adequate technical assistance, the National Office of Vital Statistics should be given sufficient fiscal resources to make a specific budget allocation for the purpose.

Consultative service on technical problems.— Many vital statistics offices have indicated their desire for help in dealing with the increased statistical demands upon them. In particular, several would like assistance in special studies utilizing sampling methods. Others feel they could profit from consultation on the planning of procedures and reports. Interest has been expressed in getting aid to set up the registration system and office procedures for a new function such as marriage and divorce statistics. The State registrars are usually fully occupied in keeping abreast of their current work and find it very difficult to si-

multaneously develop a new program, even when they are fully conversant with the techniques and facilities required for the new program. It has been suggested that in addition to consultative service from the NOVS personnel, provision be made for the exchange of technicians between States, under arrangements similar to the international assistance programs.

In-service training institutes.—Since 1949, the National Office of Vital Statistics has conducted several 1-week institutes for training cause-of-death coders in different States. These institutes have been very successful and particularly well received. Similar institutes on other technical problems would undoubtedly be of great aid to the State and local vital statistics offices and confer benefits on the national vital statistics. Aid from the program divisions of the Public Health Service might be arranged on special topics, such as accident statistics, cancer statistics, fetal mortality, natality statistics, et cetera. Population estimation presents a difficult problem for most State and local areas, and could very well be the subject of institutes conducted in cooperation with the Bureau of the Census.

Clearinghouse and information service.—In the past, the National Office of Vital Statistics has collected a large amount of technical information and disseminated it to vital statisticians. Rapid technological change and fast moving developments in public health have increased the difficulty of keeping up to date. But the NOVS is handicapped in developing a better organized information service by a shortage of personnel. To some extent The Registrar and Vital Statistics—Special Reports meet this need for technical information. However, the concensus of registrars is that these are not sufficient, and the solution would be to develop a series of technical bulletins similar to those used by large industrial and business concerns to keep their widely spread organizational units informed on technical matters.

Leadership of national programs for improving statistics and their utilization.—The States and local areas have great difficulty in doing much with the medical profession, medical examiners, and coroners, toward improving cause-of-death certification. Few, if any, of the States have experts to draw upon for this purpose. Even the medical personnel of the health department are, for the most part, not well informed on cause-of-death classification. This is a national and international

problem which merits the full-time attention of at least one statistician with medical training in the national vital statistics agency.

Work in morbidity statistics—hospital, clinic, survey, and notifiable disease—is so closely related to mortality statistics that better coordination should be brought about. This represents an area where the States and local areas need help, but which requires personnel at present unavailable in the NOVS. More leadership and aid to States on demographic problems is desirable. Much could be done by working out a closer relationship between the vital statisticians in State and local areas and demographers. The recent regional studies of rural-urban migration, undertaken under the auspices of the U. S. Department of Agriculture, ran into difficulty because of the deficiencies in State vital statistics data in all but a few areas. The States are interested in such matters, but are ill equipped to deal with them.

Advisory assistance on management problems.—Several States have drawn upon the NOVS for aid in studying the organization, management, and administration of their vital and health statistics services. Independent help in drawing up proposals for improved statistical services can be an invaluable aid to the State or local departments.

Technical assistance in the national vital statistics system should be directed toward helping State and local vital statistics offices maintain and improve the production and utilization of vital statistics. National vital statistics benefit not only from direct success in data improvement but also from effective utilization of vital statistics at State and local levels. In particular special studies which correlate vital statistics with other health and social data are assuming ever increasing importance and are in strong demand. Ways should be sought of furthering the more effective use of vital statistics data in relation to program planning of State and local agencies. This calls for study of the fundamental problem of the utilization of vital statistics data in health department policy making and administration. For the most part, State and local offices lack the resources to do much more than to carry on the present vital statistics job, which in many areas is rather perfunctory. Technical assistance of high quality should be made available to the States to improve the personnel, skills, production, operations, quality of original data, and data utilization.



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