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**The Effect of the Sixth Revision of
the International Lists of Diseases and
Causes of Death Upon Comparability of
Mortality Trends**

FEDERAL SECURITY AGENCY
Public Health Service
National Office of Vital Statistics

The Effect of the Sixth Revision of the International Lists of Diseases and Causes of Death Upon Comparability of Mortality Trends

(Provisional Report Based Upon the 10-percent Sample of Deaths for 1949 and 1950)

A death rate takes on added significance when it is compared with the death rate for another place, or for the same place for another year. An important consideration in the comparison of death rates is that the two rates are comparable, that is, the collection and classification procedures employed in the compilation of data for the rates must be reasonably similar.

The comparability of statistics relating to causes of death assumes particular importance at this time because of the major changes that were made recently in the classification of causes of death. Some of these classification changes will bring about a precipitous drop or a sudden rise in the death rates for certain causes of death in 1949 which represent nothing more than artificial changes. Even those death rates showing no change between 1948 and 1949 must be examined to see whether or not the effects of classification changes have not obscured an increasing or decreasing death rate.

Classification of causes of death

Statistics on causes of death are derived from the medical certification of causes of death prepared by the attending physician, or by the coroner in cases of death by violence, or where a medical practitioner was not in attendance. The medical information so reported on the death certificate is classified according to the International Lists of Causes of Death. This classification scheme provides a uniform basis for the classification of causes of death.

When only one cause of death is reported on the death certificate, the assignment of the cause of death is simple. However, when more than one cause of death is jointly reported, there arises the problem of selecting one of the causes for tabulation. Approximately two-thirds of the death certificates now being filed mention more than one cause of death.

Before 1949, the selection of a cause of death for tabulation was made by reference to a set of priority tables published in the Manual of Joint Causes of Death. This manual, which was developed for use in the United States, was followed until 1949 when an international procedure for joint-cause selection was adopted. The Manual of Joint Causes of Death consists of priority tables based on a series of decisions made by clinicians regarding the relative importance of various diseases as causes of death. By the use of these priority tables, it was possible to select the primary cause for tabulation when more than one cause was jointly reported. The new international rules adopted for use in the United States in 1949 place the responsibility on the medical practitioner to indicate the underlying cause of death. If the medical certification is properly made, the physician's statement of the underlying cause of death is accepted for tabulation.

Effect of previous revisions on comparability

It has been the practice to revise the International List of Causes of Death every 10 years since 1900 to keep abreast of medical progress. Each decennial revision of the International List has produced some break in comparability of cause-of-death statistics. For the most part, the degree of discontinuity in the trend has not been considered a problem of great concern.

Van Buren¹ described some of the major shifts in the cause-of-death statistics up to the 1938 revision due to changes in the classification of causes of death. Because studies of the quantitative effects of such changes on comparability of statistics were not made prior to 1940, Van Buren was not able to show the exact amount of difference resulting from various revisions.

In connection with the Fifth Revision (1938) of the International List of Causes of Death, Dunn and Shackley² measured the change in mortality by cause due to the revision. This was done by coding mortality data for 1940 by the old and new coding procedures. The results of the study have been useful in evaluating the effects of the Fifth Revision of the International List and changes in the joint-cause selection procedure.

The effect of the recent revision

The Sixth Revision (1948) of the International Lists of Diseases and Causes of Death which was adopted for use in the United States in 1949 represents a more sweeping change than any other of the previous revisions. The classification scheme has been subject to considerable regrouping, particularly to accommodate the causes of morbidity which were not included as separate categories in previous lists because they were not important as causes of death. Regroupings were also made which make the meaning of certain causes different from that in previous revisions. For example, leukemia and aleukemia were classified under the Diseases of the blood and blood-forming organs in the previous revisions. In the 1948 Revision, these categories were transferred to the section on Neoplasms.

In addition to the changes in the classification

¹Van Buren, George H., "Some Things You Can't Prove by Mortality Statistics," Vital Statistics—Special Reports, vol. 12, No. 13, 1940.

²Dunn, Halbert L., and Shackley, William, "Comparison of Cause-of-Death Assignments by the 1929 and 1938 Revisions of the International List: Deaths in the United States, 1940," Vital Statistics—Special Reports, vol. 19, No. 14, 1944.

list itself, the method³ of selecting the cause of death for primary mortality tabulations was modified in 1949. All of these changes have introduced rather serious breaks in continuity of mortality trends for a number of causes of death. As data presented in this report indicate, it will be impossible to compare mortality statistics for the years prior to and subsequent to 1949 for causes such as diabetes mellitus without taking into consideration the changes in the classification list and the method of selecting the underlying cause of death for primary mortality tabulations.

Measurement of the effect of the revision

Dual coding of causes of death—that is, coding by the 1938 International List and the Joint Cause Manual and by the 1948 International Lists of Diseases and Causes of Death and the international rules—will show the net changes resulting from the two decennial revisions. Although this procedure does not give the effects of the revision of the different components of the coding procedure, it is sufficient for the purpose of developing a continuous time series. For example, when all deaths involving tuberculosis in the 10-percent sample for 1949 were coded, the following results were obtained:

<u>Fifth Revision</u>			
<u>Sixth Revision</u>	<u>Tuber- culosis</u>	<u>Not tuber- culosis</u>	<u>Total</u>
Tuberculosis-----	3,562	374	3,936
Not tuberculosis----	546	...	546
Total-----	4,108	374	4,482

In order to obtain the comparability ratio to continue the time series, only the marginal totals for deaths from tuberculosis classified by the Sixth Revision (3,936 deaths) and by the Fifth Revision (4,108 deaths) are needed. The ratio of these two figures ($3,936 \div 4,108$) represents the comparability ratio for tuberculosis.

As an aid in the interpretation of mortality data, it is essential that a study be made of data classified by the Fifth (1938) and Sixth (1948) Revisions of the International Lists of Diseases and Causes of Death. Such a study is now in progress. Mortality data for 1950 are being classified by procedures employed prior to the latest revision as well as by the new methods. In view of the fact that it will be several years before the study can be completed, this report presents, as an interim measure, provisional data based upon a 10-percent sample of death certificates filed in 1949 and 1950.

The sample utilized for the present study does not constitute ideal material for a comparability study for several reasons. One of these relates to the fact that it was necessary to introduce certain changes in coding procedure during the first year's

experience with the new classification method. Ordinarily, such revisions would not be made during the course of the year. Because the sample data for 1949 provided the first opportunity to apply the new international coding rules on a large scale, it seemed desirable to utilize the sample for experimental purposes. This experience made possible the development of definitive coding rules for use in the regular annual processing operations.

In addition to the problems arising from a few changes in the procedures that affected certain cause-of-death categories, the use of the sample for studies of this kind has other limitations. For example, additional information on causes of death from queries is not available on the sample because it is drawn before such information can be obtained. Also, there is some bias in the representation of certain causes in the sample. Lastly, sampling variability in the 10-percent sample may produce results that differ from those to be obtained from the study of all death certificates for 1950. Despite these limitations, the findings of this study will serve to indicate the magnitude of the problem of comparability for the various causes of death.

Discussion of results

Table 1 is a summary of results of coding the 10-percent sample of death certificates for 1949 and 1950 according to the two methods of cause-of-death classification. The differences resulting from the use of the two procedures are expressed by a factor termed the comparability ratio. This ratio is obtained by taking the number of deaths assigned to a particular cause using the Sixth Revision and dividing it by the number of deaths assigned to that cause by the Fifth Revision. A comparability ratio of 1.00 indicates that approximately the same number of deaths would be assigned to a particular cause of death whether the new or old classification and coding procedures were used. This does not mean, however, that the classification of a particular cause of death remained the same in the two revisions. For example, the comparability ratio for malignant neoplasms is 1.01. However, examination of the two classifications will show that leukemia and aleukemia which were categories under the Diseases of the blood in the Fifth Revision are now classified under Neoplasms in the Sixth Revision. The transfer of these categories as well as some others such as Hodgkin's disease (Lymphogranulomatosis) would have increased the number of deaths ascribable to malignant neoplasms by the 1948 Revision had it not been for some losses resulting from the new rules for the selection of the underlying cause. According to these rules, deaths would not ordinarily be assigned to Neoplasms if the physician had certified the malignancy as a contributory cause; whereas, according to the old priority procedure, the neoplasm would probably have been selected as the primary cause of death even though reported as a contributory condition. In the case of malignant neoplasms, therefore, the loss due to the new selection procedure was compensated for by the gain resulting from the transfer of certain categories to the classification of malignant neoplasms.

The net loss or gain indicated by the comparability ratios shows rather serious differences in comparability between the two revisions. For example, mortality data classified by the Sixth Revision would

³For further discussion, see Fales, W. Thurber, and Moriyama, Iwao M., "International Adoption of Principles of Morbidity and Mortality Classification," American Journal of Public Health, vol. 39, No. 1, January 1949.

show about 43 percent fewer deaths from diabetes mellitus when compared with data for the same period based on the Fifth Revision. Since the International List classification of diabetes has not been changed, all of this difference is the result of the revision in the method for selecting the cause of death to be tabulated. According to the physician's judgment, a death may be due to diabetes; or diabetes may be a contributory cause and not directly connected with the sequence of events leading to death. In the latter case, the death is not assigned to diabetes by the new coding procedure based upon the physician's judgment or opinion. In the former situation, diabetes is coded as the underlying cause of death. Since diabetes is reported as a contributory condition in a large proportion of cases,⁴ the new coding procedure results in a significantly fewer number of deaths assigned to diabetes.

There are other causes of death in which trend data have been markedly affected by the new revision. For example, chronic nephritis has been one of the major causes of death in past years. However, in the Sixth Revision, the terms denoting arteriolar nephrosclerosis which were once classified under chronic nephritis were transferred to form new categories under hypertensive diseases. This has resulted in a very large decrease in the number of deaths now attributed to chronic nephritis. Another example may be found in the statistics for rheumatic fever. In the Fifth Revision, chronic rheumatic heart disease took precedence over rheumatic fever. In the Sixth Revision, deaths are assigned to rheumatic fever if reported as the underlying cause of chronic rheumatic heart disease. However, the rheumatic fever categories include only deaths in which rheumatic fever was present or active at the time of death.

Major re-alignments were made in various parts of the 1948 Revision. For example, in the section on Diseases of pregnancy, childbirth, and the puerperium in the 1938 Revision, the major factor in determining the classification was whether the death occurred before, during, or after childbirth. In the 1948 Revision, the classification is based on whether the condition arose during pregnancy, or was noted before delivery; whether the delivery occurred with complications; or whether there were some complications of the puerperium. Data on the detailed changes are not yet available, but it may be seen that even the total assigned to maternal causes has been affected by the revision. The classification procedures used in 1949 result in about 9 percent fewer deaths assigned to Deliveries and complications of pregnancy, childbirth, and the puerperium. Most of this is due to the fact that "childbirth" or certain complications of childbirth and the puerperium are frequently mentioned as a contributory cause rather than as an underlying cause of death.

About 5 percent more deaths are being classified as Certain diseases of early infancy by the Sixth Revision as compared with the previous classification. A large part of the apparent increase resulted from the reclassification of pneumonia among infants under 1 month and diarrhea of newborn under Certain diseases

of early infancy. Another major change made was with respect to prematurity. Although prematurity (or immaturity) does not appear in the list of 64 selected causes of death, mention is made of this change because of the significance attached to prematurity as a problem. In the 1938 Revision, prematurity was a separate category with priority over other diseases of early infancy, except injury at birth. In the 1948 Revision, prematurity or immaturity was made a secondary axis of classification. Since the various specific morbid conditions under Certain diseases of early infancy are now further categorized as to whether or not there was mention of immaturity, it is possible to assess how immaturity of the infant was associated with the various causes of death in infancy. The Sixth Revision provides for a residual category of immaturity, but comparable statistics on prematurity *per se* will not be available.

Mention was made of the comparability of data for malignant neoplasms. Although the net change in the data for total malignant neoplasms is small, the statistics for specific sites of the malignancy have been affected. Except for the provision of categories for secondary neoplasms of the lung and bronchus, thoracic organs, and of the lymph nodes, all of the categories in the section on malignant neoplasms relating to specific sites in the 1948 Revision are now being used to classify the primary or the presumptive primary site of the neoplasm. In the past revisions, the neoplasms of the various sites were weighed according to the priority tables in the Manual of Joint Causes of Death. Therefore, this difference in procedure as well as in the classification will make it difficult to interpret cancer mortality trends for the various sites of the disease without data on comparability.

Provisional correction factors for national data

Although the data presented in table 1 relate to a limited number of groups of causes and are subject to various qualifications, they will be useful in bridging the gap between the two revisions until data from the complete study of all death certificates for at least 1 year become available. The comparability ratios may be applied as correction factors⁵ to data prior to 1948 to make them comparable with data for 1949 and subsequent years. In this connection, there is some question as to how far back one can correct data based on these comparability ratios, but at the moment it seems reasonably valid to carry the conversion back to 1939.

The application of the comparability ratios to death rates for the various causes in 1949 is illustrated in table 2. This table shows the death rates for 1949 and 1948 using the different classification procedures, and the percent annual changes in the death rates if (1) no allowance were made for comparability between the two revisions and (2) allowance is made for the classification change. It may be seen that for a number of infective diseases, comparability in classification does not present a problem. On the other hand, the interpretation of mortality changes

⁴For further discussion of this problem, see Moriyama, I. M., "Is Diabetes Mortality Increasing?" Public Health Reports, vol. 63, No. 41, October 8, 1948.

⁵In order to approximate comparability of data for years prior to 1949 classified by the Fifth Revision with those classified by the Sixth Revision, multiply number of deaths or death rates by the comparability ratio for the specific cause of death.

is seriously affected for many causes of death when allowance is not made for changes in classification. In some instances, the apparent change in the death rates over the 2 years is so great that the figures are immediately suspected of being in error. These comparisons show that no definitive conclusions can be reached in regard to changes in mortality without taking into consideration the factor of comparability.

The comparability ratios as derived would be suitable as correction factors to be applied to data for the past decade provided that there has been no significant change in the method of medical certification or in the distribution of deaths for the various causes by age, race, and sex. Since it is not practical to recode all of the data for the past years to determine if there has been any change in medical

certification practice, information on this factor is lacking. However, consideration should be given in any definitive study to changes in the distribution of deaths over the years. For example, it may be seen from the table below that the comparability ratio varies considerably by age for causes such as malignant neoplasms, diabetes mellitus, and diseases of the heart. It is obvious that the comparability ratio for all ages cannot be used to compute comparable rates on an age-specific basis. Because of the variation in comparability ratios by age, the comparability ratios for all ages will result in over- or under-correction if applied to data for past years which differ in age distribution from that obtained in 1949.

COMPARABILITY RATIOS FOR SPECIFIED CAUSES BY AGE FROM A 10-PERCENT SAMPLE OF DEATHS: UNITED STATES, 1949

	All ages	Under 1 year	1-14 years	15-24 years	25-44 years	45-64 years	65-74 years	75 years and over	Not stated
Tuberculosis-----	0.958	0.971	0.985	0.991	0.981	0.953	0.920	0.909	0.846
Malignant neoplasms--	1.004	2.385	2.211	1.565	1.105	1.014	0.972	0.940	0.935
Diabetes mellitus----	0.580	0.500	0.900	1.025	0.752	0.573	0.557	0.576	0.600
Diseases of the heart--	1.094	0.625	0.860	0.949	1.065	1.092	1.104	1.096	1.124

The data presented in the above table are for illustrative purposes and do not include all of the causes where the comparability ratios vary by age. Data for other causes may be found elsewhere.⁶ This report also includes comparability ratios by race and sex. However, these comparability ratios must be used with caution because they may be subject to considerable error since the computation is based on small frequencies.

Owing to the difference in distribution of deaths by cause, age, race, and sex from year to year, it will be found necessary to make small balancing adjustments after conversion of data to the new classification base. In all cases, the sum of the deaths from various causes should equal the total number of deaths registered for the year; and the sum of the subgroups should equal the corrected total for the subgroups. The necessity of making these balancing adjustments will undoubtedly produce inconsistent results unless a set computing procedure is developed.

Until such time that a standard computing procedure is developed, the following method of computation is suggested:

- (1) The total for the various cause-of-death groups such as the cardiovascular-renal diseases and influenza and pneumonia should be derived by summing the corrected values of the subgroups under the groupings. Although more accurate results will be obtained by correcting each subgroup by applying the comparability ratio by age, race, and sex, this procedure cannot be

consistently followed because data in those details are not readily available. Therefore, as a practical approach, it is proposed that for the time being the corrected data for each subgroup in the list of 64 selected causes of death be used as the correct total for that cause. If the total for any cause of death is obtained in any other way, the derived total and any component parts should be adjusted to the "correct" total. (2) After corrections are made in the cause-of-death groupings, it will be found that the grand total will differ somewhat from the total number of reported deaths for the year. Any difference in the grand totals should be adjusted by prorating the difference into the residual group, All other diseases.

Provisional correction factor for State data

The problem of correcting cause-of-death statistics for the individual States is made difficult at this time by lack of stable data for the various States. As an interim measure, comparability ratios based upon data for the 2-year period, 1949 and 1950, from the 10-percent sample are suggested for use. These ratios are shown in table 4. Comparability ratios have not been computed for causes, when the greater frequency was less than 20 for an individual State, and where the total for the United States is less than 3,000 because of the relatively large sampling errors involved in ratios based on small frequencies. Except in a few instances, it would appear that in the absence of data for States, the comparability ratio for the United States provides the best available estimate for individual States.

⁶See table 13, page 18, in "Current Mortality Analysis," vol. 7, No. 13, National Office of Vital Statistics, 1950.

SYMBOLS USED IN SPECIAL REPORTS

Class or item not applicable (three dots)-----	...
Data not available (three dashes)-----	---
Quantity is zero, in frequency tables (one dash)-----	-
Quantity is zero, in rate or percent tables (one cipher)-----	0
If rate or percent is more than 0 but less than 0.05-----	0.0
If both frequency and population base are zero in rate or percent tables (one dash)-----	*
Not computed-----	*

TABLE 1.—COMPARISON OF CAUSE-OF-DEATH ASSIGNMENTS FOR 64 SELECTED CAUSES OF DEATH BY THE SIXTH AND FIFTH REVISIONS OF THE INTERNATIONAL LISTS FOR A 10-PERCENT SAMPLE OF CERTIFICATES FILED IN 1949 AND 1950 IN STATE VITAL STATISTICS OFFICES: UNITED STATES

(Exclusive of fetal deaths and of deaths among armed forces overseas)

CAUSE OF DEATH (Sixth Revision of the International Lists)	CATEGORY NUMBERS		NUMBER OF DEATHS CLASSIFIED BY—		DIFFERENCE DUE TO REVISION	Provi- sional compara- bility ratio ¹
	Sixth Revision	Fifth Revision	Sixth Revision	Fifth Revision		
Tuberculosis, all forms-----	001-019	13-22	7,346	7,659	-313	0.96
Tuberculosis of respiratory system-----	001-008	13	6,771	7,066	-295	0.96
Tuberculosis, other forms-----	010-019	14-22	575	593	-18	0.97
Syphilis and its sequelae-----	020-029	30	1,623	2,179	-556	0.74
Typhoid fever-----	040	22	22	24	-2	*
Cholera-----	043	4	-	-	-	-
Dysentery, all forms-----	045-048	27	227	208	+19	1.09
Scarlet fever and streptococcal sore throat-----	050,051	8,115b	83	74	+9	1.12
Diphtheria-----	055	10	105	105	0	1.00
Whooping cough-----	056	9	187	188	-1	0.99
Meningococcal infections-----	057	6	179	181	-2	0.99
Plague-----	058	3	-	-	-	-
Acute poliomyelitis-----	080	36	408	417	-9	0.98
Smallpox-----	084	34	-	-	-	-
Measles-----	085	35	149	156	-7	0.96
Typhus and other rickettsial diseases-----	100-108	39	16	15	+1	*
Malaria-----	110-117	28	23	22	+1	*
All other infective and parasitic diseases-----	{030-039,041,042,044,049, 052-054,059-074,081-083, 086-096,120-138}	{2,5,7,11,12,23-26,29, 31,32,37,38,40-44, 177}	839	1,135	-296	0.74
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues-----	140-205	45-55	41,366	240,814	+552	1.01
Malignant neoplasm of buccal cavity and pharynx-----	140-148	45a,b,c,e,f	1,056	1,056	0	1.00
Malignant neoplasm of digestive organs and peritoneum-----	150-156A,157-159	46	16,230	17,028	-798	0.95
Malignant neoplasm of respiratory system-----	160-164	47	3,977	4,195	-218	0.95
Malignant neoplasm of breast-----	170	50	3,792	4,050	-258	0.94
Malignant neoplasm of genital organs-----	171-179	48,49,51	6,832	7,378	-546	0.93
Malignant neoplasm of urinary organs-----	180,181	52	1,970	2,013	-43	0.98
Malignant neoplasm of other and unspecified sites-----	156B,165,190-199					
Leukemia and aleukemia-----	204					
Lymphosarcoma and other neoplasms of lymphatic and hematopoietic tissues-----	200-203,205	45d,53-55	7,509	5,094	+2,415	1.47
Benign neoplasms and neoplasms of unspecified nature-----	210-239	56,57	1,183	1,133	+50	1.04
Diabetes mellitus-----	260	61	4,955	8,707	-3,752	0.57
Anemias-----	290-293	73	858	536	+322	1.60
Meningitis, except meningococcal and tuberculous-----	340	81	428	345	+83	1.24

Major cardiovascular-renal diseases-----	330-334,400-468,592-594	58,83,90-103,131,132	151,993	145,632	+6,361	1.04
Diseases of cardiovascular system-----	330-334,400-468	58,83,90-103	147,003	131,530	+15,473	1.12
Vascular lesions affecting central nervous system-----	330-334	83	30,478	26,875	+3,603	1.13
Rheumatic fever-----	400-402	58	432	162	+270	2.67
Diseases of heart-----	410-443	90-95	105,820	97,357	+8,463	1.09
Chronic rheumatic heart disease-----	410-416	90a,92b,c,93c,95b	4,199	4,626	-427	0.91
Arteriosclerotic heart disease, including coronary disease-----	420					
Nonrheumatic chronic endocarditis and other						
myocardial degeneration-----	421,422	{ 90b,91,92a,d,e 93a,b,d,e 94,95a,c }	101,621	92,731	+8,890	1.10
Other diseases of heart-----	430-434					
Hypertension with heart disease-----	440-443					
Hypertension without mention of heart-----	444-447	102	2,630	402	+2,228	6.54
General arteriosclerosis-----	450	97	6,185	5,408	+777	1.14
Other diseases of circulatory system-----	451-468	96,98-101,103	1,458	1,326	+132	1.10
Chronic and unspecified nephritis and other renal sclerosis-----	592-594	131,132	4,990	14,102	-9,112	0.35
Influenza and pneumonia, except pneumonia of newborn-----	480-493	33,107-109	^a 4,670	^a 5,249	-579	0.89
Influenza-----	480-483	33	^a 679	^a 542	+137	1.25
Pneumonia, except pneumonia of newborn-----	490-493	107-109	^a 3,991	^a 4,707	-716	0.85
Bronchitis-----	500-502	106	593	634	-41	0.94
Ulcer of stomach and duodenum-----	540,541	117	1,584	1,853	-269	0.85
Appendicitis-----	550-553	121	691	753	-62	0.92
Hernia and intestinal obstruction-----	560,561,570	122	1,856	1,747	+109	1.06
Gastritis, duodenitis, enteritis, and colitis, except						
diarrhea of newborn-----	543,571,572	119,120	1,744	1,722	+22	1.01
Cirrhosis of liver-----	581	124	2,818	3,448	-630	0.82
Acute nephritis and nephritis with edema, including nephrosis-----	590,591	130	721	403	+318	1.79
Hyperplasia of prostate-----	610	137	1,240	1,219	+21	1.02
Deliveries and complications of pregnancy, childbirth,						
and the puerperium-----	640-689	140-150	560	614	-54	0.91
Abortion-----	650-652	140,141	58	67	-9	0.87
All other complications-----	640-649,660-689	142-150	502	547	-45	0.92
Congenital malformations-----	750-759	157	3,650	3,743	-93	0.98
Certain diseases of early infancy-----	760-776	158-161	12,053	11,430	+623	1.05
Birth injuries, postnatal asphyxia, and atelectasis-----	760-762	(^a)	4,806	(^a)	(^a)	(^a)
Infections of newborn-----	763-768	(^a)	817	(^a)	(^a)	(^a)
Other diseases peculiar to early infancy, and						
immaturity unqualified-----	769-776	(^a)	6,430	(^a)	(^a)	(^a)
Symptoms, senility, and ill-defined conditions-----	780-795	162,199,200	5,641	5,674	-33	0.99
All other diseases-----	Residual	Residual	...	...	...	...
Accidents-----	E800-E962	169-176,178-195	17,511	18,425	-914	0.95
Motor-vehicle accidents-----	E810-E835	170	6,074	6,077	-3	1.00
All other accidents-----	E800-E802,E840-E962	169,171-176,178-195	11,437	12,348	-911	0.93
Suicide-----	E963,E970-E979	163,164	3,241	3,234	+7	1.00
Homicide-----	E964,E980-E985	165-168,198	1,496	1,494	+2	1.00
Injury resulting from operations of war-----	E965,E990-E999	196,197	10	1	+9	*

¹Ratio of deaths classified by the Sixth Revision to deaths classified by the Fifth Revision.

²Excludes 474 deaths from Lymphogranulomatosis, Hodgkin's disease (Fifth Revision number 44b and Sixth Revision number 201); and 1,738 deaths from Leukemia and aleukemia (Fifth Revision number 74 and Sixth Revision number 204). When these deaths are added to the number assigned to Fifth Revision numbers 45-55, the comparability ratio (41,366 ÷ 43,026) becomes 0.96. The comparability ratio for Leukemia and aleukemia is 1,721 ÷ 1,738, or 0.99; and for Lymphogranulomatosis (Hodgkin's disease), 475 ÷ 474, or 1.00.

³Frequencies are from the 1950 sample only. Data for 1949 were not used because changes in coding rules were made during the time the sample was being processed.

⁴Comparability ratios for subdivisions of Certain diseases of early infancy will be published in a later report on infant mortality.

TABLE 2.—COMPARISON OF DEATH RATES FOR 64 SELECTED CAUSES OF DEATH BY THE SIXTH AND FIFTH REVISIONS OF THE INTERNATIONAL LISTS: UNITED STATES, 1948 AND 1949

(Exclusive of fetal deaths and of deaths among armed forces overseas. Rates per 100,000 estimated midyear population excluding armed forces overseas. See table 1 for comparable category numbers in both revisions)

CAUSE OF DEATH (Sixth Revision of the International Lists)	DEATH RATE		Provisional comparability ratio ¹	Comparable death rate 1948 ² (Sixth Revision)	PERCENTAGE DIFFERENCE BETWEEN RATES FOR 1948 AND 1949	
	1949 (coded by Sixth Revision)	1948 (coded by Fifth Revision)			No allowance for change in classifi- cation ³	Allowance for change in classifi- cation ⁴
ALL CAUSES-----	971.7	989.0	...	...	...	...
Tuberculosis, all forms-----	26.3	30.0	0.96	28.8	-12.3	-8.7
Tuberculosis of respiratory system-----	24.2	27.7	0.96	26.5	-12.6	-8.7
Tuberculosis, other forms-----	2.1	2.3	0.97	2.3	-8.7	-8.7
Syphilis and its sequelae-----	5.8	8.0	0.74	5.9	-27.5	-1.7
Typhoid fever-----	0.1	0.1	*	...	0	...
Cholera-----	0	0	*	...	-	...
Dysentery, all forms-----	1.0	0.7	1.09	0.8	+42.9	+25.0
Scarlet fever and streptococcal sore throat-----	0.3	0.3	1.12	0.4	0	-25.0
Diphtheria-----	0.4	0.4	1.00	0.4	0	0
Whooping cough-----	0.5	0.8	0.99	0.8	-37.5	-37.5
Meningococcal infections-----	0.6	0.6	0.99	0.6	0	0
Plague-----	0.0	0	*	...	*	...
Acute poliomyelitis-----	1.8	1.3	0.98	1.3	+38.5	+38.5
Smallpox-----	0.0	0.0	*	0.0	0	...
Measles-----	0.6	0.6	0.96	0.6	0	0
Typhus and other rickettsial diseases-----	0.0	0.1	*	...	*	...
Malaria-----	0.1	0.1	*	...	0	...
All other infective and parasitic diseases-----	2.6	3.9	0.74	2.9	-33.3	-10.3
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues-----	138.9	⁵ 134.9	1.01	136.2	+3.0	+2.0
Malignant neoplasm of buccal cavity and pharynx-----	3.4	3.3	1.00	3.3	+3.0	+3.0
Malignant neoplasm of digestive organs and peritoneum-----	55.4	58.2	0.95	55.5	-4.8	-0.2
Malignant neoplasm of respiratory system-----	13.1	13.0	0.95	12.3	+0.8	+6.5
Malignant neoplasm of breast-----	12.5	13.1	0.94	12.3	-4.6	+1.6
Malignant neoplasm of genital organs-----	23.3	24.7	0.93	22.8	-5.7	+2.2
Malignant neoplasm of urinary organs-----	6.6	6.7	0.98	6.6	-1.5	0
Malignant neoplasm of other and unspecified sites-----						
Leukemia and aleukemia-----						
Lymphosarcoma and other neoplasms of lymphatic and hematopoietic tissues-----	24.6	15.9	1.47	23.4	+54.7	+5.1
Benign neoplasms and neoplasms of unspecified nature-----	3.9	3.7	1.04	3.8	+5.4	+2.6
Diabetes mellitus-----	16.9	26.5	0.57	15.1	-36.2	+11.9
Anemias-----	3.0	1.8	1.60	2.9	+66.7	+3.4
Meningitis, except meningococcal and tuberculous-----	1.4	1.3	1.24	1.6	+7.7	-12.5

Major cardiovascular-renal diseases-----	502.5	488.2	1.04	506.2	+2.9	-0.7
Diseases of cardiovascular system-----	485.0	436.6	1.12	488.0	+11.1	-0.6
Vascular lesions affecting central nervous system-----	100.9	89.7	1.13	101.8	+12.5	-0.9
Rheumatic fever-----	1.6	0.6	2.67	1.7	+166.7	-5.9
Diseases of heart-----	349.1	322.8	1.09	350.8	+8.1	-0.5
Chronic rheumatic heart disease-----	13.8	15.9	0.91	14.5	-13.2	-4.8
Arteriosclerotic heart disease, including coronary disease-----						
Nonrheumatic chronic endocarditis and other myocardial degeneration-----	335.3	306.9	1.10	336.3	+9.3	-0.3
Other diseases of heart-----						
Hypertension with heart disease-----						
Hypertension without mention of heart-----	8.2	1.3	6.54	8.7	+530.8	-5.7
General arteriosclerosis-----	20.5	17.5	1.14	20.1	+17.1	+2.0
Other diseases of circulatory system-----	4.7	4.6	1.10	5.0	+2.2	-6.0
Chronic and unspecified nephritis and other renal sclerosis-----	17.5	51.5	0.35	18.2	-66.0	-3.8
Influenza and pneumonia, except pneumonia of newborn-----	30.0	38.7	0.89	34.2	-22.5	-12.3
Influenza-----	3.1	3.5	1.25	4.3	-11.4	-27.9
Pneumonia, except pneumonia of newborn-----	27.0	35.2	0.85	29.9	-23.3	-9.7
Bronchitis-----	2.2	2.4	0.94	2.2	-8.3	0
Ulcer of stomach and duodenum-----	5.3	6.0	0.85	5.1	-11.7	+3.9
Appendicitis-----	2.5	2.9	0.92	2.6	-13.8	-3.8
Hernia and intestinal obstruction-----	6.6	6.9	1.06	7.3	-4.3	-9.6
Gastritis, duodenitis, enteritis, and colitis, except diarrhea of newborn-----	6.7	6.0	1.01	6.1	+11.7	+9.8
Cirrhosis of liver-----	9.2	11.3	0.82	9.2	-18.6	0
Acute nephritis and nephritis with edema, including nephrosis-----	2.4	1.5	1.79	2.6	+60.0	-7.7
Hyperplasia of prostate-----	4.6	4.6	1.02	4.7	0	-2.1
Deliveries and complications of pregnancy, childbirth, and the puerperium-----	2.2	2.8	0.91	2.6	-21.4	-15.4
Abortion-----	0.3	0.3	0.87	0.3	0	0
All other complications-----	1.9	2.5	0.92	2.3	-24.0	-17.4
Congenital malformations-----	12.7	13.2	0.98	12.9	-3.8	-1.6
Certain diseases of early infancy-----	43.2	42.1	1.05	44.4	+2.6	-2.7
Birth injuries, postnatal asphyxia, and atelectasis-----	17.2	(s)	(s)	---	---	---
Infections of newborn-----	3.0	(s)	(s)	---	---	---
Other diseases peculiar to early infancy, and immaturity unqualified-----	23.0	(s)	(s)	---	---	---
Symptoms, senility, and ill-defined conditions-----	15.8	18.7	0.99	18.6	-15.5	-15.1
All other diseases-----	43.9	44.6	...	47.1	-1.6	-6.8
Accidents-----	60.7	66.9	0.95	63.6	-9.3	-4.6
Motor-vehicle accidents-----	21.3	22.1	1.00	22.1	-3.6	-3.6
All other accidents-----	39.3	44.8	0.93	41.5	-12.3	-5.3
Suicide-----	11.4	11.2	1.00	11.2	+1.8	+1.8
Homicide-----	5.4	5.9	1.00	5.9	-8.5	-8.5
Injury resulting from operations of war-----	0.0	0	*	...	*	...

¹Ratio of deaths classified by the Sixth Revision to deaths classified by the Fifth Revision, based on a 10-percent sample of deaths filed in State vital statistics offices, 1949 and 1950.

²Based on estimated deaths computed by applying the comparability ratio to deaths for 1948 coded by the Fifth Revision.

³Comparison between rates for Sixth Revision (1949) and for Fifth Revision (1948).

⁴Comparison between rates for Sixth Revision (1949) and for Sixth Revision (1948).

⁵See footnote 2, table 1.

⁶Comparability ratios for subdivisions of Certain diseases of early infancy will be published in a later report on infant mortality.

⁷Computed from the difference between total deaths and sum of estimated deaths for specified causes.

TABLE 3.—PROVISIONAL DEATH RATES, BASED ON THE SIXTH REVISION, FOR 64 SELECTED CAUSES OF DEATH: UNITED STATES, 1939-49

(Exclusive of fetal deaths. Rates per 100,000 estimated midyear population. Numbers after causes of death are category numbers of the Sixth Revision of the International Lists, 1948)

CAUSE OF DEATH	1949 (final)	COMPARABLE DEATH RATES BASED ON THE SIXTH REVISION OF THE INTERNATIONAL LISTS ¹									
		1948	1947	1946	1945	1944	1943	1942	1941	1940	1939
ALL CAUSES-----	971.7	989.0	1,008.1	997.6	1,060.8	1,064.2	1,089.4	1,035.6	1,050.4	1,074.2	1,060.4
Tuberculosis, all forms-----001-019	26.3	28.8	32.2	34.9	38.4	39.6	40.8	41.4	42.7	43.9	45.2
Tuberculosis of respiratory system-----001-008	24.2	26.5	29.7	32.2	35.4	36.6	37.5	38.0	39.1	40.4	41.3
Tuberculosis, other forms-----010-019	2.1	2.3	2.4	2.8	3.0	2.9	3.3	3.4	3.6	3.6	3.9
Syphilis and its sequelae-----020-029	5.8	5.9	6.6	6.9	7.9	8.4	9.0	9.1	9.9	10.7	11.2
Typhoid fever-----040	0.1	20.1	20.2	20.2	20.4	20.4	20.5	20.5	20.8	21.0	21.5
Cholera-----043	0	0	0	0	0	0	0	0	0	0	0
Dysentery, all forms-----045-048	1.0	0.8	0.7	0.7	1.3	1.5	1.6	1.5	2.0	2.0	2.1
Scarlet fever and streptococcal sore throat-----050,051	0.3	0.4	0.4	0.6	0.9	1.0	1.2	1.2	1.4	1.8	2.2
Diphtheria-----055	0.4	0.4	0.6	0.9	1.2	0.9	0.9	1.0	1.0	1.1	1.5
Whooping cough-----056	0.5	0.8	1.4	0.9	1.3	1.4	2.5	1.9	2.8	2.2	2.3
Meningococcal infections-----057	0.6	0.6	0.6	0.9	1.3	2.1	2.2	0.7	0.5	0.5	0.7
Plague-----058	0.0	0	0.0	0	0	0	0.0	0	0.0	0.0	0
Acute poliomyelitis-----080	1.8	1.3	0.4	1.3	0.9	1.0	0.8	0.4	0.6	0.8	0.6
Smallpox-----084	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Measles-----085	0.6	0.6	0.3	0.9	0.2	1.4	0.9	0.9	1.6	0.5	0.9
Typhus and other rickettsial diseases-----100-108	0.0	20.1	20.2	20.2	20.3	20.3	20.3	20.2	20.2	20.2	20.2
Malaria-----110-117	0.1	20.1	20.1	20.2	20.3	20.4	20.5	20.6	20.9	21.1	21.3
All other infective and parasitic diseases----- { 030-039,041,042,044,049,052-054, { 059-074,081-083,086-096,120-138	2.6	2.9	2.9	3.1	3.6	3.6	4.0	4.0	4.2	4.3	4.6
Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues-----140-205	138.9	136.2	133.6	131.2	135.2	130.0	125.4	123.3	121.0	120.8	118.3
Malignant neoplasm of buccal cavity and pharynx-----140-148	3.4	3.3	3.3	3.3	3.5	3.3	3.3	3.2	3.2	3.2	3.1
Malignant neoplasm of digestive organs and peritoneum-----150-156A,157-159	55.4	55.5	55.3	55.1	57.9	56.0	54.5	53.3	52.3	52.6	52.2
Malignant neoplasm of respiratory system-----160-164	13.1	12.3	11.5	10.3	9.9	9.0	8.3	7.8	7.3	6.9	6.3
Malignant neoplasm of breast-----170	12.5	12.3	11.8	11.7	12.1	11.6	11.3	11.2	10.9	11.0	10.6
Malignant neoplasm of genital organs-----171-179	23.3	22.8	22.8	22.6	23.4	22.7	21.7	21.3	21.8	21.7	21.3
Malignant neoplasm of urinary organs-----180,181	6.6	6.6	6.4	6.1	6.2	5.9	5.6	5.6	5.7	5.6	5.4
Malignant neoplasm of other and unspecified sites-----156B,165,190-199	24.6	23.4	22.6	22.0	22.3	21.4	20.7	21.1	19.8	19.9	19.4
Leukemia and aleukemia-----204											
Lymphosarcoma and other neoplasms of lymphatic and hematopoietic tissues-----200-203,205											
Benign neoplasms and neoplasms of unspecified nature---210-239	3.9	3.8	4.2	4.5	4.8	5.1	5.1	4.7	4.9	5.2	5.2
Diabetes mellitus-----260	16.9	15.1	14.9	14.1	15.1	15.0	15.4	14.5	14.5	15.1	14.5
Anemias-----290-293	3.0	2.9	3.1	3.2	3.9	3.9	4.3	3.9	3.7	3.8	3.8
Meningitis, except meningococcal and tuberculous-----340	1.4	1.6	1.7	1.8	1.9	2.3	2.4	2.1	2.0	2.1	2.0

Major cardiovascular-renal diseases 330-334, 400-468, 592-594	502.5	506.2	507.5	490.5	520.9	509.7	517.6	483.5	475.9	480.8	459.0
Diseases of cardiovascular system-----330-334, 400-468	485.0	488.0	488.2	470.5	498.1	486.0	492.2	458.7	450.1	452.8	430.6
Vascular lesions affecting central nervous system-----330-334	100.9	101.8	103.6	101.9	110.8	106.2	107.8	102.3	101.1	102.9	99.6
Rheumatic fever-----400-402	1.6	1.7	1.9	2.1	2.7	3.0	3.0	3.0	3.3	3.5	3.5
Diseases of heart-----410-443	349.1	350.8	348.9	333.1	348.4	341.8	345.0	320.0	314.3	316.0	298.2
Chronic rheumatic heart disease-----410-416	13.8	14.5	15.1	15.3	17.0	17.5	18.4	17.2	18.0	18.9	18.2
Arteriosclerotic heart disease, including coronary disease-----420											
Nonrheumatic chronic endocarditis and other myocardial degeneration-----421, 422	335.3	336.3	333.8	317.8	331.4	324.3	326.5	302.8	296.3	297.2	280.0
Other diseases of heart-----430-434											
Hypertension with heart disease-----440-443											
Hypertension without mention of heart-----444-447	8.2	8.7	8.7	8.5	9.2	8.6	8.9	8.3	7.7	6.8	6.2
General arteriosclerosis-----450	20.5	20.1	20.2	20.4	22.5	22.1	23.2	20.8	19.7	19.7	19.4
Other diseases of circulatory system-----451-468	4.7	5.0	4.8	4.5	4.5	4.3	4.4	4.2	4.1	3.9	3.6
Chronic and unspecified nephritis and other renal sclerosis-----592-594	17.5	18.2	19.3	20.1	22.8	23.7	25.4	24.8	25.8	27.9	28.4
Influenza and pneumonia, except pneumonia of newborn-----480-493	30.0	34.2	38.7	40.3	47.0	57.6	62.2	50.5	60.6	65.6	70.8
Influenza-----480-483	3.1	4.3	6.7	7.9	9.7	16.4	16.1	10.2	19.8	19.1	20.5
Pneumonia, except pneumonia of newborn-----490-493	27.0	29.9	32.0	32.5	37.3	41.2	46.1	40.3	40.7	46.5	50.3
Bronchitis-----500-502	2.2	2.2	2.3	2.1	2.2	2.5	2.6	2.5	2.5	2.8	2.7
Ulcer of stomach and duodenum-----540, 541	5.3	5.1	5.1	5.0	5.8	5.6	6.0	5.9	5.7	5.8	5.8
Appendicitis-----550-553	2.5	2.6	3.1	3.5	4.7	5.4	5.6	5.7	7.4	9.0	9.9
Hernia and intestinal obstruction-----560, 561, 570	6.6	7.3	8.0	8.5	9.3	9.6	9.9	9.1	9.2	9.6	10.0
Gastritis, duodenitis, enteritis, and colitis, except diarrhea of newborn-----543, 571, 572	6.7	6.1	5.7	5.9	8.8	10.0	9.7	8.9	10.6	10.4	11.7
Cirrhosis of liver-----581	9.2	9.2	8.5	7.9	7.8	7.1	7.6	7.7	7.3	7.0	6.8
Acute nephritis and nephritis with edema, including nephrosis-----590, 591	2.4	2.6	2.6	3.1	3.9	4.0	4.2	4.0	4.1	4.5	4.5
Hyperplasia of prostate-----610	4.6	4.7	5.0	5.4	5.7	5.9	6.3	6.1	6.3	6.8	6.7
Deliveries and complications of pregnancy, childbirth, and the puerperium-----640-689	2.2	2.6	3.2	3.4	3.9	4.4	4.9	4.9	5.4	6.1	6.3
Abortion-----650-652	0.3	0.3	0.4	0.5	0.6	0.6	0.8	0.8	0.9	1.1	1.2
All other complications-----640-649, 660-689	1.9	2.3	2.8	2.9	3.3	3.7	4.1	4.1	4.5	5.0	5.2
Congenital malformations-----750-759	12.7	12.9	13.8	12.4	11.9	12.3	12.2	11.6	10.2	9.7	9.2
Certain diseases of early infancy-----760-776	43.2	44.4	48.0	46.5	40.5	42.0	43.7	43.7	42.3	41.2	41.0
Birth injuries, postnatal asphyxia, and atelectasis-----760-762	17.2	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Infections of newborn-----763-768	3.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Other diseases peculiar to early infancy, immaturity unqualified-----769-776	23.0	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Symptoms, senility, and ill-defined conditions-----780-795	15.8	18.6	19.1	19.6	21.8	22.1	23.1	22.2	22.2	23.5	22.2
All other diseases-----Residual	43.9	47.1	50.0	52.8	61.9	65.3	71.3	71.3	74.5	83.9	87.8
Accidents-----E800-E962	60.7	63.6	65.8	66.4	68.5	67.5	69.4	67.6	72.5	69.5	67.0
Motor-vehicle accidents-----E810-E835	21.3	22.1	22.8	23.9	21.2	18.3	21.2	21.2	30.0	26.1	24.7
All other accidents-----E800-E802, E840-E962	39.3	41.5	43.0	42.5	47.2	49.2	51.7	46.5	42.5	43.4	42.2
Suicide-----E963, E970-E979	11.4	11.2	11.6	11.6	11.2	10.0	10.3	12.1	12.9	14.4	14.2
Homicide-----E964, E980-E985	5.4	5.9	6.1	6.4	5.7	5.0	5.1	5.9	6.1	6.3	6.5
Injury resulting from operations of war-----E965, E990-E999	0.0	0	0	20.0	20.1	20.0	20.0	20.2	20.0	0	20.0

¹Based on estimated deaths computed by applying the provisional comparability ratio to deaths coded by the Fifth Revision.

²Based on deaths coded by the Fifth Revision. No comparability ratio available.

³Rates will be published in a later report on infant mortality.

⁴Computed from the difference between total deaths and sum of estimated deaths for specified causes.

NOTE.—For 1940-49, deaths exclude those among armed forces overseas. Rates based on population excluding armed forces overseas.

VITAL STATISTICS—SPECIAL REPORTS

TABLE 4.--COMPARISON OF CAUSE-OF-DEATH ASSIGNMENTS FOR SPECIFIED CAUSES BY THE SIXTH AND FIFTH REVISIONS OF THE INTER-UNITED STATES

(By place of occurrence. Exclusive of fetal deaths and of deaths among armed forces overseas. Comparability ratios are puted where the greater

	AREA	TUBERCULOSIS, ALL FORMS			MALIGNANT NEOPLASMS, INCL. NEOPLASMS OF LYMPHATIC AND HEMATOPOIETIC TISSUES ¹			DIABETES MELLITUS		
		Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio
1	UNITED STATES-----	7,346	7,659	0.96	41,366	40,814	1.01	4,955	8,707	0.57
2	Alabama-----	160	169	0.95	584	563	1.04	75	109	0.69
3	Arizona-----	105	114	0.92	134	128	1.05	12	22	0.55
4	Arkansas-----	124	128	0.97	343	342	1.00	37	54	0.69
5	California-----	497	538	0.92	2,936	2,939	1.00	211	544	0.39
6	Colorado-----	77	79	0.97	338	329	1.03	23	41	0.56
7	Connecticut-----	78	85	0.92	681	669	1.02	71	145	0.49
8	Delaware-----	17	17	*	90	90	1.00	17	19	*
9	District of Columbia-----	60	61	0.98	277	278	1.00	36	53	0.68
10	Florida-----	117	124	0.94	737	721	1.02	91	151	0.60
11	Georgia-----	168	172	0.98	659	628	1.05	77	111	0.69
12	Idaho-----	11	10	*	98	93	1.05	6	23	0.26
13	Illinois-----	479	492	0.97	2,828	2,808	1.01	387	623	0.62
14	Indiana-----	136	145	0.94	1,081	1,085	1.00	132	219	0.60
15	Iowa-----	44	49	0.90	777	800	0.97	85	151	0.56
16	Kansas-----	47	47	1.00	509	511	1.00	66	105	0.63
17	Kentucky-----	236	246	0.96	639	620	1.03	62	94	0.66
18	Louisiana-----	144	146	0.99	593	571	1.04	69	104	0.66
19	Maine-----	34	36	0.94	333	335	0.99	32	72	0.44
20	Maryland-----	199	201	0.99	670	670	1.00	90	141	0.64
21	Massachusetts-----	191	198	0.96	1,611	1,623	0.99	189	392	0.48
22	Michigan-----	259	263	0.98	1,721	1,705	1.01	218	382	0.57
23	Minnesota-----	78	78	1.00	957	909	1.05	100	181	0.55
24	Mississippi-----	118	121	0.98	409	394	1.04	46	69	0.67
25	Missouri-----	194	206	0.94	1,258	1,240	1.01	145	223	0.65
26	Montana-----	22	24	0.92	152	146	1.04	8	22	0.36
27	Nebraska-----	31	30	1.03	373	370	1.01	51	69	0.74
28	Nevada-----	7	8	*	34	35	0.97	5	6	*
29	New Hampshire-----	9	9	*	175	175	1.00	28	42	0.67
30	New Jersey-----	275	280	0.98	1,568	1,510	1.04	181	328	0.55
31	New Mexico-----	69	72	0.96	107	104	1.03	10	15	*
32	New York-----	833	866	0.96	5,179	5,168	1.00	606	1,329	0.46
33	North Carolina-----	169	183	0.92	615	589	1.04	84	133	0.63
34	North Dakota-----	17	16	*	122	118	1.03	22	36	0.61
35	Ohio-----	370	393	0.94	2,337	2,294	1.02	324	495	0.65
36	Oklahoma-----	91	94	0.97	532	531	1.00	47	82	0.57
37	Oregon-----	40	43	0.93	413	410	1.01	41	71	0.58
38	Pennsylvania-----	504	525	0.96	3,178	3,206	0.99	464	808	0.57
39	Rhode Island-----	51	51	1.00	279	271	1.03	68	96	0.71
40	South Carolina-----	86	86	1.00	319	300	1.06	55	80	0.69
41	South Dakota-----	22	22	1.00	162	155	1.05	20	30	0.67
42	Tennessee-----	256	265	0.97	736	709	1.04	63	105	0.60
43	Texas-----	439	445	0.99	1,551	1,498	1.04	179	226	0.79
44	Utah-----	7	8	*	134	136	0.99	21	31	0.68
45	Vermont-----	20	22	0.91	116	111	1.05	14	22	0.64
46	Virginia-----	168	180	0.93	687	668	1.03	69	128	0.54
47	Washington-----	67	75	0.89	646	638	1.01	57	117	0.49
48	West Virginia-----	85	88	0.97	417	404	1.03	57	79	0.72
49	Wisconsin-----	131	145	0.90	1,220	1,166	1.05	199	315	0.63
50	Wyoming-----	4	4	*	51	51	1.00	5	14	*

See footnotes at end of table.

NATIONAL LISTS, FOR A 10-PERCENT SAMPLE OF DEATH CERTIFICATES FILED IN 1949 AND 1950 IN STATE VITAL STATISTICS OFFICES: AND EACH STATE

the ratio of deaths classified by Sixth Revision to deaths classified by Fifth Revision. The ratios have not been com-
frequency is less than 20)

MAJOR CARDIOVASCULAR-RENAL DISEASES			DISEASES OF CARDIOVASCULAR SYSTEM			VASCULAR LESIONS AFFECTING CENTRAL NERVOUS SYSTEM			DISEASES OF HEART			
Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	
151,993	145,632	1.04	147,003	131,530	1.12	30,478	26,875	1.13	105,820	97,357	1.09	1
2,391	2,349	1.02	2,244	1,981	1.13	569	556	1.02	1,542	1,337	1.15	2
475	472	1.01	453	422	1.07	103	101	1.02	318	300	1.06	3
1,429	1,435	1.00	1,363	1,277	1.07	299	288	1.04	975	926	1.05	4
10,737	9,963	1.08	10,492	9,230	1.14	2,015	1,593	1.26	7,652	7,067	1.08	5
1,238	1,188	1.04	1,193	1,033	1.15	243	208	1.17	856	763	1.12	6
2,184	2,073	1.05	2,144	1,937	1.11	418	358	1.17	1,574	1,474	1.07	7
371	360	1.03	350	306	1.14	50	45	1.11	270	239	1.13	8
880	837	1.05	855	712	1.20	140	119	1.18	656	550	1.19	9
2,772	2,674	1.04	2,661	2,405	1.11	625	562	1.11	1,844	1,717	1.07	10
2,908	2,863	1.02	2,736	2,397	1.14	783	724	1.08	1,737	1,540	1.13	11
485	458	1.06	466	419	1.11	109	88	1.24	323	306	1.06	12
10,128	9,702	1.04	9,743	8,772	1.11	1,708	1,463	1.17	7,462	6,920	1.08	13
4,460	4,335	1.03	4,314	3,786	1.14	970	884	1.10	2,975	2,609	1.14	14
3,013	2,898	1.04	2,924	2,619	1.12	700	600	1.17	1,999	1,861	1.07	15
2,099	2,013	1.04	2,026	1,793	1.13	482	426	1.13	1,554	1,256	1.08	16
2,721	2,671	1.02	2,602	2,352	1.11	587	551	1.07	1,805	1,652	1.09	17
2,265	2,219	1.02	2,176	1,982	1.10	422	403	1.05	1,601	1,489	1.08	18
1,100	1,031	1.07	1,055	939	1.12	256	210	1.22	706	666	1.06	19
2,437	2,346	1.04	2,348	2,042	1.15	410	369	1.11	1,808	1,594	1.13	20
5,831	5,484	1.06	5,723	5,135	1.11	1,077	919	1.17	4,269	3,993	1.07	21
6,044	5,735	1.05	5,864	5,278	1.11	1,407	1,161	1.21	4,025	3,825	1.05	22
3,008	2,861	1.05	2,951	2,673	1.10	702	593	1.18	1,962	1,877	1.05	23
1,738	1,713	1.01	1,595	1,416	1.13	413	380	1.09	1,069	946	1.13	24
4,694	4,558	1.03	4,486	4,053	1.11	965	875	1.10	3,232	2,971	1.09	25
562	542	1.04	539	496	1.09	127	112	1.13	369	358	1.03	26
1,306	1,268	1.03	1,256	1,132	1.11	309	282	1.10	853	778	1.10	27
149	145	1.03	146	136	1.07	24	19	1.26	113	109	1.04	28
702	671	1.05	686	624	1.10	136	119	1.14	491	469	1.05	29
5,608	5,379	1.04	5,490	4,984	1.10	1,014	881	1.15	4,137	3,819	1.08	30
320	307	1.04	300	268	1.12	56	47	1.19	218	206	1.06	31
17,364	16,133	1.08	17,021	15,114	1.13	2,684	2,162	1.24	13,252	12,260	1.08	32
3,112	3,046	1.02	2,964	2,612	1.13	787	724	1.09	1,963	1,733	1.13	33
525	515	1.02	510	475	1.07	125	114	1.10	345	330	1.05	34
8,618	8,331	1.03	8,400	7,584	1.11	1,944	1,760	1.10	5,741	5,306	1.08	35
1,757	1,727	1.02	1,685	1,558	1.08	422	408	1.03	1,128	1,050	1.07	36
1,490	1,409	1.06	1,458	1,278	1.14	306	265	1.15	1,026	927	1.11	37
11,962	11,448	1.04	11,567	10,242	1.13	2,050	1,828	1.12	8,694	7,857	1.11	38
779	736	1.06	751	653	1.15	147	116	1.27	553	505	1.10	39
1,772	1,758	1.01	1,693	1,493	1.13	477	454	1.05	1,072	941	1.14	40
586	580	1.01	568	528	1.08	132	130	1.02	394	366	1.08	41
2,716	2,653	1.02	2,591	2,367	1.09	704	668	1.05	1,718	1,581	1.09	42
5,369	5,342	1.01	5,131	4,779	1.07	1,164	1,130	1.03	3,573	3,392	1.05	43
471	462	1.02	458	415	1.10	84	84	1.00	345	316	1.09	44
466	450	1.04	461	415	1.11	92	86	1.07	320	304	1.05	45
3,021	2,934	1.03	2,873	2,521	1.14	669	602	1.11	1,976	1,779	1.11	46
2,394	2,252	1.06	2,338	2,076	1.13	548	485	1.13	1,600	1,465	1.09	47
1,587	1,557	1.02	1,514	1,380	1.10	340	316	1.08	1,074	998	1.08	48
3,741	3,554	1.05	3,637	3,270	1.11	639	564	1.13	2,706	2,511	1.08	49
208	195	1.07	202	171	1.18	45	43	1.05	145	119	1.22	50

VITAL STATISTICS—SPECIAL REPORTS

TABLE 4.—COMPARISON OF CAUSE-OF-DEATH ASSIGNMENTS FOR SPECIFIED CAUSES BY THE SIXTH AND FIFTH REVISIONS OF THE INTER-UNITED STATES AND

(By place of occurrence. Exclusive of fetal deaths and of deaths among armed forces overseas. Comparability ratios are puted where the greater

	AREA	HYPERTENSION WITHOUT MENTION OF HEART AND GENERAL ARTERIOSCLEROSIS			CHRONIC AND UNSPECIFIED NEPHRITIS AND OTHER RENAL SCLEROSIS			INFLUENZA AND PNEUMONIA, EXC. PNEUMONIA OF NEWBORN ²		
		Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio
1	UNITED STATES----	8,815	5,810	1.52	4,990	14,102	0.35	4,670	5,249	0.89
2	Alabama-----	106	70	1.51	147	368	0.40	135	153	0.88
3	Arizona-----	23	15	1.53	22	50	0.44	25	28	0.89
4	Arkansas-----	78	51	1.53	66	158	0.42	77	75	1.03
5	California-----	696	451	1.54	245	733	0.33	233	278	0.84
6	Colorado-----	67	42	1.60	45	155	0.29	61	54	1.13
7	Connecticut-----	130	80	1.63	40	136	0.29	43	47	0.91
8	Delaware-----	22	17	1.29	21	54	0.39	12	14	*
9	District of Columbia-----	40	24	1.67	25	125	0.20	26	30	0.87
10	Florida-----	143	93	1.54	111	269	0.41	78	84	0.93
11	Georgia-----	169	97	1.74	172	466	0.37	166	194	0.86
12	Idaho-----	23	17	1.35	19	39	0.49	16	17	*
13	Illinois-----	479	313	1.53	385	930	0.41	238	253	0.94
14	Indiana-----	325	254	1.28	146	549	0.27	128	132	0.97
15	Iowa-----	195	138	1.41	89	279	0.32	68	76	0.89
16	Kansas-----	163	93	1.75	73	220	0.33	64	77	0.83
17	Kentucky-----	179	130	1.38	119	319	0.37	128	144	0.89
18	Louisiana-----	121	71	1.70	89	237	0.38	98	112	0.88
19	Maine-----	80	50	1.60	45	92	0.49	32	33	0.97
20	Maryland-----	110	66	1.67	89	304	0.29	63	71	0.89
21	Massachusetts-----	312	179	1.74	108	349	0.31	136	172	0.79
22	Michigan-----	335	231	1.45	180	457	0.39	142	175	0.81
23	Minnesota-----	236	161	1.47	57	188	0.30	77	100	0.77
24	Mississippi-----	90	68	1.32	143	297	0.48	97	105	0.92
25	Missouri-----	240	161	1.49	208	505	0.41	163	192	0.85
26	Montana-----	36	22	1.64	23	46	0.50	20	23	0.87
27	Nebraska-----	73	59	1.24	50	136	0.37	27	35	0.77
28	Nevada-----	4	5	*	3	9	*	2	2	*
29	New Hampshire-----	56	30	1.87	16	47	0.34	17	21	0.81
30	New Jersey-----	294	244	1.20	118	395	0.30	105	116	0.91
31	New Mexico-----	22	12	1.83	20	39	0.51	34	38	0.89
32	New York-----	915	546	1.68	343	1,019	0.34	375	435	0.86
33	North Carolina-----	164	115	1.43	148	434	0.34	122	123	0.99
34	North Dakota-----	31	24	1.29	15	40	0.38	18	22	0.82
35	Ohio-----	585	411	1.42	218	747	0.29	251	289	0.87
36	Oklahoma-----	106	82	1.29	72	169	0.43	78	80	0.98
37	Oregon-----	105	69	1.52	32	131	0.24	37	53	0.70
38	Pennsylvania-----	692	449	1.54	395	1,206	0.33	279	309	0.90
39	Rhode Island-----	42	22	1.91	28	83	0.34	18	20	0.90
40	South Carolina-----	113	78	1.45	79	265	0.30	73	85	0.86
41	South Dakota-----	36	24	1.50	18	52	0.35	27	26	1.04
42	Tennessee-----	137	89	1.54	125	286	0.44	158	164	0.96
43	Texas-----	309	203	1.52	238	563	0.42	263	305	0.86
44	Utah-----	19	11	*	13	47	0.28	17	11	*
45	Vermont-----	45	21	2.14	5	35	0.14	14	13	*
46	Virginia-----	179	111	1.61	148	413	0.36	120	124	0.97
47	Washington-----	153	100	1.53	56	176	0.32	67	92	0.73
48	West Virginia-----	80	52	1.54	73	177	0.41	81	77	1.05
49	Wisconsin-----	247	151	1.64	104	284	0.37	148	155	0.95
50	Wyoming-----	10	8	*	6	24	0.25	13	15	*

See footnotes at end of table.

NATIONAL LISTS, FOR A 10-PERCENT SAMPLE OF DEATH CERTIFICATES FILED IN 1949 AND 1950 IN STATE VITAL STATISTICS OFFICES:
EACH STATE--Continued

the ratio of deaths classified by Sixth Revision to deaths classified by Fifth Revision. The ratios have not been com-
frequency is less than 20)

CIRRHOSIS OF LIVER			CONGENITAL MALFORMATIONS			CERTAIN DISEASES OF EARLY INFANCY			SYMPTOMS, SENILITY, AND ILL-DEFINED CONDITIONS			
Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	Sixth Revision	Fifth Revision	Provi- sional compara- bility ratio	
2,818	3,448	0.82	3,650	3,743	0.98	12,053	11,430	1.05	5,641	5,674	0.99	1
30	37	0.81	73	69	1.06	292	269	1.09	339	337	1.01	2
13	16	*	20	18	1.11	98	92	1.07	51	51	1.00	3
20	24	0.83	32	31	1.03	129	118	1.09	119	123	0.97	4
340	421	0.81	245	249	0.98	797	769	1.04	125	136	0.92	5
13	19	*	44	41	1.07	135	130	1.04	12	17	*	6
53	57	0.93	55	51	1.08	127	124	1.02	22	23	0.96	7
7	6	*	11	11	*	32	32	1.00	7	7	*	8
27	30	0.90	30	29	1.03	85	81	1.05	7	5	*	9
44	59	0.75	61	70	0.87	218	211	1.03	194	191	1.02	10
40	50	0.80	66	75	0.88	349	318	1.10	175	172	1.02	11
4	5	*	12	16	*	56	54	1.04	24	24	1.00	12
212	286	0.74	203	215	0.94	601	565	1.06	182	189	0.96	13
52	67	0.78	102	114	0.89	303	290	1.04	54	54	1.00	14
25	28	0.89	69	70	0.99	215	203	1.06	51	64	0.80	15
15	30	0.50	58	57	1.02	128	121	1.06	37	40	0.93	16
32	37	0.86	84	91	0.92	259	240	1.08	101	99	1.02	17
39	46	0.85	79	83	0.95	319	297	1.07	94	101	0.93	18
14	14	*	22	24	0.92	70	68	1.03	20	17	1.18	19
39	44	0.89	76	77	0.99	170	167	1.02	31	32	0.97	20
119	137	0.87	98	101	0.97	238	226	1.05	34	31	1.10	21
111	149	0.74	167	180	0.93	526	495	1.06	153	152	1.01	22
28	36	0.78	89	95	0.94	217	209	1.04	58	56	1.04	23
11	14	*	41	45	0.91	207	189	1.10	575	578	0.99	24
83	104	0.80	95	97	0.98	326	310	1.05	135	144	0.94	25
11	14	*	20	22	0.91	47	45	1.04	45	49	0.92	26
23	28	0.82	32	31	1.03	103	100	1.03	44	46	0.96	27
4	6	*	1	1	*	15	15	*	9	9	*	28
9	12	*	22	19	1.16	55	55	1.00	9	8	*	29
119	135	0.88	82	82	1.00	310	300	1.03	24	31	0.77	30
6	6	*	22	25	0.88	86	81	1.06	136	136	1.00	31
425	523	0.81	348	353	0.99	966	925	1.04	196	194	1.01	32
33	43	0.77	105	106	0.99	400	370	1.08	205	196	1.05	33
4	7	*	19	19	*	57	56	1.02	33	29	1.14	34
177	208	0.85	217	212	1.02	622	599	1.04	252	248	1.02	35
23	27	0.85	37	38	0.97	183	175	1.05	134	140	0.96	36
18	23	0.78	30	27	1.11	107	106	1.01	47	52	0.90	37
220	259	0.85	228	232	0.98	759	734	1.03	532	527	1.01	38
34	38	0.89	26	26	1.00	67	62	1.08	2	2	*	39
12	15	*	36	32	1.13	218	210	1.04	136	135	1.01	40
2	4	*	23	22	1.05	58	55	1.05	22	23	0.96	41
44	51	0.86	72	87	0.83	319	296	1.08	390	396	0.98	42
99	104	0.95	200	196	1.02	848	783	1.08	411	411	1.00	43
5	5	*	26	25	1.04	60	57	1.05	42	42	1.00	44
9	11	*	15	13	*	35	34	1.03	10	9	*	45
32	39	0.82	83	86	0.97	323	317	1.02	117	110	1.06	46
31	38	0.82	58	65	0.89	180	167	1.08	63	65	0.97	47
29	42	0.69	63	60	1.05	225	207	1.09	125	123	1.02	48
74	89	0.83	50	51	0.98	72	64	1.13	51	44	1.16	49
4	5	*	3	4	*	41	39	1.05	6	6	*	50

TABLE 4.—COMPARISON OF CAUSE-OF-DEATH ASSIGNMENTS FOR SPECIFIED CAUSES BY THE SIXTH AND FIFTH REVISIONS OF THE INTERNATIONAL LISTS, FOR A 10-PERCENT SAMPLE OF DEATH CERTIFICATES FILED IN 1949 AND 1950 IN STATE VITAL STATISTICS OFFICES: UNITED STATES AND EACH STATE—Continued

(By place of occurrence. Exclusive of fetal deaths and of deaths among armed forces overseas. Comparability ratios are the ratio of deaths classified by Sixth Revision to deaths classified by Fifth Revision. The ratios have not been computed where the greater frequency is less than 20)

AREA	MOTOR-VEHICLE ACCIDENTS			ALL OTHER ACCIDENTS		
	Sixth Revision	Fifth Revision	Provisional comparability ratio	Sixth Revision	Fifth Revision	Provisional comparability ratio
UNITED STATES-----	6,074	6,077	1.00	11,437	12,348	0.93
Alabama-----	149	149	1.00	230	240	0.96
Arizona-----	64	64	1.00	87	90	0.97
Arkansas-----	69	69	1.00	143	147	0.97
California-----	581	581	1.00	643	745	0.86
Colorado-----	73	74	0.99	113	134	0.84
Connecticut-----	9	9	*	50	57	0.88
Delaware-----	13	13	*	28	34	0.82
District of Columbia-----	22	22	1.00	71	76	0.93
Florida-----	147	147	1.00	242	243	1.00
Georgia-----	134	135	0.99	271	277	0.98
Idaho-----	45	44	1.02	47	52	0.90
Illinois-----	299	299	1.00	593	661	0.90
Indiana-----	206	208	0.99	333	359	0.93
Iowa-----	121	121	1.00	201	233	0.86
Kansas-----	91	91	1.00	193	208	0.93
Kentucky-----	154	154	1.00	275	290	0.95
Louisiana-----	93	92	1.01	224	225	1.00
Maine-----	32	32	1.00	71	86	0.83
Maryland-----	85	88	0.97	150	167	0.90
Massachusetts-----	94	95	0.99	381	400	0.95
Michigan-----	300	301	1.00	435	482	0.90
Minnesota-----	103	106	0.97	240	261	0.92
Mississippi-----	95	95	1.00	162	166	0.98
Missouri-----	185	184	1.01	371	393	0.94
Montana-----	41	41	1.00	84	82	1.02
Nebraska-----	53	52	1.02	133	141	0.94
Nevada-----	21	21	1.00	22	22	1.00
New Hampshire-----	17	15	*	55	60	0.92
New Jersey-----	85	84	1.01	240	286	0.84
New Mexico-----	67	66	1.02	63	67	0.94
New York-----	388	392	0.99	1,136	1,262	0.90
North Carolina-----	210	207	1.01	279	304	0.92
North Dakota-----	28	27	1.04	57	61	0.93
Ohio-----	329	332	0.99	584	621	0.94
Oklahoma-----	90	90	1.00	213	215	0.99
Oregon-----	93	91	1.02	142	154	0.92
Pennsylvania-----	290	288	1.01	753	797	0.94
Rhode Island-----	14	14	*	68	75	0.91
South Carolina-----	98	98	1.00	131	129	1.02
South Dakota-----	37	36	1.03	55	58	0.95
Tennessee-----	158	157	1.01	235	251	0.94
Texas-----	418	416	1.00	638	647	0.99
Utah-----	39	39	1.00	49	50	0.98
Vermont-----	16	16	*	25	34	0.74
Virginia-----	154	155	0.99	268	281	0.95
Washington-----	97	96	1.01	259	272	0.95
West Virginia-----	74	74	1.00	208	215	0.97
Wisconsin-----	65	68	0.96	147	199	0.74
Wyoming-----	28	29	0.97	39	39	1.00

¹See footnote 2, table 1.

²Frequencies are from the 1950 sample only. Data for 1949 were not used because changes in coding rules were made during the time the sample was being processed.

NOTE.—See table 1 for comparable category numbers for causes of death, Sixth and Fifth Revisions of the International Lists.