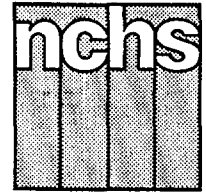


Monthly Vital Statistics Report



Final Data From the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

Mortality by Occupation, Industry, and Cause of Death: 12 Reporting States, 1984

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Introduction

This report presents statistics on mortality by occupation and industry from information reported on death certificates. The report illustrates how this multi-State data base can be used to identify possible associations between occupational factors and health outcomes, as measured by mortality. The report is a collaborative effort of the National Center for Health Statistics (NCHS), the National Institute for Occupational Safety and Health (NIOSH), the National Cancer Institute (NCI), and the State vital statistics offices. The U.S. Bureau of the Census provided assistance in developing and evaluating the coding procedures for occupation and industry from the death certificate (1).

Previous studies on occupational mortality using information from the death certificate have been carried out for the United States as a whole and

for selected States. Such studies are often carried out around the time of a national census, which can provide the detailed population needed to produce population-based measures of risk (2-6). Accordingly, early studies of U.S. occupational mortality were made in connection with the census of population. The first U.S. study was made for 1890, and studies were reported for each census through 1930. The most recent national study of U.S. occupational mortality was carried out using data for 1950 (2-6). One report (3) also summarized information from the previous studies of 1890, 1900, and 1930.

The 1950 report was limited to white males and males of other races, shown separately, for ages 20-64 years. Apart from the reports carried out by NCHS and its predecessor agencies, NIOSH has published numerous State reports of occupational mortality, for example, Washington (7), California

NOTE: Although Dr. Spirtas was with the National Cancer Institute at the time this report was written, he is currently with the National Institute of Child Health and Human Development.

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(8), and Rhode Island (9). As part of its surveillance programs, NIOSH also has supported the development of State-based occupational mortality surveillance systems. Reports from New York (10), Pennsylvania (11), South Carolina (12), Kentucky (13), and Utah (14) are illustrative of these initiatives. Recently, California published a report that included data for 1979–81 (15). A study on socioeconomic differentials in mortality using 1960 census and vital statistics data included selected information on occupational mortality for white males aged 25–74 years and all other males aged 25–64 years (16). In addition, decennial reports of occupational mortality have been produced regularly for England and Wales (17).

Methods

Data sources

This report is based on information for all 269,797 deaths occurring in a 12-State reporting area in 1984 to residents of that area that were 20 years of age and over. The 12 reporting States are Colorado, Georgia, Kansas, Kentucky, Maine, Missouri, Nebraska, Nevada, New Hampshire, Rhode Island, South Carolina, and Wisconsin. Mortality is shown separately for males and females. Occupation and industry mortality data for 1985–91 are available on public-use data tapes (see Technical notes).

Data are based on information reported on death certificates submitted to the State vital registration offices in the 12 reporting States, in accordance with the laws and statutes of the respective States. These data were provided to NCHS on magnetic tape from the States from copies of the original certificates of death.

Occupation and industry of the decedent are the "usual occupation" and "kind of business or industry" reported on the certificate, based on information provided by informants to the funeral director who has legal responsibility for completing this information and filing the death certificate with the State vital registration office. The handbook *Guidelines for Reporting Occupation and Industry on Death Cer-*

tificates serves as an aid to funeral directors in obtaining information and filling out the occupation and industry items on the death certificate (18).

Occupation and industry on the death certificates were classified according to U.S. Bureau of the Census publications (19,20), using a special adaptation of coding procedures developed with the U.S. Bureau of the Census for occupation and industry information reported on the death certificate (21) (see Technical notes). Although the reported occupations and industries were coded and classified according to the most detailed category (three-digit category) of the U.S. Bureau of the Census classification, they are presented in this report according to a list of 46 selected occupations and a list of 42 selected industries developed by the collaborating agencies.

Causes of death are coded and classified according to the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* (22) and are presented in this report according to a special list of 52 selected causes of death developed by the collaborating agencies for analyzing occupational mortality (see Technical notes). Cause-of-death titles and category numbers shown in the figures and detailed tables may be abbreviated (see Technical notes for complete titles and category numbers). The list includes 13 of the 15 leading causes of death in the United States, along with a number of causes of special interest in relation to occupational exposures, particularly malignant neoplasms of selected sites. The other two leading causes of death—Congenital anomalies and Certain conditions originating in the perinatal period—are deleted from the list.

Analytical measures

Data are presented using percent distributions and proportionate mortality ratios (PMR's). These ratios, which are expressed in relation to an index of 100, show the proportion of deaths for a particular occupation or industry category for a specific cause of death in relation to all occupations

or industries combined (represented by a PMR of 100) for that specific cause of death. The PMR's in this report have been standardized for age and race. For method of computation see Technical notes.

The PMR compares the observed number of deaths for an occupation (or industry) and a cause of death with the number expected had the distribution of deaths by cause and by 5-year age groups for males and females for all occupations (industries) prevailed in that occupation (or industry). A PMR of 100 indicates that the proportion of deaths from a particular cause of death and an occupation (or industry) is exactly the same as that of the general population for all occupations or industries combined. A PMR less than 100 indicates a lower proportion than the general population for all occupations (or industries), and a PMR greater than 100 indicates a higher proportion than the general population. A PMR greater than 100 is usually interpreted as representing a greater relative risk of death. Thus, the PMR is 200 for males whose occupation was Painters, construction and maintenance (OC No. 579) and who died of Malignant neoplasms of lip, oral cavity, and pharynx (ICD-9 Nos. 140–149) (table 1). This means that for males of this occupational group, the proportion of deaths from this cause was twice that expected on the basis of males in all occupational groups combined for this cause of death.

Because PMR's, like other measures, are affected by random variation (especially for small numbers of deaths), they have been tested for statistical significance (23) at two levels, indicated in the tables by the letter "A" representing the 5-percent level of statistical significance ($p < 0.05$) and the letter "B" representing the 1-percent level of significance ($p < 0.01$). Whether a PMR is statistically significant at the "A" or "B" level is a reflection of the size of the PMR and of the number of events involved. Thus, a PMR close to 100 may be significant if the number of events observed is large, although, in contrast, a PMR departing substantially from 100 may not be statistically significant if the number of deaths involved is small.

Table A. Number of deaths and percent distribution by major occupations, according to sex: Total of 12 reporting States, 1984

[Data include only deaths to residents of the 12-State reporting area occurring in the area. For a listing of reporting States, see Technical notes]

Occupation	Male		Female	
	Number	Percent distribution ¹	Number	Percent distribution ¹
All occupations	140,715	100.0	129,082	100.0
Executive, administrative, and managerial occupations	12,279	8.7	3,687	2.9
Professional specialty occupations	8,194	5.8	9,153	7.1
Technicians and related support	1,191	0.8	1,250	1.0
Sales occupations	11,869	8.4	5,001	3.9
Administrative support occupations, including clerical	5,223	3.7	9,046	7.0
Service occupations	9,535	6.8	12,091	9.4
Farming, forestry, fishing occupations	22,788	16.2	951	0.7
Precision production, craft, and repair occupations	29,108	20.7	1,735	1.3
Machine operators, assemblers, and inspectors	10,925	7.8	6,878	5.3
Transportation and material moving occupations	9,437	6.7	169	0.1
Handlers, equipment cleaners, helpers and laborers	11,474	8.2	1,668	1.3
Military	2,500	1.8	73	0.1
Homemaker	235	0.2	74,124	57.4
Occupation not reported	5,957	4.2	3,256	2.5

¹Due to rounding, percents may not add to total.

Caution should be exercised in accepting statistically significant PMR's as meaning that the true PMR is not equal to 100, because approximately 12,000 PMR's in tables 1-4 were statistically tested, about 600 would be expected to be statistically significant at least at the 0.05 level, just due to chance (24).

Caution should also be exercised in using and interpreting PMR's for females; these may reflect the large proportion (57.4 percent) of female decedents for whom a single category "Homemaker" was reported as their usual occupation. The effect of such large categories on using and interpreting PMR's has been noted in previous research (25-27).

Results

Mortality by occupation

In 1984 a total of 140,715 deaths occurred to males and 129,082 occurred to females in the reporting States. Numbers and percents of deaths by major occupation and sex are shown in table A. The occupational group "Precision production, craft, and repair occupations" comprised the largest group of deaths in the reporting area for males and accounted for about one of every five deaths (20.7 percent). This was followed closely by Farming, forestry, and fishing occupations, with 16.2 percent of the occupational deaths reported; the percent in each of the

other occupational categories was less than 10 percent.

The Homemakers occupational group was by far the largest group for females and accounted for almost 6 of every 10 female deaths. The next largest group was Service occupations and accounted for almost 1 of every 10 female deaths in the area (9.4 percent).

Tables 1 and 2 present numbers of deaths by occupation for all causes of death combined and PMR's by occupation for the list of 52 selected causes of death by sex. The following discussion focuses not on all statistically significant PMR's over 100 but only on those of 150 or more. These are occupations or industries in which the observed number of deaths for a specified cause of death exceed the expected number by at least 50 percent, a level chosen arbitrarily to represent a meaningful elevated relative risk.

In 1984 a total of 35 occupations for males and 29 occupations for females had PMR's whose values were 150 or more and were statistically significant (called significantly elevated) at either the 5-percent or 1-percent level. For males 20 of the 35 occupations had significantly elevated PMR's for 1 of the selected causes of death; 8 of the occupations had significantly elevated associations for 2 causes of death; and 7 occupations had significantly elevated associations for 3 causes of death or more. For females 17 of the 29 occupations had significantly elevated

PMR's for 1 of the selected causes of death; 7 for 2 causes of death; and 5 had significantly elevated associations for 3 causes of death or more. These statistics are based on PMR's of 150 or more for the most detailed occupation-cause-of-death combinations that were statistically significant.

Proportionate mortality ratios can be used to identify specific causes of death associated with groups of occupations or industries. An example of an association reported between an occupation and causes of death for males is as follows: A total of 1,819 males employed in Extractive occupations (OC Nos. 613-617) resided and died in the 12 reporting States in 1984. Of these, statistically significantly elevated PMR's (150 or more) were associated with the following causes of death:

Cause of death	Number of observed deaths	PMR	Level of statistical significance
Chronic obstructive pulmonary diseases and allied conditions 490-496	143	155	0.01
Pneumoconioses and pneumopathy due to inhalation of other dust 500-505	62	3,759	0.01
Accidents mainly of industrial type E846,E881-882,E916-E919, E921,E923-E926	37	456	0.01

Figure 1 shows the 10 highest PMR's (based on 10 or more deaths) that were statistically significant for

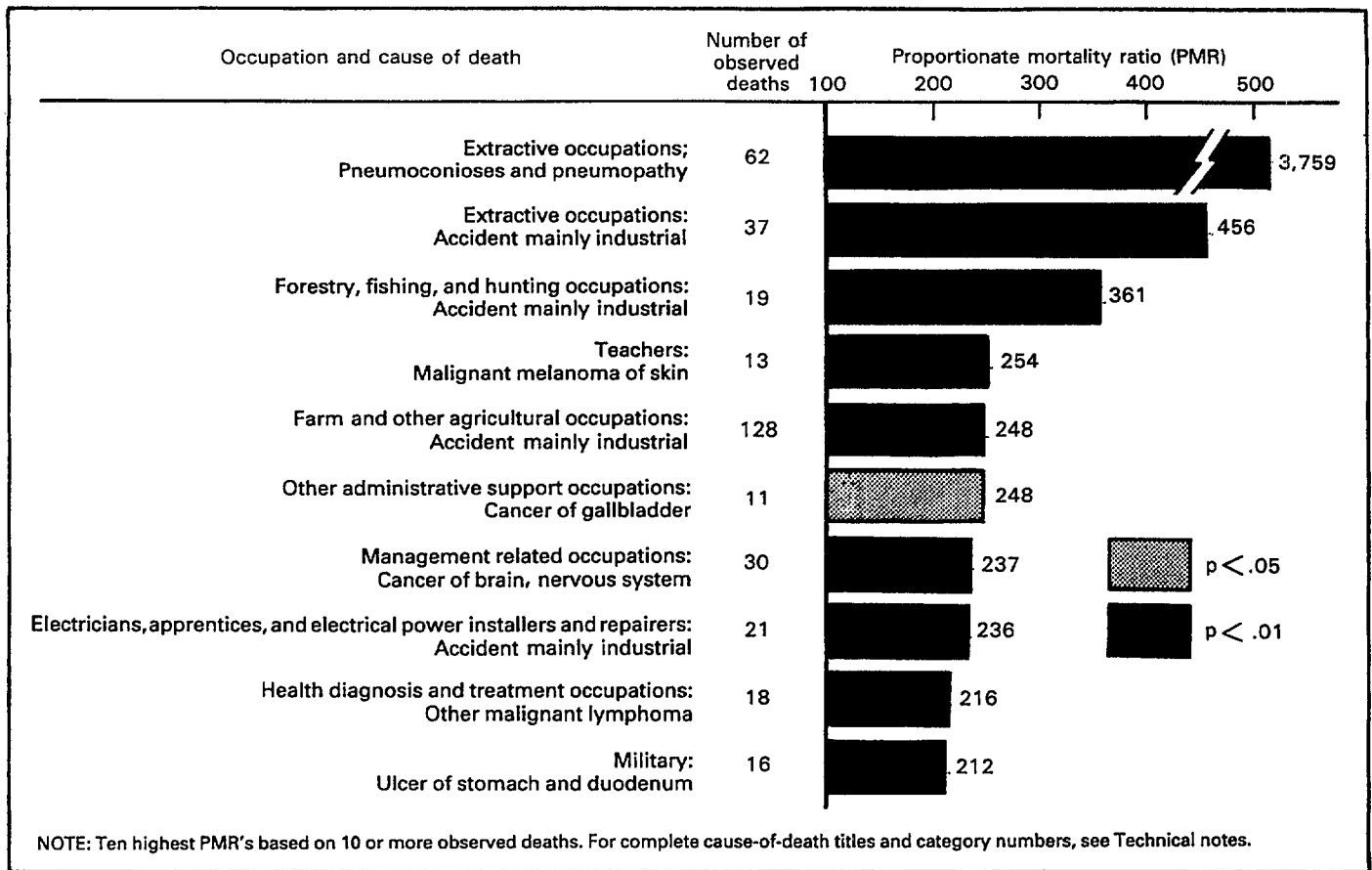


Figure 1. Ten highest statistically significant proportionate mortality ratios (PMR's) for occupations and causes of death and observed number of deaths for males 20 years of age and over: Total of 12 reporting States, 1984

combinations of occupations and causes of death for males. Figure 2 shows comparable information for females.

For males the highest PMR is for mortality from Pneumoconioses and pneumopathy (for inclusions in this cause-of-death category, see Technical notes and ICD-9) in the Extractive occupations. For these occupations the ratio of the observed to expected deaths from this cause was almost 40 (PMR of 3,759), that is, about 40 times as many men died in this occupational group than would have been expected had men in these occupations experienced the same proportion of deaths from these lung diseases as men in all occupations combined. In 1984 a total of 62 deaths occurred in the 12-State reporting area to men residing in that area from this occupation and cause-of-death combination.

The next highest PMR for males was also for the same group—Extractive occupations; in this case, the cause of death is Accidents mainly

of industrial type with a PMR of 456, indicating that almost five times as many deaths occurred in this occupational group from such accidents as expected, based on the proportion of deaths for these accidents for males in all occupations combined. In 1984 a total of 37 men died from this occupation and cause-of-death combination.

The other combinations of occupations and causes of death ranked among the highest 10 PMR's (with the PMR) for males are Forestry, fishing and hunting occupations, with deaths from Accidents mainly of industrial type (PMR equals 361); Teachers, Malignant melanoma of skin (PMR, 254); Farm and other agricultural occupations, Accidents mainly of industrial type (PMR, 248); Other administrative support occupations, Malignant neoplasms of gallbladder and extra hepatic bile ducts (PMR, 248); Management related occupations, Malignant neoplasms of brain and other unspecified parts of nervous system (PMR, 237);

Electricians, apprentices, and electrical power installers and repairers, Accidents mainly of industrial type (PMR, 236); Health diagnosis and treatment occupations, Malignant lymphoma other than Hodgkin's disease (PMR, 216); Military, Ulcer of stomach and duodenum (PMR, 212). All of these PMR's are statistically significant at the 1-percent level, except for males employed in Other administrative support occupations dying of Malignant neoplasms of gallbladder and extra hepatic bile ducts, for whom the PMR is significant at the 5-percent level.

Figure 2 shows the combinations of causes of death and occupational groups for females with the 10 highest ranking PMR's. Extractive occupations were the two highest PMR's for males; and Machine operators, assorted materials, were the two highest PMR's for females. Women in these occupations had high-ranking, statistically significant PMR's for two causes of death—Malignant neoplasm of body of uterus

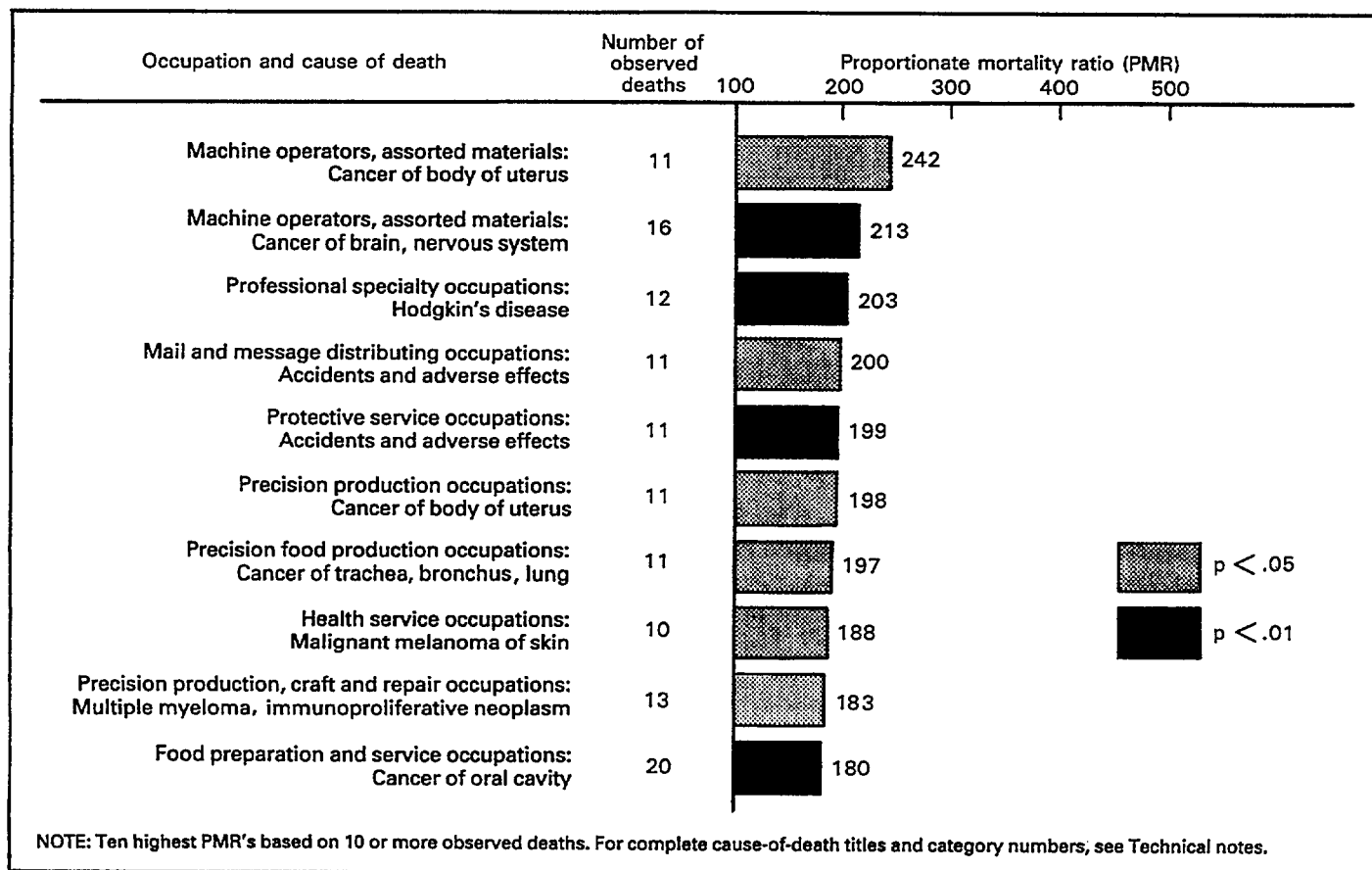


Figure 2. Ten highest statistically significant proportionate mortality ratios (PMR's) for occupations and causes of death and observed number of deaths for females 20 years of age and over: Total of 12 reporting States, 1984

(PMR, 242) and Malignant neoplasms of brain and other and unspecified parts of nervous system (PMR, 213). In 1984 the combination Machine operators, assorted materials and Malignant neoplasms of body of uterus accounted for 11 deaths, and the same occupation and Malignant neoplasms of brain and other and unspecified parts of nervous system accounted for 16 deaths for female residents of the reporting area occurring in the reporting area. The other combinations of occupations and causes of death with the 10 highest ranking PMR's (with the PMR) are Professional specialty occupations, Hodgkin's disease (PMR, 203); Mail and message distributing occupations, Accidents and adverse effects (PMR, 200); Protective service occupations, Accidents and adverse effects (PMR, 199); Precision production occupations, Malignant neoplasm of body of uterus (PMR, 198); Precision food production occupations, Malignant neoplasms of trachea,

bronchus, and lung (PMR, 197); Health service occupations, Malignant melanoma of skin (PMR, 188); Precision production, craft, and repair occupations, Multiple myeloma and immunoproliferative neoplasms (PMR, 183); and Food preparation and service occupations, Malignant neoplasms of lip, oral cavity, and pharynx. The PMR's were significant at the 1-percent level for 4 of these 10 combinations of occupations and causes of death and at the 5-percent level for 6 others.

Mortality by industry

For males the industry group accounting for the largest number of deaths was Manufacturing; more than one out of five male decedents (22.8 percent) were employed in this industry (table B). This was followed by Agriculture, forestry, and fisheries, 15.6 percent; and Construction, 11.5 percent. Other industry categories each had 10 percent or less of the male

deaths. For females the industry group accounting for the largest number of deaths was assigned to Industry not reported; almost all of these were homemakers, whose industry was classified as not reported (table B). The next largest industry group for females was Professional and related services, which accounted for 11.9 percent of female deaths in the reporting areas in 1984. No other single industry group accounted for as much as 10 percent of female deaths.

Numbers of deaths by industry for all causes of death combined and PMR's by industry for the list of 52 selected causes of death by sex are shown in tables 3 and 4. In 1984 there were 31 groups of industries in which males had at least 1 cause of death with a statistically significant PMR of over 150; for females there were 32 such industries. Among these industries for males were 15 in which only 1 cause of death was so associated; 10 industries with 2 causes; and 6 indus-

Table B. Number of deaths and percent distribution by major industries, according to sex: Total of 12 reporting States, 1984

[Data include only deaths to residents of the 12-State reporting area occurring in the area. For a listing of reporting States, see Technical notes]

Industry	Male		Female	
	Number	Percent distribution ¹	Number	Percent distribution ¹
All industries	140,715	100.0	129,082	100.0
Agriculture, forestry, and fisheries	21,935	15.6	1,110	0.9
Mining	2,554	1.8	47	0.0
Construction	16,202	11.5	317	0.2
Manufacturing	32,014	22.8	10,547	8.2
Transportation, communications, and other public utilities	14,696	10.4	2,085	1.6
Wholesale trade	4,557	3.2	713	0.6
Retail trade	12,855	9.1	8,781	6.8
Finance, insurance, and real estate	3,704	2.6	2,053	1.6
Business and repair services	4,801	3.4	847	0.7
Personal services	3,028	2.2	7,115	5.5
Entertainment and recreation services	1,097	0.8	413	0.3
Professional and related services	8,594	6.1	15,387	11.9
Public administration	6,060	4.3	2,197	1.7
Military	2,696	1.9	93	0.1
Industry not reported	5,922	4.2	77,377	59.9

¹Due to rounding, percents may not add to total.

tries in which 3 or more causes had significantly elevated PMR's. Among these industries for females were 17 with 1 cause of death, 11 with 2 causes, and 4 with 3 or more causes of death with significantly elevated PMR's. These statistics are based on PMR's of 150 or more for the most detailed industry-cause-of-death combinations that were statistically significant.

These data can be used to identify specific causes of death associated with groups of industries. Following is an example of associations reported between industry and cause of death for females: A total of 2,605 females who resided and died in the 12-State reporting area in 1984 were reported as having their usual work in the Eating and drinking places (retail) industry (IC No. 641). For these women statistically significant PMR's of 150 or more occurred for the following causes of death:

Cause of death	Number of observed deaths	Level of statistical significance
Malignant neoplasms of lip, oral cavity, and pharynx 140-149	18	198 0.01
Malignant neoplasm of esophagus 150	11	185 0.05
Malignant neoplasm of cervix uteri 180	25	151 0.05
Homicide and legal intervention E960-E978	41	152 0.01

Figure 3 shows the 10 highest PMR's (based on 10 or more deaths) that are statistically significant for com-

binations of industry and cause of death for males. Figure 4 shows comparable information for females. For males the combinations of cause of death and industry with the highest PMR's are similar to those for occupation; for the occupations the two highest PMR's are Extractive occupations; for the industries the two highest PMR's are Mining industries. The causes of death associated with the Mining industries are the same as that for the Extractive occupations, that is, Pneumoconioses and pneumopathy due to inhalation of other dust (with a PMR of 2,857) and Accidents mainly of industrial type (with a PMR of 419). Other combinations of industries and causes of death with high statistically significant PMR's for males are Stone, clay, glass, and concrete products (manufacturing), Malignant neoplasm of rectum, rectosigmoid junction, and anus (PMR, 270); Lumber and other wood products, and furniture (manufacturing), Accidents mainly of industrial type (PMR, 262); Educational services, Malignant melanoma of skin (PMR, 247); Agriculture, forestry, and fisheries, Accidents mainly of industrial type (PMR, 246); Durable goods (manufacturing), Malignant neoplasm of pleura (PMR, 234); Electrical machinery, equipment, and supplies, Hypertension with or without renal disease (PMR, 232); Private households, Atherosclerosis (PMR, 230); and Legal, engineering, and other services, Hypertensive heart disease (PMR, 222).

A number of the industry and cause-of-death combinations parallel those of occupations and cause-of-death combinations. PMR's for 7 of the 10 combinations are significant at the 1-percent level; the remaining 3 combinations are significant at the 5-percent level.

Figure 4 shows the 10 highest PMR's for combinations of industries and causes of death for females. The highest PMR (PMR, 286) is for women whose usual work was in the Transportation industries, and the cause of death is Malignant neoplasms of brain and other and unspecified parts of nervous system. A total of 15 deaths occurred in the 12-State reporting area to women residing in that reporting area in 1984 for this combination of cause of death and industry. For the combinations of industry and cause of death, the other highest ranking PMR's are Construction, Chronic obstructive pulmonary diseases (PMR, 227); Fabricated metal industries (manufacturing), Malignant neoplasms of trachea, bronchus, and lung (PMR, 204); Eating and drinking places (retail), Malignant neoplasms of lip, oral cavity, and pharynx (PMR, 198); Durable goods (manufacturing), Malignant neoplasm of body of uterus (PMR, 197); Food, bakery, and dairy stores (retail), Homicide and legal intervention (PMR, 196); Construction, All other malignant neoplasms, including neoplasms of lymphatic and

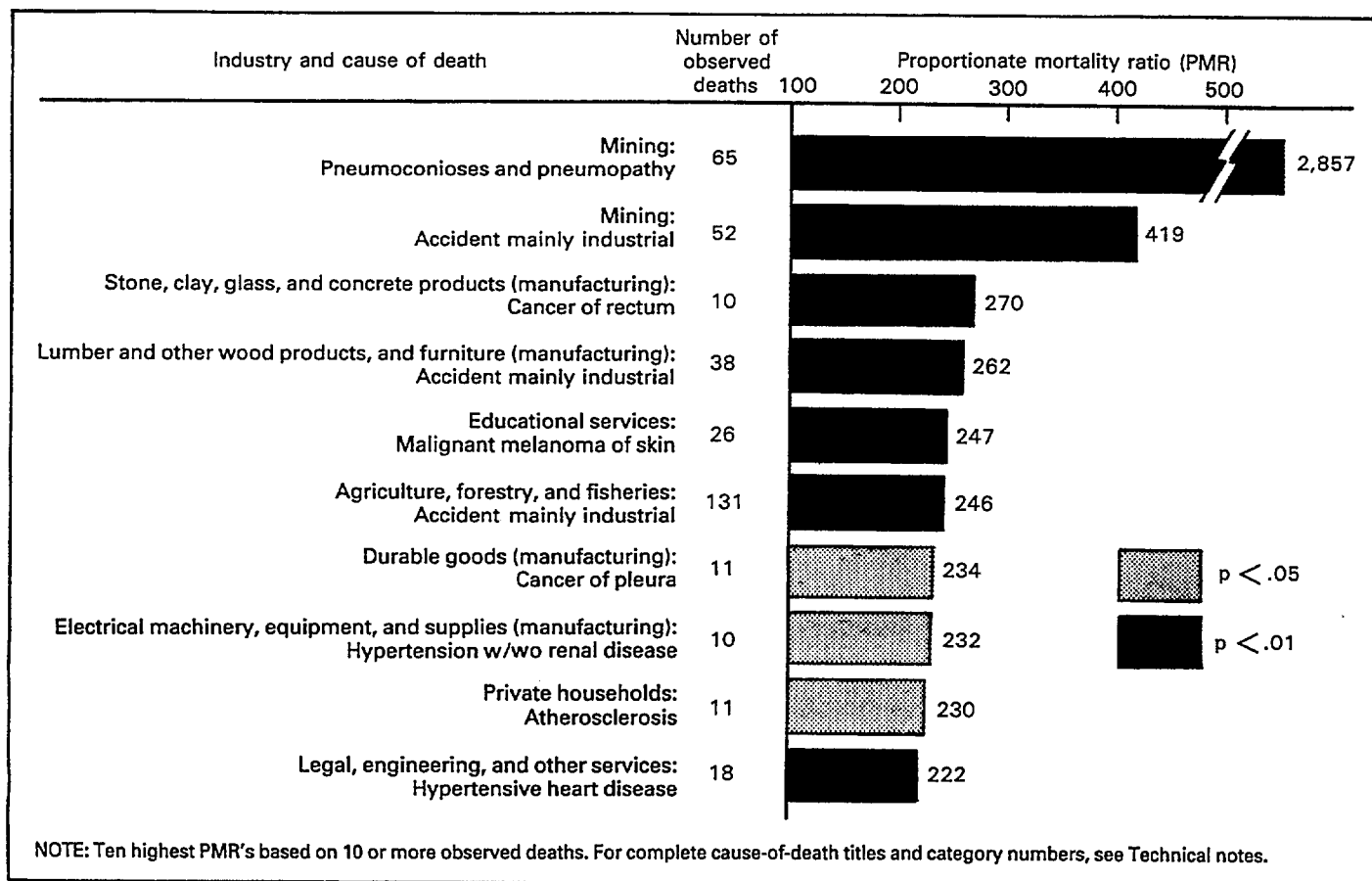


Figure 3. Ten highest statistically significant proportionate mortality ratios (PMR's) for industries and causes of death and observed number of deaths for males 20 years of age and over: Total of 12 reporting States, 1984

hematopoietic tissues (PMR, 194); Professional and related services, Hodgkin's disease (PMR, 187); Railroads, Malignant neoplasm of colon (186); Transportation, communications, and other public utilities, Malignant neoplasms of rectum, rectosigmoid junction, and anus (PMR, 185); Eating and drinking places (retail), Malignant neoplasm of esophagus (PMR, 185); and Legal, engineering, and other services, Malignant lymphoma other than Hodgkin's disease (PMR, 185). PMR's for 8 of the 12 combinations for industry and cause of death for women are significant at the 1-percent level, and the other 4 combinations are significant at the 5-percent level.

Discussion

Using information for a 12-State reporting area in 1984, this report illustrates the use of occupation and industry information on the death certificate for identifying possible associa-

tions between occupational exposures and subsequent health outcomes. As measured by the proportionate mortality ratio (PMR), the report identifies a number of occupations and industries characterized by elevated mortality for specified causes of death.

Occupation and industry information from the death certificate can serve as a readily available tool for monitoring occupational mortality on an ongoing basis. It has the advantage of being useful for many occupations and industries. These data draw on the strengths of the vital statistics system, which include uniformity of information, large number of events, and geographic identifiers. The data, as demonstrated in this report, can be used for descriptive analyses; the results can be used to generate hypotheses about mortality risks associated with different occupations and industries.

The interpretation of associations between causes of death and occupa-

tion and industry of decedents, based on information from death certificates, must be tempered by a number of considerations noted in other reports. These considerations include:

- The selection by health status of persons entering certain occupations and industries; thus, some occupations (firemen) and industries (the military) may require a certain level of fitness to enter. Conversely, unhealthy persons may be relegated to certain other occupations (28).
- The selection of persons entering occupations and industries by other characteristics such as their ethnicity; for example, proprietorship of convenience stores by immigrants or participation in high-risk construction activities by American Indians may result in associations that are confounded by the characteristics of the ethnic group.

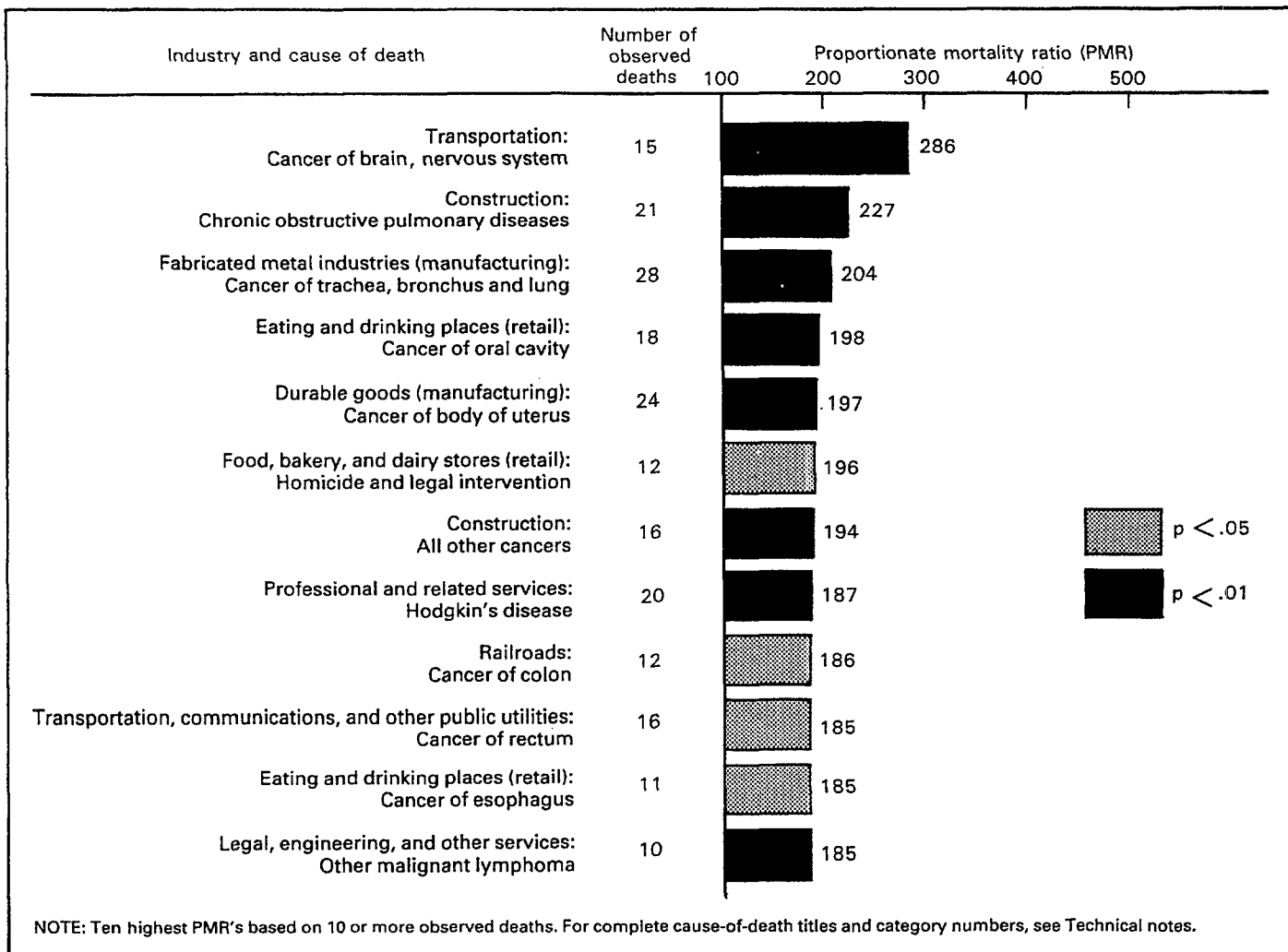


Figure 4. Ten highest statistically significant proportionate mortality ratios (PMR's) for industries and causes of death and observed number of deaths for females 20 years of age and over: Total of 12 reporting States, 1984

- Associations between occupations and causes of death may reflect the socioeconomic status (for example, income, educational attainment, etc.) of the decedents which, through lifestyle as reflected in confounding factors such as smoking or alcohol consumption, may be more closely associated with mortality than with the occupations themselves.
- This study does not include actual exposures or measures of exposure such as duration and intensity. Thus, to establish more definitive associations between occupation, industry, and cause of death requires special in-depth studies, both prospective and retrospective, that can followup the leads suggested by reports such as this.

Other limitations and considerations of this approach include the accuracy and completeness of reporting and the nature of the PMR as an index of the relative occupational risk.

Accuracy of reporting

Results in this report may also depend on the accuracy of reporting occupation and industry on the death certificate. This information is provided by the funeral director, based on the statements of an informant who may not have had specific or accurate knowledge of the decedent's work history. A number of studies have been made on the accuracy of the information reported on the death certificate by comparing this information with other sources. They indicate a level of

agreement in the range of 50 to 80 percent (15,29). Reporting the last rather than the usual occupation and industry, the "upgrading" of the occupation, and vague and imprecise entries are among the problems noted in the studies. It has also been noted that for many people who have different jobs throughout their working life, it may be difficult to designate any single occupation as "usual." This can be particularly true of women who may have been housewives and who may have held a variety of other jobs throughout their lives.

NCHS is promoting better reporting of occupation and industry on the death certificate through a handbook (18) that has been distributed widely to State vital registration offices and others.

Reporting completeness

Reporting completeness by occupation and industry is shown in tables 5 and 6 for the 12 individual reporting States in 1984 and for the entire reporting area. For occupation 98 percent of the resident deaths occurring in the reporting area to persons 20 years of age and over had useable occupation codes (that is, occupations other than retired and unknown). About 68 percent were coded to specified occupation codes other than homemaker, military, volunteer, student, unemployed or never worked. The category "Homemaker" accounted for 28 percent of all deaths occurring in the area, and the remaining useable occupation codes accounted for about 2 percent of the deaths. For about 2 percent of the deaths the occupation code was not useful (that is, retired or unknown).

Reporting completeness as reflected in these codes varied by State. Thus, retired or occupation unknown ranged from 0.3 percent to 8.1 percent (table 5). Reporting completeness for usual industry was similar to that for usual occupation (table 6).

PMR as a measure of relative risk

PMR's are known to have limitations as indicators of relative mortality risk. They are used in this report because needed population data for calculating population-based measures such as the standardized mortality ratio (SMR) are not readily available. However, PMR's have been widely used as an approximation of SMR's (30).

The PMR as an index of occupational risk is subject to a number of limitations, some of which were alluded to earlier. Because it does not make use of the population "at risk," it cannot be interpreted as a death rate (31,32). Rather, it indicates whether a higher or lower proportion of deaths than expected was reported for a particular cause of death.

If the *risk* of death for all causes for an occupation (or industry) is low, the PMR's by cause of death *overstate* the mortality risks. Conversely, if the

overall risk is high, the PMR's will understate the risks (32). In addition, the value of the PMR may be affected by abnormal mortality in one or more major causes (33). The proportion of deaths from a cause of death may be low because mortality from another major cause of death is disproportionately high and vice versa. Moreover, summary PMR's may mask differences found in specific age groups (34). A PMR can also be affected by the distribution of unknown occupation or unknown industry if this is not distributed relatively proportionately. However, the percent of unknown occupation and industry in this report is very low and is not likely to affect the PMR's.

In computing PMR's it is feasible and sometimes more useful to delete selected occupations or causes of death from analysis. For example, for the analysis of female occupation mortality, it may be more desirable to use as the basis of comparison the female population excluding women who reported "Homemaker" as their usual occupation. Because this subgroup accounts for such a substantial share (57.4 percent) of all female decedents, some may find it more useful to calculate PMR's on the basis of the mortality experience of only those women who reported their usual employment as outside the home. For this study all occupations and causes of death are included.

PMR's can be more useful if the size of the affected population is taken into account. Thus, a smaller PMR (near 150) in relation to a small occupational group has a small quantitative impact in terms of the observed number dying in excess of the expected number. The same PMR with a large occupational group represents a much larger numerical impact. Thus, some combination of the PMR, along with numbers of deaths on which the measure is based, may be more analytically useful than the PMR alone. Recognition of this is reflected in the use of the 10 highest PMR's that were statistically significant and were based on at least 10 observed deaths in figures 1-4.

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Symbols

- Data not available
 - . . . Category not applicable
 - Quantity zero
 - 0.0 Quantity more than zero but less than 0.05
 - A Proportionate mortality ratio (PMR) is statistically significantly different from 100 at the 0.05 level
 - B Proportionate mortality ratio (PMR) is statistically significantly different from 100 at the 0.01 level
 - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
-

Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Number of deaths	Tuberculosis (010-018, 137)	Septicemia (038)	All cancers (140-208)	Cancer of oral cavity (140-149)	Cancer of esophagus (150)	Cancer of stomach (151)	Cancer of colon (153)	Cancer of rectum (154)	Cancer of liver (155)
Number of deaths										
All occupations	140,715	123	864	32,089	770	843	1,044	3,028	563	428
Proportionate mortality ratios										
Executive, administrative, and managerial occupations 003-037	12,279	89	85	B 108	96	113	A 122	B 124	101	102
Executive and administrative occupations 003-019	9,875	97	85	B 109	91	107	116	B 125	107	86
Management related occupations 023-037	2,404	57	83	103	119	140	146	119	78	170
Professional specialty occupations 043-199	8,194	94	111	B 105	95	102	120	B 124	97	B 152
Architects, engineers, and scientists 043-083	2,674	52	103	B 111	104	136	109	104	95	A 175
Health diagnosis and treatment occupations 084-106	1,232	-	155	110	49	32	153	121	59	57
Teachers 113-163	1,475	81	105	103	96	127	137	A 144	66	132
Other professional specialty occupations 164-199	2,813	171	103	99	104	84	108	B 134	134	A 180
Technicians and related support 203-235	1,191	-	151	107	88	59	48	A 141	166	139
Sales occupations 243-285	11,869	94	106	102	103	101	104	107	86	111
Administrative support occupations, including clerical 303-389	5,223	46	77	104	121	84	88	B 130	83	88
Secretaries, stenographers, and typists 313-315	97	-	-	A 142	(¹)	(¹)	-	145	-	-
Records processing occupations 325-344	530	-	127	92	B 346	74	55	103	47	68
Mail and message distributing occupations 354-357	1,267	-	75	102	69	89	157	B 151	75	76
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	3,329	74	72	105	107	80	69	A 125	94	98
Service occupations 403-469	9,535	67	108	99	107	107	104	90	117	A 138
Private household occupations 403-407	112	-	86	102	438	100	-	47	(¹)	(¹)
Protective service occupations 413-427	2,512	-	119	98	125	80	133	87	84	168
Food preparation and service occupations 433-444	1,467	117	115	96	90	A 167	51	89	137	148
Health service occupations 445-447	255	-	113	109	-	-	141	59	318	220
Cleaning and building service occupations 448-455	4,177	98	85	100	104	111	105	95	114	127
Personal service occupations 456-469	1,012	-	A 176	97	94	80	116	95	133	64
Farming, forestry, fishing occupations 473-499	22,788	108	93	B 89	B 63	A 79	A 82	B 84	A 81	A 75
Farm and other agricultural occupations 473-489	21,778	109	96	B 88	B 64	B 75	B 80	B 85	80	A 76
Forestry, fishing, and hunting occupations 494-499	1,010	82	29	103	51	138	112	75	83	59
Precision production, craft and repair occupations 503-699	29,108	A 141	93	B 105	112	107	96	97	111	A 77
Mechanics and repairers 503-549	6,625	153	100	104	118	101	92	98	76	103
Vehicle and mobile equipment mechanics and repairers 505-517	3,462	211	103	106	116	127	101	95	77	93
Other mechanics and repairers 503, 518-549	3,163	84	97	101	121	71	81	102	75	114
Construction trades 553-599	11,548	A 163	101	B 105	120	120	89	93	A 130	69
Carpenters and apprentices 567-569	3,996	94	105	102	103	A 148	74	82	131	61
Electricians, apprentices, and electrical power installers and repairers 575-577	1,532	91	49	107	87	48	83	101	126	89
Painters, construction and maintenance 579	1,434	B 467	129	107	B 200	151	105	86	159	113
Other construction trades 553-566, 573, 583-599	4,586	142	105	B 107	120	112	98	103	121	55
Extractive occupations 613-617	1,819	233	116	94	67	108	87	B 50	81	96
Precision production occupations 633-699	9,116	85	74	B 107	105	95	110	110	120	66
Supervisors, production occupations 633	2,472	-	58	B 112	109	84	120	A 126	150	A 26
Precision metal and woodworking occupations 634-659	3,770	107	80	B 108	91	107	104	106	113	72
Precision textile, apparel, and furnishings machine workers 666-674	487	(¹)	190	96	85	39	114	105	105	71
Precision food production occupations 686-688	1,026	(¹)	62	94	145	144	91	77	75	95
Other precision production occupations 675-684, 689-699	1,361	95	51	106	110	65	120	114	122	99

Machine operators, assemblers, and inspectors	703-799	10,925	73	107	101	114	86	100	99	106	99
Machine operators and tenders, except precision	703-779	8,146	81	108	98	115	83	99	100	116	90
Metal, plastic, and woodworking machine operators	703-733	1,301	80	98	99	128	78	116	74	114	23
Printing machine operators.	734-737	726	-	122	91	104	152	97	92	133	95
Textile, apparel, and furnishing machine operators	738-749	2,211	149	129	B 89	115	51	71	102	102	131
Machine operators, assorted materials.	753-779	3,908	56	96	105	112	91	110	109	121	89
Fabricators, assemblers, and hand working occupations.	783-795	2,135	59	118	B 112	146	100	94	101	92	166
Production inspectors, testers, samplers, and weighers	796-799	644	-	54	96	-	74	125	84	37	-
Transportation and material moving occupations	803-859	9,437	46	96	100	109	96	91	A 87	A 133	77
Motor vehicle operators	803-814	6,215	51	101	97	110	97	87	B 75	A 139	71
Other transportation occupations	823-859	3,222	36	88	104	107	92	98	109	121	89
Handlers, equipment cleaners, helpers, and laborers	863-889	11,474	116	108	A 96	98	A 121	111	B 82	106	A 130
Construction laborers.	869	3,003	166	95	99	77	A 144	110	82	A 177	137
Laborers, except construction	889	6,663	90	118	B 93	108	113	102	85	87	125
Other handlers, cleaners, and laborers.	863-867, 873-888	1,808	126	90	103	98	111	142	71	63	138
Military	905	2,500	195	91	B 109	98	90	B 173	117	45	156
Homemaker.	914	235	-	65	96	252	305	60	145	-	(¹)
Occupation not reported	913, 915-999	5,957	114	A 141	B 85	97	93	80	100	69	86

Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Cancer of gall-bladder (156)	Cancer of pancreas (157)	Cancer of larynx (161)	Cancer of trachea, bronchus, lung (162)	Cancer of pleura (163)	Cancer of bone (170)	Cancer of connective tissue (171)	Malignant melanoma of skin (172)	Cancer of female breast (174)	Cancer of cervix uteri (180)
Number of deaths										
All occupations	183	1,443	377	11,314	35	62	176	424	...	...
Proportionate mortality ratios										
Executive, administrative, and managerial occupations 003-037	94	A 121	108	95	58	81	B 180	B 152	...	...
Executive and administrative occupations 003-019	110	B 125	119	99	36	51	B 173	B 154	...	...
Management related occupations 023-037	30	102	62	B 81	(¹)	209	210	143	...	...
Professional specialty occupations 043-199	100	B 132	B 41	B 78	139	231	118	B 177	...	...
Architects, engineers, and scientists 043-083	27	108	67	90	260	189	60	132	...	...
Health diagnosis and treatment occupations 084-106	178	B 176	64	86	-	(¹)	214	191	...	...
Teachers 113-163	258	118	25	B 66	(¹)	323	106	B 254	...	...
Other professional specialty occupations 164-199	54	A 143	A 14	B 69	-	234	141	A 174	...	...
Technicians and related support 203-235	65	84	153	104	-	(¹)	143	102	...	...
Sales occupations 243-285	86	113	80	97	90	207	63	B 158	...	...
Administrative support occupations, including clerical 303-389	158	A 131	76	A 90	72	141	157	76	...	...
Secretaries, stenographers, and typists 313-315	-	(¹)	-	135	-	-	-	(¹)	...	...
Records processing occupations 325-344	-	169	-	A 64	-	A 1,009	-	140	...	...
Mail and message distributing occupations 354-357	-	103	27	85	(¹)	-	143	86	...	...
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	A 248	A 136	107	95	-	72	188	56	...	...
Service occupations 403-469	120	88	A 141	99	-	67	97	112	...	...
Private household occupations 403-407	-	96	(¹)	101	-	-	-	(¹)	...	...
Protective service occupations 413-427	149	74	139	98	-	-	154	107	...	...
Food preparation and service occupations 433-444	62	112	A 219	94	-	(¹)	130	71	...	...
Health service occupations 445-447	(¹)	193	268	74	-	-	-	270	...	...
Cleaning and building service occupations 448-455	99	82	116	105	-	104	78	114	...	...
Personal service occupations 456-469	158	93	81	89	-	-	-	111	...	...
Farming, forestry, fishing occupations 473-499	108	97	B 63	B 82	A 19	45	102	B 61	...	...
Farm and other agricultural occupations 473-489	112	96	B 61	B 80	A 20	A 36	103	B 60	...	...
Forestry, fishing, and hunting occupations 494-499	-	122	108	120	-	(¹)	80	75	...	...
Precision production, craft and repair occupations 503-699	103	96	A 123	B 113	143	78	B 62	90	...	...
Mechanics and repairers 503-549	114	90	129	B 111	-	-	A 33	85	...	...
Vehicle and mobile equipment mechanics and repairers 505-517	110	80	A 163	B 117	-	-	20	80	...	...
Other mechanics and repairers 503, 518-549	117	100	91	105	-	-	48	90	...	...
Construction trades 553-599	134	101	A 139	B 117	A 276	130	66	85	...	...
Carpenters and apprentices 567-569	113	117	158	A 113	195	57	61	58	...	...
Electricians, apprentices, and electrical power installers and repairers 575-577	A 291	76	99	110	(¹)	406	47	141	...	...
Painters, construction and maintenance 579	55	69	156	A 120	-	(¹)	102	168	...	...
Other construction trades 553-566, 573, 583-599	121	105	132	B 122	A 448	91	65	59	...	...
Extractive occupations 613-617	40	65	110	A 119	-	(¹)	45	54	...	...
Precision production occupations 633-699	72	101	102	B 110	119	54	84	110	...	...
Supervisors, production occupations 633	59	104	72	106	(¹)	-	-	112	...	...
Precision metal and woodworking occupations 634-659	38	85	110	B 126	187	129	89	105	...	...
Precision textile, apparel, and furnishings machine workers 666-674	-	103	87	76	-	-	(¹)	-	...	...
Precision food production occupations 686-688	75	114	183	88	-	-	86	194	...	...
Other precision production occupations 675-684, 689-699	214	131	81	98	-	-	190	101	...	...

Machine operators, assemblers, and inspectors	703-799	91	88	114	B 111	108	83	114	87	...	...
Machine operators and tenders, except precision	703-779	104	A 77	96	A 109	99	84	89	73	...	...
Metal, plastic, and woodworking machine operators	703-733	60	64	131	116	-	344	119	125	...	...
Printing machine operators	734-737	200	66	259	A 74	-	-	-	179	...	...
Textile, apparel, and furnishing machine operators	738-749	70	A 57	66	100	-	-	118	A 18	...	...
Machine operators, assorted materials	753-779	119	94	72	B 117	209	57	80	62	...	...
Fabricators, assemblers, and hand working occupations	783-795	71	128	169	B 121	(1)	99	224	112	...	...
Production inspectors, testers, samplers, and weighers	796-799	-	99	162	110	-	-	-	145	...	...
Transportation and material moving occupations	803-859	90	90	105	B 115	125	47	117	71	...	...
Motor vehicle operators	803-814	87	83	93	B 113	64	-	137	71	...	...
Other transportation occupations	823-859	94	105	131	B 117	240	142	74	70	...	...
Handlers, equipment cleaners, helpers, and laborers	863-889	122	92	119	104	185	118	77	B 48	...	...
Construction laborers	869	89	79	69	111	358	-	44	44	...	...
Laborers, except construction	889	141	90	119	103	155	121	81	B 34	...	...
Other handlers, cleaners, and laborers	863-867, 873-888	103	117	A 199	94	-	303	118	109	...	...
Military	905	-	A 63	117	103	(1)	93	75	95	...	...
Homemaker	914	-	223	-	103	-	-	-	-	...	...
Occupation not reported	913, 915-999	58	A 72	59	B 87	238	142	119	75	...	...

Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes.]

Occupation	Cancer of body of uterus (182)	Cancer of ovary (183)	Cancer of prostate (185)	Cancer of testis (186)	Cancer of bladder (188)	Cancer of kidney, urinary organs (189)	Cancer of brain, nervous system (191-192)	Hodgkin's disease (201)	Other malignant lymphoma (200, 202)	Multiple myeloma, immuno-proliferative neoplasms (203)
Number of deaths										
All occupations	3,453	47	803	767	714	153	929	511
Proportionate mortality ratios										
Executive, administrative, and managerial occupations 003-037	B 115	A 247	110	B 129	B 132	145	111	98
Executive and administrative occupations 003-019	B 117	A 266	114	A 131	108	150	117	111
Management related occupations 023-037	108	(¹)	96	122	B 237	128	89	46
Professional specialty occupations 043-199	B 128	201	119	A 133	B 148	125	B 157	A 135
Architects, engineers, and scientists 043-083	B 141	(¹)	A 152	A 159	B 187	179	B 163	122
Health diagnosis and treatment occupations 084-106	128	-	145	119	100	170	B 216	185
Teachers 113-163	115	A 688	119	130	163	64	B 188	130
Other professional specialty occupations 164-199	122	96	74	113	119	91	108	129
Technicians and related support 203-235	120	(¹)	107	101	145	133	124	96
Sales occupations 243-285	A 89	179	95	A 124	117	93	115	122
Administrative support occupations, including clerical 303-389	A 122	71	95	81	134	154	117	A 47
Secretaries, stenographers, and typists 313-315	73	-	(¹)	(¹)	-	(¹)	(¹)	-
Records processing occupations 325-344	111	-	93	141	81	-	85	54
Mail and message distributing occupations 354-357	B 148	-	78	42	81	91	143	42
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	115	98	100	84	B 162	169	110	49
Service occupations 403-469	91	-	111	78	78	93	87	116
Private household occupations 403-407	109	-	-	-	-	-	(¹)	-
Protective service occupations 413-427	91	-	76	101	93	149	102	106
Food preparation and service occupations 433-444	86	-	163	A 27	40	42	78	75
Health service occupations 445-447	151	-	246	155	77	-	64	(¹)
Cleaning and building service occupations 448-455	88	-	120	67	81	118	75	133
Personal service occupations 456-469	94	-	87	117	90	-	97	134
Farming, forestry, fishing occupations 473-499	103	52	88	A 80	104	124	113	92
Farm and other agricultural occupations 473-489	103	58	87	A 81	104	134	112	95
Forestry, fishing, and hunting occupations 494-499	108	-	114	60	108	-	133	28
Precision production, craft and repair occupations 503-699	101	57	105	102	91	76	92	98
Mechanics and repairers 503-549	99	36	114	87	110	131	105	82
Vehicle and mobile equipment mechanics and repairers 505-517	98	62	129	71	104	108	128	87
Other mechanics and repairers 503, 518-549	100	-	99	104	116	160	80	77
Construction trades 553-599	99	86	88	101	A 75	B 29	87	102
Carpenters and apprentices 567-569	98	140	94	89	81	23	120	135
Electricians, apprentices, and electrical power installers and repairers 575-577	130	-	93	80	125	-	101	129
Painters, construction and maintenance 579	93	309	117	103	38	53	A 31	59
Other construction trades 553-566, 573, 583-599	93	-	73	118	63	35	71	78
Extractive occupations 613-617	94	-	72	154	A 33	50	49	110
Precision production occupations 633-699	107	43	125	105	107	103	98	102
Supervisors, production occupations 633	A 131	-	149	109	A 163	125	109	87
Precision metal and woodworking occupations 634-659	100	94	100	90	67	80	100	103
Precision textile, apparel, and furnishings machine workers 666-674	86	-	A 259	-	150	534	66	236
Precision food production occupations 686-688	103	-	66	111	126	-	46	53
Other precision production occupations 675-684, 689-699	95	-	145	167	86	82	117	120

Machine operators, assemblers, and inspectors	703-799	...	...	94	216	78	110	79	107	86	101
Machine operators and tenders, except precision	703-779	...	...	96	238	73	107	80	105	78	95
Metal, plastic, and woodworking machine operators	703-733	...	...	93	(¹)	125	A 178	100	204	B 12	100
Printing machine operators.	734-737	...	...	118	-	69	97	54	-	121	38
Textile, apparel, and furnishing machine operators	738-749	...	...	A 74	(¹)	A 46	101	57	99	84	61
Machine operators, assorted materials.	753-779	...	...	106	297	73	89	89	92	89	123
Fabricators, assemblers, and hand working occupations.	783-795	...	...	91	203	61	152	78	141	99	115
Production inspectors, testers, samplers, and weighers	796-799	...	...	69	-	192	-	85	-	136	127
Transportation and material moving occupations	803-859	...	...	A 86	30	120	107	85	53	91	A 69
Motor vehicle operators	803-814	...	...	85	-	117	117	70	63	90	86
Other transportation occupations	823-859	...	...	88	(¹)	126	88	117	29	92	A 33
Handlers, equipment cleaners, helpers, and laborers	863-889	...	...	A 86	97	80	B 65	78	67	A 72	105
Construction laborers.	869	...	...	91	179	64	A 46	63	66	A 44	107
Laborers, except construction	889	...	...	A 85	38	83	A 62	89	38	A 67	90
Other handlers, cleaners, and laborers.	863-867, 873-888	...	...	86	(¹)	94	110	68	165	142	158
Military	905	...	...	B 143	96	116	127	86	169	103	133
Homemaker	914	...	...	A-	-	149	-	-	-	-	-
Occupation not reported	913, 915-999	...	...	B 70	63	114	70	77	117	B 49	102

Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes.]

Occupation	Leukemia (204-208)	All other cancers (152... 193-199)	Diabetes mellitus (250)	Aplastic anemia (284)	Diseases of heart (390-398, 402, 404-429)	Hypertensive heart disease (402)	Hypertensive heart, renal disease (404)	Ischemic heart disease (410-414)	Acute myocardial infarction (410)	All other ischemic heart disease (411-414)
Number of deaths										
All occupations	1,179	2,843	1,930	63	53,414	1,065	165	39,510	23,959	15,551
Proportionate mortality ratios										
Executive, administrative, and managerial occupations 003-037	B 125	96	98	89	101	111	120	B 104	99	B 111
Executive and administrative occupations 003-019	A 121	98	105	45	101	106	110	A 104	99	B 111
Management related occupations 023-037	140	89	69	265	101	133	161	104	99	A 111
Professional specialty occupations 043-199	100	95	104	107	102	A 132	88	101	97	A 107
Architects, engineers, and scientists 043-083	112	107	86	—	100	B 173	39	99	96	105
Health diagnosis and treatment occupations 084-106	86	98	116	—	95	103	—	94	89	102
Teachers 113-163	111	73	122	(¹)	101	112	120	104	105	102
Other professional specialty occupations 164-199	88	95	106	235	B 107	119	143	104	97	B 114
Technicians and related support 203-235	104	85	86	—	101	94	—	105	103	111
Sales occupations 243-285	114	98	112	A 180	A 103	99	89	B 104	102	A 106
Administrative support occupations, including clerical 303-389	118	110	107	86	103	88	122	A 104	101	B 110
Secretaries, stenographers, and typists 313-315	—	B 390	—	—	106	(¹)	(¹)	104	87	127
Records processing occupations 325-344	67	106	101	—	101	147	(¹)	103	95	113
Mail and message distributing occupations 354-357	115	106	81	(¹)	106	52	66	A 109	A 114	101
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	131	104	121	68	102	92	115	103	96	B 113
Service occupations 403-469	100	106	B 122	122	99	104	A 47	99	96	103
Private household occupations 403-407	—	93	—	—	110	—	—	118	122	112
Protective service occupations 413-427	97	97	B 181	179	101	107	79	104	107	98
Food preparation and service occupations 433-444	85	111	A 146	—	95	125	—	92	B 81	110
Health service occupations 445-447	199	115	127	—	96	112	—	90	96	81
Cleaning and building service occupations 448-455	108	103	87	57	98	100	31	98	A 92	107
Personal service occupations 456-469	85	138	117	433	99	101	128	97	94	101
Farming, forestry, fishing occupations 473-499	A 114	94	93	100	B 103	B 81	118	B 103	B 114	B 90
Farm and other agricultural occupations 473-489	A 116	93	92	104	B 103	B 80	123	B 104	B 115	B 89
Forestry, fishing, and hunting occupations 494-499	50	110	114	—	97	99	—	101	104	96
Precision production, craft and repair occupations 503-699	93	A 109	95	75	B 98	93	104	B 97	B 96	99
Mechanics and repairers 503-549	88	114	99	103	A 97	88	171	96	96	97
Vehicle and mobile equipment mechanics and repairers 505-517	78	111	88	198	B 94	92	149	A 94	95	93
Other mechanics and repairers 503, 518-549	99	118	112	—	100	85	196	99	98	100
Construction trades 553-599	90	107	87	57	B 95	A 79	73	B 94	B 93	96
Carpenters and apprentices 567-569	80	87	80	—	A 95	74	86	B 93	96	B 89
Electricians, apprentices, and electrical power installers and repairers 575-577	97	119	136	283	96	84	142	98	96	103
Painters, construction and maintenance 579	91	111	111	—	94	74	67	95	A 86	109
Other construction trades 553-566, 573, 583-599	96	119	B 69	50	A 96	82	41	B 92	B 90	96
Extractive occupations 613-617	129	89	104	—	A 93	104	49	B 90	102	B 73
Precision production occupations 633-699	94	110	100	94	102	113	110	A 104	100	B 109
Supervisors, production occupations 633	109	112	99	89	A 106	109	121	B 109	105	B 116
Precision metal and woodworking occupations 634-659	87	109	98	—	101	102	176	99	98	100
Precision textile, apparel, and furnishings machine workers 666-674	50	148	91	(¹)	103	164	—	106	103	110
Precision food production occupations 686-688	93	97	105	(¹)	104	85	75	107	99	A 120
Other precision production occupations 675-684, 689-699	104	107	105	(¹)	98	152	—	104	98	113

Machine operators, assemblers, and inspectors	703-799	91	92	98	41	99	A 122	132	99	97	104
Machine operators and tenders, except precision	703-779	85	90	104	55	99	A 128	146	99	97	102
Metal, plastic, and woodworking machine operators	703-733	46	84	141	-	97	154	266	101	97	107
Printing machine operators	734-737	96	88	143	-	101	125	255	103	99	109
Textile, apparel, and furnishing machine operators	738-749	103	101	105	200	98	97	36	96	94	99
Machine operators, assorted materials	753-779	85	87	85	-	100	A 136	156	99	99	100
Fabricators, assemblers, and hand working occupations	783-795	98	96	75	-	95	98	105	97	92	104
Production inspectors, testers, samplers, and weighers	796-799	149	96	102	-	107	124	-	A 114	101	B 134
Transportation and material moving occupations	803-859	A 76	90	93	151	99	117	120	98	99	96
Motor vehicle operators	803-814	A 69	91	95	157	99	125	170	98	98	99
Other transportation occupations	823-859	89	88	90	141	98	101	28	98	102	A 90
Handlers, equipment cleaners, helpers, and laborers	863-889	A 75	105	97	148	98	98	56	B 95	B 94	97
Construction laborers	869	75	A 127	76	255	A 94	77	52	B 89	B 89	91
Laborers, except construction	889	A 70	89	103	35	99	100	62	98	96	101
Other handlers, cleaners, and laborers	863-867, 873-888	99	127	113	422	99	125	40	93	95	91
Military	905	112	A 127	79	-	95	86	117	94	94	94
Homemaker	914	106	134	95	-	96	53	629	88	80	98
Occupation not reported	913, 915-999	80	92	115	42	99	90	70	B 94	A 93	96

Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	All other diseases of heart (390-398, 415-429)	Hypertension with or without renal disease (401,403)	Cerebro-vascular diseases (430-438)	Atherosclerosis (440)	Pneumonia and influenza (480-487)	Chronic obstructive pulmonary diseases (490-496)	Pneumo-conioses and pneumopathy (500-505)	Ulcer of stomach and duodenum (531-533)	Chronic liver disease and cirrhosis (571)	Nephritis and nephrosis (580-589)	Number of deaths	
All occupations	12,674	497	9,108	1,346	4,023	6,603	121	470	1,896	1,381		
											Proportionate mortality ratios	
Executive, administrative, and managerial occupations 003-037	B 91	103	99	91	95	B 84	64	107	95	88		
Executive and administrative occupations 003-019	B 91	106	100	91	91	B 79	57	107	91	90		
Management related occupations 023-037	91	90	94	92	114	102	91	107	112	81		
Professional specialty occupations 043-199	103	116	99	106	91	B 67	B -	118	98	91		
Architects, engineers, and scientists 043-083	100	107	106	112	88	B 71	-	66	94	76		
Health diagnosis and treatment occupations 084-106	98	48	100	74	108	B 59	-	115	73	65		
Teachers 113-163	91	99	92	135	95	B 52	-	120	118	114		
Other professional specialty occupations 164-199	A 114	A 162	97	103	84	B 73	-	A 170	100	102		
Technicians and related support 203-235	87	121	98	28	A 53	77	(1)	115	76	136		
Sales occupations 243-285	100	91	98	90	B 84	B 85	A 28	71	97	A 82		
Administrative support occupations, including clerical 303-389	99	84	92	108	91	90	-	113	98	98		
Secretaries, stenographers, and typists 313-315	99	-	57	84	60	21	-	594	-	186		
Records processing occupations 325-344	90	56	119	84	107	81	-	54	96	75		
Mail and message distributing occupations 354-357	101	22	A 77	90	93	89	-	135	59	78		
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	99	116	95	121	88	94	-	99	114	108		
Service occupations 403-469	99	114	101	103	A 88	102	A 26	106	109	118		
Private household occupations 403-407	111	-	103	B 538	90	-	-	(1)	149	-		
Protective service occupations 413-427	93	72	107	76	85	91	-	96	103	A 142		
Food preparation and service occupations 433-444	99	125	84	141	98	A 133	-	144	137	131		
Health service occupations 445-447	111	194	108	57	A 16	135	-	(1)	94	79		
Cleaning and building service occupations 448-455	101	122	103	102	84	105	30	98	104	105		
Personal service occupations 456-469	103	147	100	90	109	82	(1)	90	98	129		
Farming forestry, fishing occupations 473-499	103	105	B 111	A 110	101	B 91	B 42	A 80	B 81	A 110		
Farm and other agricultural occupations 473-489	A 104	105	B 112	109	101	B 91	B 44	81	B 79	110		
Forestry, fishing, and hunting occupations 494-499	87	119	99	134	96	99	-	59	100	127		
Precision production, craft and repair occupations 503-699	99	94	97	94	98	B 108	B 304	114	103	96		
Mechanics and repairers 503-549	99	89	108	105	97	104	36	112	112	100		
Vehicle and mobile equipment mechanics and repairers 505-517	93	116	99	105	101	108	70	90	A 132	117		
Other mechanics and repairers 503, 518-549	105	59	A 117	105	93	100	-	135	89	83		
Construction trades 553-599	102	112	98	92	94	B 115	92	120	111	89		
Carpenters and apprentices 567-569	103	B 183	101	92	88	B 123	28	118	121	71		
Electricians, apprentices, and electrical power installers and repairers 575-577	88	106	100	71	96	102	302	101	119	60		
Painters, construction and maintenance 579	93	103	100	99	108	B 134	-	107	136	82		
Other construction trades 553-566, 573, 583-599	108	57	95	95	95	107	106	134	94	117		
Extractive occupations 613-617	102	67	84	85	101	B 155	B 3,759	81	70	114		
Precision production occupations 633-699	96	78	A 91	93	102	93	48	115	89	98		
Supervisors, production occupations 633	93	74	89	90	86	A 81	45	83	86	103		
Precision metal and woodworking occupations 634-659	107	57	92	82	101	94	58	124	89	105		
Precision textile, apparel, and furnishings machine workers 666-674	90	107	80	112	99	119	-	171	61	55		
Precision food production occupations 686-688	95	184	80	134	103	101	-	113	81	113		
Other precision production occupations 675-684, 689-699	B 77	44	103	90	129	95	81	128	108	77		

Machine operators, assemblers, and inspectors	703-799	A 94	97	105	95	106	B 111	74	81	111	96
Machine operators and tenders, except precision	703-779		96	86	107	101	109	85	89	111	98
Metal, plastic, and woodworking machine operators	703-733	A 78	127	100	116	117	120	184	47	130	81
Printing machine operators	734-737		90	210	121	71	B 162	90	-	121	29
Textile, apparel, and furnishing machine operators	738-749		107	74	B 124	88	107	A 120	50	107	138
Machine operators, assorted materials	753-779		97	57	97	111	98	104	90	86	91
Fabricators, assemblers, and hand working occupations	783-795		89	148	96	73	100	A 122	-	46	72
Production inspectors, testers, samplers, and weighers	796-799		87	94	95	75	78	104	(1)	94	139
Transportation and material moving occupations	803-859		98	110	A 90	104	110	B 129	64	129	87
Motor vehicle operators	803-814		98	129	A 89	117	112	B 132	60	124	88
Other transportation occupations	823-859		98	72	92	85	107	B 124	71	140	85
Handlers, equipment cleaners, helpers, and laborers	863-889	A 106	102	95	96	88	B 118	B 123	45	76	92
Construction laborers	869		111	110	93	88	107	B 130	-	78	84
Laborers, except construction	889		102	94	98	95	B 123	B 120	57	95	102
Other handlers, cleaners, and laborers	863-867, 873-888		111	119	85	112	113	A 123	75	A -	64
Military	905		100	81	B 75	73	109	99	-	B 212	92
Homemaker	914		115	(1)	102	104	62	87	(1)	(1)	115
Occupation not reported	913, 915-999	B 115	69	97	116	116	B 148	B 125	117	99	84
											B 159

Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Accidents and adverse effects (E800–E949)	Motor vehicle accidents (E810–E825)	Accidents mainly of industrial type (E846 . . . E923–E926)	Other accidents (E800–E807 . . . E927–E949)	Suicide (E950–E959)	Homicide and legal intervention (E960–E978)	All other causes (Residual)
Number of deaths							
All occupations	7,321	3,587	657	3,077	3,216	1,408	14,842
Proportionate mortality ratios							
Executive, administrative, and managerial occupations 003–037	B 88	90	B 58	91	97	A 74	99
Executive and administrative occupations 003–019	92	100	A 61	91	96	80	97
Management related occupations 023–037	B 68	B 47	45	92	98	44	107
Professional specialty occupations 043–199	B 88	90	B 54	93	101	B 64	A 107
Architects, engineers, and scientists 043–083	84	111	A 36	A 67	94	B 37	104
Health diagnosis and treatment occupations 084–106	104	101	67	114	B 156	63	114
Teachers 113–163	81	77	91	82	90	63	B 119
Other professional specialty occupations 164–199	89	A 76	A 45	112	93	84	100
Technicians and related support 203–235	107	98	75	130	B 135	84	89
Sales occupations 243–285	94	107	B 62	A 86	107	A 126	102
Administrative support occupations, including clerical 303–389	B 80	84	B 37	86	97	B 63	107
Secretaries, stenographers, and typists 313–315	66	95	–	50	–	–	126
Records processing occupations 325–344	90	105	–	91	112	34	122
Mail and message distributing occupations 354–357	83	94	49	80	96	56	A 118
Other administrative support occupations 303–309, 316–323, 345–353, 359–389	B 79	A 78	A 40	89	97	69	100
Service occupations 403–469	93	95	B 47	100	B 118	105	101
Private household occupations 403–407	98	141	–	65	109	103	80
Protective service occupations 413–427	87	102	A 35	82	116	100	95
Food preparation and service occupations 433–444	91	90	B 17	110	116	122	102
Health service occupations 445–447	73	60	–	105	167	60	108
Cleaning and building service occupations 448–455	101	100	84	106	116	98	103
Personal service occupations 456–469	89	91	24	99	119	117	104
Farming, forestry, fishing occupations 473–499	B 128	B 116	B 258	B 118	106	89	98
Farm and other agricultural occupations 473–489	B 125	A 113	B 248	B 117	108	87	99
Forestry, fishing, and hunting occupations 494–499	B 155	B 142	B 361	129	88	97	A 78
Precision production, craft and repair occupations 503–699	B 106	103	B 139	103	100	95	B 93
Mechanics and repairers 503–549	98	99	109	94	109	93	95
Vehicle and mobile equipment mechanics and repairers 505–517	95	100	111	86	118	112	96
Other mechanics and repairers 503, 518–549	101	98	106	104	98	A 62	93
Construction trades 553–599	B 116	A 110	B 144	B 118	102	102	B 92
Carpenters and apprentices 567–569	111	112	115	109	111	130	98
Electricians, apprentices, and electrical power installers and repairers 575–577	113	97	B 236	102	100	84	91
Painters, construction and maintenance 579	108	93	83	A 133	110	85	B 76
Other construction trades 553–566, 573, 583–599	B 124	A 118	B 153	B 126	93	97	93
Extractive occupations 613–617	B 141	98	B 456	124	84	126	B 76
Precision production occupations 633–699	A 89	96	89	A 84	91	78	97
Supervisors, production occupations 633	B 73	A 65	105	73	75	A 45	97
Precision metal and woodworking occupations 634–659	102	113	98	92	86	87	93
Precision textile, apparel, and furnishings machine workers 666–674	114	115	74	120	100	163	95
Precision food production occupations 686–688	77	90	26	73	95	118	115
Other precision production occupations 675–684, 689–699	84	95	80	73	130	29	95

Machine operators, assemblers, and inspectors	703-799	101	106	84	98	98	A 84	95
Machine operators and tenders, except precision	703-779	97	104	A 65	96	97	86	98
Metal, plastic, and woodworking machine operators	703-733	90	90	61	96	97	96	97
Printing machine operators	734-737	85	94	35	86	94	116	93
Textile, apparel, and furnishing machine operators	738-749	104	119	70	95	92	82	98
Machine operators, assorted materials	753-779	99	104	68	99	99	82	99
Fabricators, assemblers, and hand working occupations	783-795	111	111	142	103	104	86	B 83
Production inspectors, testers, samplers, and weighers	796-799	96	107	66	89	94	36	99
Transportation and material moving occupations	803-859	A 110	B 140	109	B 74	89	110	96
Motor vehicle operators	803-814	A 109	B 155	72	B 64	A 83	107	99
Other transportation occupations	823-859	110	106	B 197	96	103	117	90
Handlers, equipment cleaners, helpers, and laborers	863-889	105	101	109	109	A 90	B 127	100
Construction laborers	869	B 119	110	A 147	B 126	82	B 131	95
Laborers, except construction	889	102	98	111	106	87	B 135	101
Other handlers, cleaners, and laborers	863-867, 873-888	89	96	A 34	92	115	98	100
Military	905	95	99	B 12	111	95	B 62	105
Homemaker	914	82	69	-	112	60	84	A 142
Occupation not reported	913, 915-999	B 73	B 64	B 38	99	95	113	B 136

¹Proportionate mortality ratio not computed since observed deaths equaled 1 and expected deaths were less than 1.0.

A-Proportionate mortality ratio is significantly different from 100 at the 0.05 level of significance (see Technical notes).

B-Proportionate mortality ratio is significantly different from 100 at the 0.01 level of significance (see Technical notes).

Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Number of deaths	Tuberculosis (010-018, 137)	Septicemia (038)	All cancers (140-208)	Cancer of oral cavity (140-149)	Cancer of esophagus (150)	Cancer of stomach (151)	Cancer of colon (153)	Cancer of rectum (154)	Cancer of liver (155)
Number of deaths										
All occupations	129,082	100	1,096	27,667	374	272	717	3,433	517	350
Proportionate mortality ratios										
Executive, administrative, and managerial occupations 003-037	3,687	40	104	B 121	94	146	134	B 129	124	152
Executive and administrative occupations 003-019	2,874	51	87	B 121	115	103	124	B 145	137	152
Management related occupations 023-037	813	-	171	B 122	32	290	167	76	80	151
Professional specialty occupations 043-199	9,153	79	B 62	B 116	83	89	96	B 119	113	124
Architects, engineers, and scientists 043-083	85	-	(1)	129	(1)	-	-	138	-	(1)
Health diagnosis and treatment occupations 084-106	2,167	132	65	105	85	86	A 41	101	108	63
Teachers 113-163	5,482	52	A 64	B 120	66	77	126	B 128	125	140
Other professional specialty occupations 164-199	1,419	(1)	45	B 123	117	136	78	114	86	152
Technicians and related support 203-235	1,250	-	150	105	72	109	70	91	75	105
Sales occupations 243-285	5,001	147	96	B 111	79	91	103	112	107	62
Administrative support occupations, including clerical 303-389	9,046	83	82	B 117	110	120	93	B 120	124	86
Secretaries, stenographers, and typists 313-315	3,416	226	A 57	B 119	A 156	89	94	B 128	144	85
Records processing occupations 325-344	1,902	-	109	B 116	89	107	75	108	141	86
Mail and message distributing occupations 354-357	179	-	137	117	(1)	-	(1)	128	-	-
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	3,549	-	88	B 117	72	164	101	118	102	92
Service occupations 403-469	12,091	99	112	A 97	111	110	106	A 90	105	83
Private household occupations 403-407	4,317	106	116	B 91	70	83	91	88	103	107
Protective service occupations 413-427	114	-	(1)	103	A 628	-	-	192	-	-
Food preparation and service occupations 433-444	3,205	69	117	96	B 180	155	122	89	95	101
Health service occupations 445-447	1,814	59	133	93	75	101	80	82	76	52
Cleaning and building service occupations 448-455	1,212	190	90	106	25	124	135	92	168	56
Personal service occupations 456-469	1,429	85	73	A 111	107	115	141	98	134	46
Farming, forestry, fishing occupations 473-499	951	70	62	97	95	114	118	76	157	119
Farm and other agricultural occupations 473-489	946	70	63	97	96	114	118	76	158	120
Forestry, fishing, and hunting occupations 494-499	5	-	-	-	-	-	-	-	-	-
Precision production, craft and repair occupations 503-699	1,735	161	115	B 113	92	137	63	104	110	62
Mechanics and repairers 503-549	108	(1)	242	105	-	793	-	123	-	-
Vehicle and mobile equipment mechanics and repairers 505-517	15	-	-	56	-	(1)	-	(1)	-	-
Other mechanics and repairers 503, 518-549	93	(1)	280	112	-	(1)	-	108	-	-
Construction trades 553-599	77	-	-	127	A 880	(1)	-	149	-	-
Carpenters and apprentices 567-569	18	-	-	134	-	(1)	-	(1)	-	-
Electricians, apprentices, and electrical power installers and repairers 575-577	11	-	-	118	-	-	-	-	-	-
Painters, construction and maintenance 579	22	-	-	148	-	-	-	(1)	-	-
Other construction trades 553-566, 573, 583-599	26	-	-	105	B 2,595	-	-	(1)	-	-
Extractive occupations 613-617	15	-	-	92	-	-	-	-	-	-
Precision production occupations 633-699	1,535	91	113	B 113	63	62	71	101	126	71
Supervisors, production occupations 633	238	-	172	113	-	(1)	71	128	278	-
Precision metal and woodworking occupations 634-659	173	-	79	A 128	-	-	279	129	343	(1)
Precision textile, apparel, and furnishings machine workers 666-674	772	(1)	121	109	56	69	51	100	71	57
Precision food production occupations 686-688	153	-	151	113	-	-	-	96	-	-
Other precision production occupations 675-684, 689-699	199	-	-	108	251	-	-	50	-	(1)

Machine operators, assemblers, and inspectors	703-799	6,878	144	101	101	116	102	120	90	87	116
Machine operators and tenders, except precision	703-779	5,742	150	97	100	96	107	115	95	81	136
Metal, plastic, and woodworking machine operators	703-733	139	-	-	91	(¹)	(¹)	353	73	-	-
Printing machine operators	734-737	105	-	(¹)	A 135	-	-	(¹)	128	427	-
Textile, apparel, and furnishing machine operators	738-749	4,401	169	103	97	101	111	104	97	A 48	135
Machine operators, assorted materials	753-779	1,097	(¹)	78	109	72	76	121	86	181	169
Fabricators, assemblers, and hand working occupations	783-795	577	-	160	106	129	74	A 257	70	186	52
Production inspectors, testers, samplers, and weighers	796-799	559	(¹)	93	107	A 292	80	30	65	39	-
Transportation and material moving occupations	803-859	169	-	77	116	-	-	99	66	413	-
Motor vehicle operators	803-814	122	-	(¹)	118	-	-	(¹)	60	A 546	-
Other transportation occupations	823-859	47	-	-	112	-	-	-	83	-	-
Handlers, equipment cleaners, helpers, and laborers	863-889	1,668	68	89	99	69	147	A 30	96	83	59
Construction laborers	869	29	-	(¹)	105	-	-	-	335	-	-
Laborers, except construction	889	1,216	89	72	98	71	163	40	96	77	80
Other handlers, cleaners, and laborers	863-867, 873-888	423	-	120	102	66	(¹)	-	83	106	-
Military	905	73	-	(¹)	122	A 904	-	-	111	-	-
Homemaker	914	74,124	101	103	B 94	100	93	100	A 97	94	104
Occupation not reported	913, 915-999	3,256	128	108	B 75	104	88	88	80	82	76

Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Cancer of gall-bladder (156)	Cancer of pancreas (157)	Cancer of larynx (161)	Cancer of trachea, bronchus, lung (162)	Cancer of pleura (163)	Cancer of bone (170)	Cancer of connective tissue (171)	Malignant melanoma of skin (172)	Cancer of female breast (174)	Cancer of cervix uteri (180)
Number of deaths										
All occupations	367	1,532	88	4,466	13	56	200	301	5,110	606
Proportionate mortality ratios										
Executive, administrative, and managerial occupations 003-037	98	118	98	B 142	-	-	62	124	B 128	79
Executive and administrative occupations 003-019	92	117	88	B 135	-	-	62	143	B 127	81
Management related occupations 023-037	119	121	(¹)	B 162	-	-	59	70	A 131	74
Professional specialty occupations 043-199	B 46	B 127	88	A 88	-	105	144	113	B 153	B 58
Architects, engineers, and scientists 043-083	-	(¹)	-	A 242	-	-	-	-	119	-
Health diagnosis and treatment occupations 084-106	31	A 137	117	100	-	-	182	114	116	A 43
Teachers 113-163	52	122	69	B 69	-	101	110	145	B 170	70
Other professional specialty occupations 164-199	49	132	97	113	-	283	206	26	B 164	54
Technicians and related support 203-235	201	131	96	119	-	(¹)	112	48	90	97
Sales occupations 243-285	118	100	53	B 129	-	79	122	123	112	96
Administrative support occupations, including clerical 303-389	65	97	A 171	B 117	-	140	100	101	B 130	93
Secretaries, stenographers, and typists 313-315	75	94	210	B 122	-	105	94	134	B 136	91
Records processing occupations 325-344	34	91	191	104	-	-	93	85	B 136	92
Mail and message distributing occupations 354-357	(¹)	95	-	29	-	(¹)	-	(¹)	110	-
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	66	103	133	B 123	-	196	114	71	B 124	99
Service occupations 403-469	107	102	95	A 111	60	81	106	105	B 84	100
Private household occupations 403-407	121	99	64	90	-	-	82	83	89	69
Protective service occupations 413-427	-	70	-	73	-	-	-	-	104	100
Food preparation and service occupations 433-444	99	93	99	108	-	96	143	66	B 78	114
Health service occupations 445-447	19	105	53	113	(¹)	175	73	A 188	86	140
Cleaning and building service occupations 448-455	227	100	168	B 141	-	(¹)	72	38	80	146
Personal service occupations 456-469	122	137	162	B 135	-	-	179	169	86	67
Farming, forestry, fishing occupations 473-499	89	93	(¹)	90	-	-	-	70	103	83
Farm and other agricultural occupations 473-489	89	93	(¹)	90	-	-	-	71	104	84
Forestry, fishing, and hunting occupations 494-499	-	-	-	-	-	-	-	-	-	-
Precision production, craft and repair occupations 503-699	118	110	-	A 128	(¹)	-	104	91	A 122	130
Mechanics and repairers 503-549	-	137	-	99	-	-	(¹)	-	143	-
Vehicle and mobile equipment mechanics and repairers 505-517	-	-	-	-	-	-	-	-	-	-
Other mechanics and repairers 503, 518-549	-	159	-	113	-	-	(¹)	-	-	-
Construction trades 553-599	-	(¹)	-	106	(¹)	-	-	-	160	(¹)
Carpenters and apprentices 567-569	-	-	-	(¹)	-	-	-	-	153	(¹)
Electricians, apprentices, and electrical power installers and repairers 575-577	-	-	-	-	-	-	-	-	(¹)	-
Painters, construction and maintenance 579	-	(¹)	-	(¹)	(¹)	-	-	-	286	(¹)
Other construction trades 553-566, 573, 583-599	-	-	-	(¹)	-	-	-	-	94	-
Extractive occupations 613-617	-	-	-	364	-	-	-	-	-	-
Precision production occupations 633-699	134	109	-	A 129	-	-	81	105	120	137
Supervisors, production occupations 633	(¹)	A 286	-	100	-	-	-	-	A 152	122
Precision metal and woodworking occupations 634-659	-	81	-	145	-	-	-	-	114	167
Precision textile, apparel, and furnishings machine workers 666-674	191	74	-	118	-	-	(¹)	227	109	40
Precision food production occupations 686-688	(¹)	107	-	A 197	-	-	-	-	100	(¹)
Other precision production occupations 675-684, 689-699	-	37	-	132	-	-	(¹)	(¹)	122	317

Machine operators, assemblers, and inspectors	703-799	91	103	69	103	-	60	123	61	94	A 134
Machine operators and tenders, except precision	703-779	98	104	86	99	-	74	130	62	A 88	A 138
Metal, plastic, and woodworking machine operators	703-733	-	104	(1)	143	-	-	(1)	-	64	(1)
Printing machine operators	734-737	-	143	-	171	-	-	(1)	-	115	-
Textile, apparel, and furnishing machine operators	738-749	83	105	59	94	-	52	125	77	A 84	134
Machine operators, assorted materials	753-779	182	97	95	104	-	(1)	86	29	99	166
Fabricators, assemblers, and hand working occupations	783-795	-	89	-	134	-	-	83	101	102	126
Production inspectors, testers, samplers, and weighers	796-799	108	105	-	106	-	-	(1)	-	A 139	103
Transportation and material moving occupations	803-859	-	241	-	A 168	(1)	-	-	(1)	114	166
Motor vehicle operators	803-814	-	261	-	169	-	-	-	(1)	93	145
Other transportation occupations	823-859	-	(1)	-	164	(1)	-	-	-	193	(1)
Handlers, equipment cleaners, helpers, and laborers	863-889	186	106	68	118	(1)	-	144	60	A 77	145
Construction laborers	869	-	-	-	(1)	-	-	-	-	-	-
Laborers, except construction	889	142	88	94	121	(1)	-	158	28	A 72	147
Other handlers, cleaners, and laborers	863-867, 873-888	316	165	-	109	-	-	(1)	151	96	150
Military	905	-	(1)	-	243	-	-	-	-	88	(1)
Homemaker	914	105	A 95	97	B 90	146	102	96	104	B 91	104
Occupation not reported	913, 915-999	138	84	207	B 74	-	239	A 34	50	B 62	71

Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Cancer of body of uterus (182)	Cancer of ovary (183)	Cancer of prostate (185)	Cancer of testis (186)	Cancer of bladder (188)	Cancer of kidney, urinary organs (189)	Cancer of brain, nervous system (191-192)	Hodgkin's disease (201)	Other malignant lymphoma (200, 202)	Multiple myeloma, immunoproliferative neoplasms (203)
Number of deaths										
All occupations	458	1,569	...	...	426	475	633	79	924	522
Proportionate mortality ratios										
Executive, administrative, and managerial occupations 003-037	142	123	...	...	123	57	101	36	A 141	107
Executive and administrative occupations 003-019	130	A 135	...	...	125	A 42	97	48	137	107
Management related occupations 023-037	182	86	...	...	114	105	115	-	152	107
Professional specialty occupations 043-199	116	B 146	...	...	86	104	116	B 203	116	B 150
Architects, engineers, and scientists 043-083	-	-	...	...	B 1,357	-	-	-	-	-
Health diagnosis and treatment occupations 084-106	86	A 137	...	...	42	92	133	194	129	141
Teachers 113-163	107	B 155	...	...	82	126	124	191	114	B 162
Other professional specialty occupations 164-199	206	142	...	...	109	57	76	279	113	126
Technicians and related support 203-235	131	92	...	...	77	60	A 170	179	153	133
Sales occupations 243-285	123	120	...	...	95	105	128	82	91	109
Administrative support occupations, including clerical 303-389	123	A 119	...	...	111	96	B 139	158	104	120
Secretaries, stenographers, and typists 313-315	113	104	...	...	71	99	131	135	95	121
Records processing occupations 325-344	135	123	...	...	94	95	152	70	141	72
Mail and message distributing occupations 354-357	483	B 349	...	...	(1)	-	B 504	-	75	276
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	111	121	...	...	A 157	97	125	227	93	138
Service occupations 403-469	97	97	...	...	116	90	85	54	97	85
Private household occupations 403-407	106	96	...	...	96	71	64	144	63	93
Protective service occupations 413-427	-	112	...	...	594	-	221	-	(1)	-
Food preparation and service occupations 433-444	111	97	...	...	126	120	79	39	103	A 48
Health service occupations 445-447	92	88	...	...	120	88	51	-	96	71
Cleaning and building service occupations 448-455	57	102	...	...	154	44	152	(1)	129	85
Personal service occupations 456-469	87	107	...	...	86	105	114	-	118	172
Farming, forestry, fishing occupations 473-499	51	90	...	...	98	238	142	-	115	46
Farm and other agricultural occupations 473-489	51	91	...	...	98	240	144	-	116	46
Forestry, fishing, and hunting occupations 494-499	-	-	...	...	-	-	-	-	-	-
Precision production, craft and repair occupations 503-699	A 190	112	...	...	87	88	74	175	106	A 183
Mechanics and repairers 503-549	(1)	58	...	...	-	-	-	-	-	(1)
Vehicle and mobile equipment mechanics and repairers 505-517	-	-	...	...	-	-	-	-	-	-
Other mechanics and repairers 503, 518-549	(1)	66	...	...	-	-	-	-	-	(1)
Construction trades 553-599	-	96	...	...	-	-	-	-	-	(1)
Carpenters and apprentices 567-569	-	-	...	...	-	-	-	-	-	-
Electricians, apprentices, and electrical power installers and repairers 575-577	-	(1)	...	...	-	-	-	-	-	(1)
Painters, construction and maintenance 579	-	-	...	...	-	-	-	-	-	-
Other construction trades 553-566, 573, 583-599	-	-	...	...	-	-	-	-	-	-
Extractive occupations 613-617	-	-	...	...	-	-	-	-	-	-
Precision production occupations 633-699	A 198	119	...	...	99	101	86	207	122	176
Supervisors, production occupations 633	-	71	...	...	-	92	-	(1)	48	180
Precision metal and woodworking occupations 634-659	(1)	A 263	...	...	-	-	140	-	61	A 463
Precision textile, apparel, and furnishings machine workers 666-674	B 343	85	...	...	119	168	113	(1)	146	111
Precision food production occupations 686-688	(1)	103	...	...	(1)	(1)	-	-	-	(1)
Other precision production occupations 675-684, 689-699	(1)	113	...	...	(1)	-	130	-	270	(1)

Machine operators, assemblers, and inspectors	703-799	130	96	...	...	107	111	A 132	65	93	91
Machine operators and tenders, except precision	703-779	110	100	...	...	98	111	A 134	53	85	94
Metal, plastic, and woodworking machine operators	703-733	328	84	...	...	-	-	-	-	-	-
Printing machine operators	734-737	-	62	...	...	-	-	-	-	220	(¹)
Textile, apparel, and furnishing machine operators	738-749	70	115	...	...	93	110	118	74	88	99
Machine operators, assorted materials	753-779	A 242	57	...	...	140	138	B 213	-	75	78
Fabricators, assemblers, and hand working occupations	783-795	79	79	...	...	211	72	92	(¹)	154	-
Production inspectors, testers, samplers, and weighers	796-799	B 366	79	...	...	102	149	166	-	101	152
Transportation and material moving occupations	803-859	-	95	...	...	-	(¹)	64	-	-	-
Motor vehicle operators	803-814	-	121	...	...	-	(¹)	81	-	-	-
Other transportation occupations	823-859	-	-	...	...	-	-	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers	863-889	131	104	...	...	55	172	105	-	76	39
Construction laborers	869	(¹)	-	...	...	-	-	-	-	-	-
Laborers, except construction	889	118	100	...	...	50	178	120	-	74	35
Other handlers, cleaners, and laborers	863-867, 873-888	117	121	...	...	72	162	72	-	85	52
Military	905	(¹)	95	...	...	-	-	-	-	(¹)	-
Homemaker	914	B 83	B 90	...	...	97	103	B 89	90	98	95
Occupation not reported	913, 915-999	145	78	...	...	145	50	B 43	122	72	72

Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984–Con.

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Occupation	Leukemia (204–208)	All other cancers (152 . . . 193–199)	Diabetes mellitus (250)	Aplastic anemia (284)	Diseases of heart (390–398, 402, 404–429)	Hypertensive heart disease (402)	Hypertensive heart, renal disease (404)	Ischemic heart disease (410–414)	Acute myocardial infarction (410)	All other ischemic heart disease (411–414)	Number of deaths	
All occupations	1,018	3,161	2,941	100	49,887	1,572	253	33,609	17,236	16,373		
											Proportionate mortality ratios	
Executive, administrative, and managerial occupations 003–037	92	97	B 68	215	B 91	95	105	A 94	93	95		
Executive and administrative occupations 003–019	88	91	A 72	137	B 93	83	129	96	97	96		
Management related occupations 023–037	105	119	A 54	A 503	B 82	141	–	A 85	A 81	89		
Professional specialty occupations 043–199	A 128	98	B 78	139	B 94	85	73	B 93	B 88	98		
Architects, engineers, and scientists 043–083	–	233	53	–	81	(1)	–	90	54	137		
Health diagnosis and treatment occupations 084–106	114	87	78	181	97	120	27	98	91	105		
Teachers 113–163	B 141	96	A 81	138	B 93	77	105	B 91	B 88	95		
Other professional specialty occupations 164–199	111	111	70	91	95	64	–	93	A 85	101		
Technicians and related support 203–235	99	107	90	(1)	98	100	51	99	103	95		
Sales occupations 243–285	106	106	B 67	148	97	93	126	97	99	94		
Administrative support occupations, including clerical 303–389	119	B 122	B 58	70	B 93	113	77	B 94	B 89	99		
Secretaries, stenographers, and typists 313–315	115	118	B 47	37	B 92	102	21	B 90	B 84	97		
Records processing occupations 325–344	135	A 134	B 61	67	95	105	106	95	96	94		
Mail and message distributing occupations 354–357	135	45	49	–	90	93	–	105	114	94		
Other administrative support occupations 303–309, 316–323, 345–353, 359–389	114	A 123	B 67	107	B 93	128	118	96	B 88	105		
Service occupations 403–469	94	98	94	96	102	A 112	88	102	102	101		
Private household occupations 403–407	A 60	108	96	81	A 104	112	93	101	A 108	93		
Protective service occupations 413–427	180	31	72	–	111	273	–	128	143	108		
Food preparation and service occupations 433–444	96	93	95	41	102	A 131	56	102	100	104		
Health service occupations 445–447	123	78	121	73	105	109	143	107	106	109		
Cleaning and building service occupations 448–455	107	100	A 64	235	104	98	79	106	92	B 123		
Personal service occupations 456–469	106	113	82	185	B 87	72	81	A 90	91	89		
Farming, forestry, fishing occupations 473–499	83	115	109	–	99	86	236	95	97	93		
Farm and other agricultural occupations 473–489	83	116	109	–	99	86	236	96	98	93		
Forestry, fishing, and hunting occupations 494–499	–	–	–	–	52	–	–	–	–	–		
Precision production, craft and repair occupations 503–699	98	103	95	74	95	139	64	94	91	97		
Mechanics and repairers 503–549	–	166	112	–	89	174	–	84	60	118		
Vehicle and mobile equipment mechanics and repairers 505–517	–	–	–	–	136	–	–	194	172	223		
Other mechanics and repairers 503, 518–549	–	192	130	–	81	201	–	A 64	A 39	97		
Construction trades 553–599	283	54	60	–	80	(1)	–	64	70	57		
Carpenters and apprentices 567–569	(1)	–	–	–	116	–	–	101	148	52		
Electricians, apprentices, and electrical power installers and repairers 575–577	(1)	–	–	–	100	–	–	71	62	84		
Painters, construction and maintenance 579	–	–	–	–	66	–	–	38	–	85		
Other construction trades 553–566, 573, 583–599	–	(1)	(1)	–	60	(1)	–	59	88	30		
Extractive occupations 613–617	–	(1)	–	–	138	–	–	51	50	52		
Precision production occupations 633–699	97	99	97	84	96	139	71	97	95	99		
Supervisors, production occupations 633	44	104	143	(1)	98	127	–	99	83	120		
Precision metal and woodworking occupations 634–659	59	77	24	–	98	116	–	106	88	134		
Precision textile, apparel, and furnishings machine workers 666–674	113	107	106	–	94	126	57	96	107	86		
Precision food production occupations 686–688	163	131	135	–	85	159	–	84	A 48	125		
Other precision production occupations 675–684, 689–699	104	70	43	–	105	221	(1)	98	101	93		

Machine operators, assemblers, and inspectors	703-799	97	113	99	92	103	105	80	A 104	A 106	102
Machine operators and tenders, except precision	703-779	100	115	100	109	103	108	93	104	105	103
Metal, plastic, and woodworking machine operators	703-733	-	76	29	-	B 132	66	-	A 138	A 146	126
Printing machine operators	734-737	(¹)	244	121	-	84	189	-	98	108	86
Textile, apparel, and furnishing machine operators	738-749	88	112	101	140	A 104	115	116	105	106	103
Machine operators, assorted materials	753-779	157	121	100	-	96	79	-	97	94	101
Fabricators, assemblers, and hand working occupations	783-795	108	102	99	-	107	129	-	113	108	118
Production inspectors, testers, samplers, and weighers	796-799	59	102	88	-	94	34	-	103	A 121	79
Transportation and material moving occupations	803-859	115	123	103	-	94	116	-	91	95	85
Motor vehicle operators	803-814	77	163	142	-	84	-	-	91	97	83
Other transportation occupations	823-859	(¹)	-	-	-	112	378	-	90	92	89
Handlers, equipment cleaners, helpers, and laborers	863-889	122	111	91	-	98	117	107	98	93	104
Construction laborers	869	-	334	-	-	64	-	-	84	70	97
Laborers, except construction	889	141	106	106	-	95	116	47	95	90	101
Other handlers, cleaners, and laborers	863-867, 873-888	77	113	49	-	108	127	327	107	104	111
Military	905	(¹)	55	123	-	A 64	275	-	56	B 12	116
Homemaker	914	96	A 97	B 113	97	B 102	97	105	B 102	B 103	101
Occupation not reported	913, 915-999	74	B 70	121	67	101	96	113	94	95	93

Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	All other diseases of heart (390-398, 415-429)	Hypertension with or without renal disease (401,403)	Cerebro-vascular diseases (430-438)	Athero-sclerosis (440)	Pneumonia and influenza (480-487)	Chronic obstructive pulmonary diseases (490-496)	Pneumo-conioses and pneumopathy (500-505)	Ulcer of stomach and duodenum (531-533)	Chronic liver disease and cirrhosis (571)	Nephritis and nephrosis (580-589)
Number of deaths										
All occupations	14,453	613	13,639	2,231	4,085	3,486	6	464	1,159	1,480
Proportionate mortality ratios										
Executive, administrative, and managerial occupations 003-037	B 82	52	A 90	89	A 81	92	—	76	98	98
Executive and administrative occupations 003-019	B 85	65	A 87	90	A 76	98	—	68	112	100
Management related occupations 023-037	B 72	—	98	86	101	73	—	109	61	89
Professional specialty occupations 043-199	98	88	99	91	104	91	—	128	A 79	B 74
Architects, engineers, and scientists 043-083	54	—	61	—	52	171	—	—	85	(1)
Health diagnosis and treatment occupations 084-106	96	115	106	80	98	A 128	—	117	100	99
Teachers 113-163	97	92	99	90	107	B 74	—	B 165	71	B 66
Other professional specialty occupations 164-199	105	32	92	115	98	87	—	A —	64	66
Technicians and related support 203-235	96	132	88	110	106	A 137	—	48	83	90
Sales occupations 243-285	96	120	96	96	A 80	111	—	131	90	80
Administrative support occupations, including clerical 303-389	B 91	112	96	104	103	99	—	85	90	87
Secretaries, stenographers, and typists 313-315	97	98	A 89	96	109	103	—	75	110	81
Records processing occupations 325-344	95	80	93	107	102	106	—	87	106	101
Mail and message distributing occupations 354-357	A 57	(1)	90	104	37	41	—	—	—	155
Other administrative support occupations 303-309, 316-323, 345-353, 359-389	B 85	141	105	111	100	96	—	98	A 67	82
Service occupations 403-469	101	102	99	104	97	103	—	95	99	102
Private household occupations 403-407	B 110	101	99	104	93	83	—	96	98	107
Protective service occupations 413-427	55	(1)	62	—	152	65	—	—	53	—
Food preparation and service occupations 433-444	99	98	98	101	103	112	—	88	114	104
Health service occupations 445-447	98	70	104	105	94	105	—	53	75	102
Cleaning and building service occupations 448-455	101	120	100	73	108	134	—	115	82	81
Personal service occupations 456-469	A 83	132	101	140	85	99	—	148	128	103
Farming, forestry, fishing occupations 473-499	106	89	103	111	96	121	—	113	106	123
Farm and other agricultural occupations 473-489	106	89	102	111	96	122	—	113	107	123
Forestry, fishing, and hunting occupations 494-499	(1)	—	360	—	—	—	(1)	—	—	—
Precision production, craft and repair occupations 503-699	93	52	102	91	107	93	—	32	106	95
Mechanics and repairers 503-549	94	—	92	—	232	86	—	—	227	179
Vehicle and mobile equipment mechanics and repairers 505-517	—	—	67	—	(1)	—	—	—	(1)	—
Other mechanics and repairers 503, 518-549	110	—	97	—	229	101	—	—	168	208
Construction trades 553-599	114	—	109	270	92	228	—	—	—	—
Carpenters and apprentices 567-569	163	—	60	—	(1)	—	—	—	—	—
Electricians, apprentices, and electrical power installers and repairers 575-577	188	—	200	—	—	—	—	—	—	—
Painters, construction and maintenance 579	142	—	—	(1)	—	438	—	—	—	—
Other construction trades 553-566, 573, 583-599	35	—	184	431	(1)	288	—	—	—	—
Extractive occupations 613-617	A 359	—	125	—	—	—	—	—	—	—
Precision production occupations 633-699	89	58	102	88	102	87	—	36	102	95
Supervisors, production occupations 633	93	214	93	—	107	106	—	—	30	—
Precision metal and woodworking occupations 634-659	77	—	68	—	145	49	—	—	73	117
Precision textile, apparel, and furnishings machine workers 666-674	86	52	105	108	98	86	—	68	179	110
Precision food production occupations 686-688	95	—	141	168	66	69	—	—	141	226
Other precision production occupations 675-684, 689-699	107	—	85	—	129	116	—	—	72	—

Machine operators, assemblers, and inspectors	703-799	99	120	95	111	A 84	100	B 934	66	96	117
Machine operators and tenders, except precision	703-779	101	133	95	114	A 85	100	B 1,191	69	100	123
Metal, plastic, and woodworking machine operators	703-733	127	(¹)	83	69	31	201	-	421	53	-
Printing machine operators	734-737	A 38	459	A 40	150	72	174	-	-	170	94
Textile, apparel, and furnishing machine operators	738-749	102	131	96	104	A 83	91	B 1,685	63	110	B 140
Machine operators, assorted materials	753-779	99	106	97	A 172	101	114	-	55	71	69
Fabricators, assemblers, and hand working occupations	783-795	92	-	B 64	71	85	126	-	105	83	119
Production inspectors, testers, samplers, and weighers	796-799	79	85	A 128	107	79	74	-	-	74	52
Transportation and material moving occupations	803-859	97	(¹)	101	86	155	65	-	-	114	-
Motor vehicle operators	803-814	82	(¹)	115	-	199	58	-	-	140	-
Other transportation occupations	823-859	131	-	73	(¹)	83	82	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers	863-889	94	64	100	98	102	110	-	129	82	78
Construction laborers	869	33	-	72	-	(¹)	-	-	-	-	-
Laborers, except construction	889	93	67	104	101	110	118	-	101	60	69
Other handlers, cleaners, and laborers	863-867, 873-888	105	56	89	101	76	92	-	213	146	113
Military	905	60	-	90	-	-	96	-	-	189	280
Homemaker	914	B 102	101	B 102	99	101	100	65	101	B 108	103
Occupation not reported	913, 915-999	B 117	94	98	A 133	B 149	87	-	158	92	121

Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Accidents and adverse effects (E800–E949)	Motor vehicle accidents (E810–E825)	Accidents mainly of industrial type (E846 . . . E923–E926)	Other accidents (E800–E807 . . . E927–E949)	Suicide (E950–E959)	Homicide and legal intervention (E960–E978)	All other causes (Residual)
Number of deaths							
All occupations	3,442	1,469	34	1,939	865	515	15,306
Proportionate mortality ratios							
Executive, administrative, and managerial occupations 003–037	A 120	A 130	88	111	83	140	103
Executive and administrative occupations 003–019	A 124	B 139	(¹)	111	89	145	99
Management related occupations 023–037	108	106	–	113	67	129	A 121
Professional specialty occupations 043–199	B 120	B 127	127	115	B 137	107	97
Architects, engineers, and scientists 043–083	109	95	(¹)	91	B 330	173	47
Health diagnosis and treatment occupations 084–106	105	98	–	114	119	126	92
Teachers 113–163	B 133	B 148	77	A 125	124	116	100
Other professional specialty occupations 164–199	107	128	(¹)	83	A 152	47	98
Technicians and related support 203–235	117	A 136	–	95	133	87	86
Sales occupations 243–285	107	A 125	217	88	94	125	99
Administrative support occupations, including clerical 303–389	103	110	37	96	111	95	95
Secretaries, stenographers, and typists 313–315	111	115	–	108	109	100	99
Records processing occupations 325–344	100	91	–	110	100	109	92
Mail and message distributing occupations 354–357	A 200	B 359	–	68	173	247	110
Other administrative support occupations 303–309, 316–323, 345–353, 359–389	92	104	89	79	115	79	92
Service occupations 403–469	106	112	73	100	100	B 129	98
Private household occupations 403–407	99	88	–	106	96	116	103
Protective service occupations 413–427	B 199	A 279	–	89	50	88	86
Food preparation and service occupations 433–444	111	106	184	116	92	A 145	94
Health service occupations 445–447	113	124	–	101	110	114	92
Cleaning and building service occupations 448–455	91	126	–	61	56	128	86
Personal service occupations 456–469	95	104	(¹)	81	142	138	110
Farming, forestry, fishing occupations 473–499	92	139	–	71	118	121	101
Farm and other agricultural occupations 473–489	93	139	–	71	119	121	100
Forestry, fishing, and hunting occupations 494–499	–	–	–	–	–	–	356
Precision production, craft and repair occupations 503–699	117	114	(¹)	117	104	142	89
Mechanics and repairers 503–549	31	–	–	60	188	274	80
Vehicle and mobile equipment mechanics and repairers 505–517	–	–	–	–	–	–	119
Other mechanics and repairers 503, 518–549	34	–	–	67	196	278	74
Construction trades 553–599	140	96	(¹)	137	249	(¹)	53
Carpenters and apprentices 567–569	167	(¹)	–	(¹)	(¹)	(¹)	–
Electricians, apprentices, and electrical power installers and repairers 575–577	(¹)	–	(¹)	–	–	–	77
Painters, construction and maintenance 579	173	(¹)	–	(¹)	(¹)	–	77
Other construction trades 553–566, 573, 583–599	–	–	–	–	(¹)	–	65
Extractive occupations 613–617	–	–	–	–	–	–	112
Precision production occupations 633–699	122	126	–	122	81	127	91
Supervisors, production occupations 633	116	88	–	150	59	227	80
Precision metal and woodworking occupations 634–659	135	104	–	182	141	74	81
Precision textile, apparel, and furnishings machine workers 666–674	128	183	–	111	46	170	97
Precision food production occupations 686–688	117	214	–	42	–	–	71
Other precision production occupations 675–684, 689–699	108	91	–	129	130	133	104

Machine operators, assemblers, and inspectors	703-799	99	117	107	82	B 66	114	96
Machine operators and tenders, except precision	703-779	104	A 123	131	89	B 61	131	A 93
Metal, plastic, and woodworking machine operators	703-733	66	44	(¹)	45	58	-	74
Printing machine operators	734-737	-	-	-	-	218	(¹)	91
Textile, apparel, and furnishing machine operators	738-749	110	A 133	91	94	A 55	117	94
Machine operators, assorted materials	753-779	100	117	-	83	63	A 170	90
Fabricators, assemblers, and hand working occupations	783-795	87	116	-	54	97	51	98
Production inspectors, testers, samplers, and weighers	796-799	55	62	-	51	72	-	122
Transportation and material moving occupations	803-859	132	121	B 2,580	102	116	123	A 60
Motor vehicle operators	803-814	133	114	(¹)	137	61	117	58
Other transportation occupations	823-859	125	147	(¹)	-	299	(¹)	67
Handlers, equipment cleaners, helpers, and laborers	863-889	B 132	B 148	371	109	120	151	101
Construction laborers	869	237	231	(¹)	(¹)	-	456	132
Laborers, except construction	889	124	130	(¹)	117	125	106	111
Other handlers, cleaners, and laborers	863-867, 873-888	134	A 175	-	87	126	231	A 68
Military	905	A 175	157	-	223	71	159	84
Homemaker	914	B 93	B 81	81	99	96	B 78	100
Occupation not reported	913, 915-999	B 84	B 71	159	110	92	A 76	B 138

¹Proportionate mortality ratio not computed since observed deaths equaled 1 and expected deaths were less than 1.0.
A-Proportionate mortality ratio is significantly different from 100 at the 0.05 level of significance; see Technical notes.
B-Proportionate mortality ratio is significantly different from 100 at the 0.01 level of significance; see Technical notes.

Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Number of deaths	Tuberculosis	Septicemia	All cancers	Cancer of oral cavity	Cancer of esophagus	Cancer of stomach	Cancer of colon	Cancer of rectum	Cancer of liver
		(010-018, 137)	(038)	(140-208)	(140-149)	(150)	(151)	(153)	(154)	(155)
Number of deaths										
All industries	140,715	123	864	32,089	770	843	1,044	3,028	563	428
Proportionate mortality ratios										
Agriculture, forestry, and fisheries 010-031	21,935	104	96	B 89	B 63	A 79	A 85	B 86	82	77
Mining 040-050	2,554	220	111	95	63	98	78	B 57	67	95
Construction 060	16,202	A 149	100	A 103	115	B 130	98	B 86	A 127	103
Manufacturing 100-392	32,014	72	93	B 103	99	95	B 118	B 110	108	91
Nondurable goods 100-222	14,039	98	99	101	103	90	117	B 119	105	85
Food and kindred products 100-130	3,900	28	121	102	93	127	121	B 135	96	82
Textile mill and finished products 132-152	4,333	155	108	B 92	108	70	87	93	80	66
Paper and allied products 160-162	1,524	318	67	106	106	66	B 184	A 143	78	128
Printing, publishing, and allied products 171-172	1,438	-	61	104	92	152	117	106	A 201	71
Chemicals and allied products 180-192	1,143	-	71	107	170	50	130	128	190	78
Petroleum and coal products 200-201	248	-	-	110	-	-	108	A 195	-	-
Rubber, plastics, and leather products 210-222	1,453	88	119	A 110	80	64	116	121	84	142
Durable goods 230-392	17,975	A 52	87	B 105	96	99	A 119	104	111	95
Lumber and other wood products, and furniture 230-242	2,842	64	83	99	82	78	110	91	76	105
Stone, clay, glass, and concrete products 250-262	923	-	51	102	72	45	79	95	B 270	32
Primary metal industries 270-280	2,030	-	143	101	102	80	130	101	86	150
Fabricated metal industries 281-301	1,745	-	91	103	101	A 163	139	113	41	113
Machinery, except electrical 310-332	3,223	124	A 50	B 111	80	110	119	94	111	124
Electrical machinery, equipment, and supplies 340-350	1,430	-	106	107	97	82	114	132	49	68
Transportation equipment 351-370	3,673	67	67	B 111	107	100	106	102	145	86
Miscellaneous manufacturing industries 371-392	2,109	61	126	103	119	120	149	115	149	31
Transportation, communications, and other public utilities 400-472	14,696	68	101	B 104	A 121	104	91	101	115	107
Transportation 400-432	11,200	70	94	102	108	102	83	98	113	103
Railroads 400	4,300	101	80	A 107	122	110	A 63	108	102	89
Trucking and warehousing 410-411	3,305	36	97	100	96	94	B 46	79	141	128
Other transportation 401-402, 412-432	3,595	62	112	98	108	101	A 139	102	99	96
Communications 440-442	883	-	84	107	121	40	158	B 165	107	150
Utilities and sanitary services 460-472	2,613	79	135	B 111	B 169	129	103	95	123	106
Wholesale trade 500-571	4,557	54	99	A 106	107	85	95	116	69	80
Retail trade 580-691	12,855	97	117	102	113	116	94	108	83	119
Food, bakery, and dairy stores 601-611	2,403	160	92	100	84	72	96	A 72	74	117
Auto dealers and supply stores 612-620	1,786	144	B 200	102	120	104	93	105	54	74
Eating and drinking places 641	2,042	112	89	100	A 171	B 181	89	116	78	151
Other retail trade 580-600, 621-640, 642-691	6,624	57	113	103	103	112	96	A 119	96	122
Finance, insurance, and real estate 700-712	3,704	103	83	104	97	83	109	117	105	101
Business and repair services 721-760	4,801	150	74	103	111	108	90	96	73	107
Automotive services and repair 750-751	2,409	198	81	103	131	121	84	102	62	93
Other business and repair services 721-742, 752-760	2,392	101	67	102	93	94	95	89	83	122
Personal services 761-791	3,028	87	131	97	117	85	77	89	116	111
Private households 761	554	293	A 196	A 82	106	91	18	67	176	139
Beauty and barber shops 772-780	616	-	171	92	33	90	114	84	128	55
Other personal services 762-771, 781-791	1,858	-	88	103	145	82	89	97	97	117
Entertainment and recreation services 800-802	1,097	-	92	102	148	105	62	74	93	A 238

Professional and related services	812-892	8,594	115	102	101	84	86	110	B 122	117	103
Health services	812-840	2,161	50	83	106	111	93	121	95	148	73
Educational services	842-860	3,464	93	97	102	68	95	98	B 129	99	62
Social services	861-881	1,675	242	126	A 89	44	77	145	A 138	76	172
Legal, engineering, and other services	841, 882-892	1,294	(¹)	113	103	133	58	77	127	168	186
Public administration	900-932	6,060	56	88	100	97	113	97	87	109	112
Military	942	2,696	134	99	A 107	96	94	B 160	113	50	156
Industry not reported	951-990	5,922	160	A 136	B 85	110	98	86	94	87	96

Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Cancer of gall-bladder (156)	Cancer of pancreas (157)	Cancer of larynx (161)	Cancer of trachea, bronchus, lung (162)	Cancer of pleura (163)	Cancer of bone (170)	Cancer of connective tissue (171)	Malignant melanoma of skin (172)	Cancer of female breast (174)	Cancer of cervix uteri (180)	
	Number of deaths										
All industries	183	1,443	377	11,314	35	62	176	424	...	...
	Proportionate mortality ratios										
Agriculture, forestry, and fisheries 010-031	111	96	B 61	B 81	A 19	A 35	102	A 65	...	...
Mining 040-050	86	88	92	113	-	170	31	61	...	...
Construction 060	88	91	118	B 114	178	90	B 49	89	...	...
Manufacturing 100-392	92	98	105	B 107	B 180	137	103	95	...	...
Nondurable goods 100-222	91	107	96	101	110	84	84	87	...	...
Food and kindred products 100-130	118	114	111	94	-	119	66	67	...	...
Textile mill and finished products 132-152	105	76	83	100	273	55	39	59	...	...
Paper and allied products 160-162	-	122	118	94	(1)	(1)	107	105	...	...
Printing, publishing, and allied products 171-172	102	113	52	95	-	(1)	172	183	...	...
Chemicals and allied products 180-192	68	A 159	115	103	-	-	195	104	...	...
Petroleum and coal products 200-201	-	112	(1)	118	-	-	(1)	-	...	...
Rubber, plastics, and leather products 210-222	102	113	81	B 130	-	-	-	96	...	...
Durable goods 230-392	93	92	111	B 112	A 234	A 177	116	100	...	...
Lumber and other wood products, and furniture 230-242	88	107	49	A 115	-	70	112	41	...	...
Stone, clay, glass, and concrete products 250-262	85	100	37	A 124	(1)	-	253	36	...	...
Primary metal industries 270-280	114	105	A 189	104	405	345	84	88	...	...
Fabricated metal industries 281-301	86	85	121	110	-	(1)	88	51	...	...
Machinery, except electrical 310-332	68	101	B 218	B 115	220	75	122	113	...	...
Electrical machinery, equipment, and supplies 340-350	52	90	73	106	-	(1)	95	138	...	...
Transportation equipment 351-370	99	91	64	B 115	B 579	131	127	A 167	...	...
Miscellaneous manufacturing industries 371-392	143	A 50	102	102	-	B 532	106	68	...	...
Transportation, communications, and other public utilities 400-472	139	112	105	104	107	48	135	83	...	...
Transportation 400-432	128	109	94	105	106	65	129	72	...	...
Railroads 400	105	124	121	A 113	198	181	149	66	...	...
Trucking and warehousing 410-411	207	106	116	B 114	-	-	123	61	...	...
Other transportation 401-402, 412-432	84	95	47	A 87	(1)	-	116	92	...	...
Communications 440-442	-	119	164	84	-	-	322	117	...	...
Utilities and sanitary services 460-472	A 238	125	130	107	(1)	-	92	113	...	...
Wholesale trade 500-571	82	117	119	106	250	102	A 17	130	...	...
Retail trade 580-691	77	112	125	100	-	155	78	122	...	...
Food, bakery, and dairy stores 601-611	95	122	120	111	-	287	103	88	...	...
Auto dealers and supply stores 612-620	84	101	60	103	-	A 491	81	141	...	...
Eating and drinking places 641	40	106	172	88	-	-	97	59	...	...
Other retail trade 580-600, 621-640, 642-691	79	112	131	99	-	70	61	A 148	...	...
Finance, insurance, and real estate 700-712	161	130	103	90	-	-	178	A 168	...	...
Business and repair services 721-760	98	81	133	A 110	-	-	111	82	...	...
Automotive services and repair 750-751	97	73	164	111	-	-	28	A 33	...	...
Other business and repair services 721-742, 752-760	98	89	103	110	-	-	191	130	...	...
Personal services 761-791	163	92	85	101	-	-	111	94	...	...
Private households 761	383	109	121	80	-	-	-	(1)	...	...
Beauty and barber shops 772-780	(1)	103	69	90	-	-	-	129	...	...
Other personal services 762-771, 781-791	128	84	78	111	-	-	173	79	...	...

Entertainment and recreation services	800-802	142	153	34	106	-	349	125	105	...	...
Professional and related services	812-892	89	A 122	66	B 79	47	216	B 189	B 196	...	...
Health services	812-840	71	128	65	90	-	203	179	A 176	...	...
Educational services	842-860	134	121	89	B 82	(1)	279	190	B 247	...	...
Social services	861-881	46	140	68	B 58	-	(1)	107	135	...	...
Legal, engineering, and other services	841, 882-892	57	91	-	A 79	-	(1)	297	169	...	...
Public administration	900-932	111	90	122	98	61	122	134	114	...	...
Military	942	-	A 65	130	100	(1)	86	69	106	...	...
Industry not reported	951-990	76	A 69	59	B 88	177	82	87	A 55	...	...

Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes.]

Industry	Cancer of body of uterus (182)	Cancer of ovary (183)	Cancer of prostate (185)	Cancer of testis (186)	Cancer of bladder (188)	Cancer of kidney, urinary organs (189)	Cancer of brain, nervous system (191-192)	Hodgkin's disease (201)	Other malignant lymphoma (200, 202)	Multiple myeloma, immunoproliferative neoplasms (203)
Number of deaths										
All industries	3,453	47	803	767	714	153	929	511
Proportionate mortality ratios										
Agriculture, forestry, and fisheries 010-031	103	56	A 85	A 79	106	131	112	98
Mining 040-050	88	-	79	A 166	68	34	A 52	123
Construction 060	101	124	A 79	99	86	B 33	B 75	100
Manufacturing 100-392	100	134	105	98	98	120	92	104
Nondurable goods 100-222	99	163	89	95	103	124	95	94
Food and kindred products 100-130	90	(¹)	104	127	95	132	78	89
Textile mill and finished products 132-152	87	96	82	71	107	197	98	105
Paper and allied products 160-162	A 139	488	100	125	86	65	85	139
Printing, publishing, and allied products 171-172	105	(¹)	81	73	108	71	143	58
Chemicals and allied products 180-192	107	(¹)	64	119	61	-	64	45
Petroleum and coal products 200-201	75	-	128	73	336	-	180	-
Rubber, plastics, and leather products 210-222	109	-	79	50	126	145	102	116
Durable goods 230-392	100	116	117	101	94	118	90	111
Lumber and other wood products, and furniture 230-242	98	-	105	102	74	93	87	67
Stone, clay, glass, and concrete products 250-262	85	(¹)	138	39	101	94	49	56
Primary metal industries 270-280	89	(¹)	102	81	49	100	83	102
Fabricated metal industries 281-301	105	(¹)	80	98	121	105	65	92
Machinery, except electrical 310-332	98	198	111	92	85	145	115	A 169
Electrical machinery, equipment, and supplies 340-350	101	-	117	139	156	149	115	95
Transportation equipment 351-370	110	188	137	124	90	123	88	120
Miscellaneous manufacturing industries 371-392	104	-	144	91	101	116	89	131
Transportation, communications, and other public utilities 400-472	101	51	113	102	102	95	115	87
Transportation 400-432	102	35	103	104	85	74	112	88
Railroads 400	100	-	108	84	130	35	104	83
Trucking and warehousing 410-411	79	-	104	A 143	B 43	45	113	116
Other transportation 401-402, 412-432	A 121	(¹)	96	87	95	141	120	65
Communications 440-442	97	(¹)	167	115	77	85	96	95
Utilities and sanitary services 460-472	98	-	138	88	B 182	181	133	81
Wholesale trade 500-571	103	65	133	101	114	139	108	138
Retail trade 580-691	92	100	102	102	114	94	106	112
Food, bakery, and dairy stores 601-611	92	(¹)	91	95	131	163	121	133
Auto dealers and supply stores 612-620	92	(¹)	81	117	136	87	88	108
Eating and drinking places 641	101	82	134	112	73	66	89	142
Other retail trade 580-600, 621-640, 642-691	89	91	103	98	114	85	112	96
Finance, insurance, and real estate 700-712	109	-	101	129	94	192	131	120
Business and repair services 721-760	111	156	101	117	108	86	87	A 52
Automotive services and repair 750-751	108	155	121	67	98	114	131	70
Other business and repair services 721-742, 752-760	114	157	82	A 167	118	58	A 42	35
Personal services 761-791	87	-	90	97	52	65	88	87
Private households 761	68	-	40	40	-	-	75	85
Beauty and barber shops 772-780	69	-	134	32	116	-	79	93
Other personal services 762-771, 781-791	100	-	86	132	45	99	94	86

Entertainment and recreation services	800-802	...	...	76	(1)	120	118	50	244	81	52
Professional and related services	812-892	...	...	111	164	112	113	A 131	89	B 146	105
Health services	812-840	...	...	116	(1)	149	100	105	158	B 173	124
Educational services	842-860	...	...	106	356	136	122	133	30	139	105
Social services	861-881	...	...	109	-	51	68	144	66	105	125
Legal, engineering, and other services	841, 882-892	...	...	122	-	67	164	153	128	A 165	44
Public administration	900-932	...	...	112	142	106	106	126	50	115	98
Military	942	...	...	B 139	88	100	129	86	156	111	124
Industry not reported	951-990	...	...	B 56	60	121	A 61	71	122	B 47	77

Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Leukemia (204-208)	All other cancers (152... 193-199)	Diabetes mellitus (250)	Aplastic anemia (284)	Diseases of heart (390-398, 402, 404-429)	Hypertensive heart disease (402)	Hypertensive heart, renal disease (404)	Ischemic heart disease (410-414)	Acute myocardial infarction (410)	All other ischemic heart disease (411-414)
Number of deaths										
All industries	1,179	2,843	1,930	63	53,414	1,065	165	39,510	23,959	15,551
Proportionate mortality ratios										
Agriculture, forestry, and fisheries 010-031	A 114	92	92	103	B 103	B 81	123	B 104	B 115	B 89
Mining 040-050	128	98	97	-	A 94	93	36	A 94	103	B 80
Construction 060	85	107	B 75	100	B 96	A 81	63	B 94	B 94	B 94
Manufacturing 100-392	96	97	103	63	100	107	84	101	A 98	B 107
Nondurable goods 100-222	92	96	101	93	100	113	80	101	98	B 106
Food and kindred products 100-130	95	114	108	55	100	86	63	103	B 90	B 123
Textile mill and finished products 132-152	80	88	93	101	A 104	97	78	103	A 108	96
Paper and allied products 160-162	92	69	116	-	102	138	124	103	109	94
Printing, publishing, and allied products 171-172	114	99	104	(¹)	96	83	129	95	A 87	106
Chemicals and allied products 180-192	104	106	61	-	98	B 186	82	98	94	107
Petroleum and coal products 200-201	95	98	88	-	95	114	-	92	100	79
Rubber, plastics, and leather products 210-222	89	86	124	292	A 94	B 184	60	98	91	109
Durable goods 230-392	99	97	105	38	100	103	88	101	98	B 107
Lumber and other wood products, and furniture 230-242	79	94	87	-	96	98	53	A 94	101	B 83
Stone, clay, glass, and concrete products 250-262	52	112	60	-	100	60	183	98	103	90
Primary metal industries 270-280	108	90	111	-	97	137	79	98	94	104
Fabricated metal industries 281-301	101	76	A 140	-	104	124	-	105	96	B 120
Machinery, except electrical 310-332	108	115	121	-	102	108	156	A 105	98	B 117
Electrical machinery, equipment, and supplies 340-350	145	79	88	(¹)	103	139	85	102	91	B 121
Transportation equipment 351-370	121	98	105	62	101	71	137	104	100	A 111
Miscellaneous manufacturing industries 371-392	A 50	103	108	(¹)	98	109	-	100	96	107
Transportation, communications, and other public utilities 400-472	99	103	A 116	122	99	105	107	99	98	101
Transportation 400-432	95	102	A 117	139	100	103	101	100	99	100
Railroads 400	122	103	B 137	141	99	107	73	98	97	100
Trucking and warehousing 410-411	B 32	113	94	225	97	103	137	98	96	102
Other transportation 401-402, 412-432	124	92	115	64	103	97	120	102	104	100
Communications 440-442	170	87	A 157	-	101	86	-	103	102	106
Utilities and sanitary services 460-472	93	113	97	87	95	117	165	96	93	103
Wholesale trade 500-571	121	97	87	193	102	93	84	103	102	103
Retail trade 580-691	100	99	A 114	136	101	117	79	102	100	104
Food, bakery, and dairy stores 601-611	79	88	122	177	101	118	35	100	106	93
Auto dealers and supply stores 612-620	105	110	132	(¹)	101	66	116	104	100	112
Eating and drinking places 641	64	95	B 165	(¹)	101	126	-	101	92	A 114
Other retail trade 580-600, 621-640, 642-691	117	101	91	130	101	127	109	101	100	104
Finance, insurance, and real estate 700-712	105	101	110	59	102	124	142	102	94	B 114
Business and repair services 721-760	92	102	107	148	A 96	94	176	96	95	99
Automotive services and repair 750-751	68	113	75	195	B 93	73	264	94	95	93
Other business and repair services 721-742, 752-760	117	91	A 139	(¹)	98	114	88	99	95	105
Personal services 761-791	111	118	100	75	96	92	66	95	97	92
Private households 761	75	135	A 33	-	97	94	-	96	107	80
Beauty and barber shops 772-780	98	154	47	-	103	64	225	100	101	99
Other personal services 762-771, 781-791	124	101	A 140	(¹)	A 94	99	40	93	93	92

Entertainment and recreation services	800-802	140	95	99	407	98	96	256	94	A 86	106
Professional and related services	812-892	110	94	99	104	B 103	A 128	133	A 104	101	B 110
Health services	812-840	116	98	85	-	99	116	40	101	96	108
Educational services	842-860	117	94	108	66	103	100	95	A 106	105	108
Social services	861-881	88	80	123	401	B 115	147	A 281	B 113	110	A 117
Legal, engineering, and other services	841, 882-892	107	103	68	-	98	B 222	153	93	B 84	107
Public administration	900-932	92	95	115	76	A 103	103	93	104	99	B 112
Military	942	108	124	78	-	95	99	108	A 93	92	95
Industry not reported	951-990	A 67	116	103	131	97	92	99	B 91	B 92	B 89

Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	All other diseases of heart (390-398, 415-429)	Hypertension with or without renal disease (401, 403)	Cerebro-vascular diseases (430-438)	Atherosclerosis (440)	Pneumonia and influenza (480-487)	Chronic obstructive pulmonary diseases (490-496)	Pneumo-conioses and pneumopathy (500-505)	Ulcer of stomach and duodenum (531-533)	Chronic liver disease and cirrhosis (571)	Nephritis and nephrosis (580-589)
Number of deaths										
All industries	12,674	497	9,108	1,346	4,023	6,603	121	470	1,896	1,381
Proportionate mortality ratios										
Agriculture, forestry, and fisheries 010-031	A 104	102	B 112	107	100	B 91	B 43	A 79	B 77	109
Mining 040-050	95	60	A 83	107	107	B 141	B 2,857	116	66	104
Construction 060	102	109	99	86	100	B 119	A 45	106	A 112	100
Manufacturing 100-392	B 96	103	102	103	98	99	A 65	92	103	101
Nondurable goods 100-222	96	117	A 107	96	101	99	A 32	91	100	105
Food and kindred products 100-130	92	105	92	105	99	99	58	76	94	A 135
Textile mill and finished products 132-152	106	109	B 120	89	106	110	52	123	83	96
Paper and allied products 160-162	94	116	97	106	115	99	-	119	90	114
Printing, publishing, and allied products 171-172	101	189	100	85	98	98	-	101	143	59
Chemicals and allied products 180-192	89	149	106	85	74	90	-	83	120	96
Petroleum and coal products 200-201	106	228	A 148	119	162	B 15	-	-	140	81
Rubber, plastics, and leather products 210-222	B 74	61	A 119	93	89	89	-	20	113	92
Durable goods 230-392	96	92	99	109	95	99	91	93	105	98
Lumber and other wood products, and furniture 230-242	103	88	110	A 147	98	105	43	106	77	104
Stone, clay, glass, and concrete products 250-262	109	144	94	72	74	117	B 643	67	72	91
Primary metal industries 270-280	92	52	105	94	104	112	169	89	104	113
Fabricated metal industries 281-301	100	106	91	103	82	80	67	70	99	110
Machinery, except electrical 310-332	90	96	95	95	97	88	35	122	122	90
Electrical machinery, equipment, and supplies 340-350	103	A 232	99	129	103	101	86	44	124	78
Transportation equipment 351-370	92	49	90	78	83	97	63	92	115	84
Miscellaneous manufacturing industries 371-392	90	88	104	A 150	112	106	-	101	101	111
Transportation, communications, and other public utilities 400-472	98	107	B 89	94	102	107	B 24	109	88	87
Transportation 400-432	101	105	B 87	93	106	B 113	A 31	116	A 83	87
Railroads 400	104	115	B 83	85	104	105	50	142	79	82
Trucking and warehousing 410-411	93	150	102	83	111	B 131	-	98	92	90
Other transportation 401-402, 412-432	103	54	B 80	111	107	107	32	99	77	93
Communications 440-442	95	36	104	98	90	89	-	105	111	80
Utilities and sanitary services 460-472	89	137	96	98	88	84	-	80	100	87
Wholesale trade 500-571	99	105	95	116	A 81	95	50	85	91	76
Retail trade 580-691	98	98	97	89	96	A 92	A 27	73	102	A 78
Food, bakery, and dairy stores 601-611	101	122	100	113	100	85	94	61	71	134
Auto dealers and supply stores 612-620	94	53	100	62	92	95	67	52	77	58
Eating and drinking places 641	103	88	94	85	97	102	-	80	131	91
Other retail trade 580-600, 621-640, 642-691	97	103	96	86	96	92	A-	80	110	B 58
Finance, insurance, and real estate 700-712	102	71	94	89	84	A 84	31	141	109	89
Business and repair services 721-760	92	91	96	96	103	B 119	-	113	118	97
Automotive services and repair 750-751	89	129	100	119	107	A 123	-	79	124	116
Other business and repair services 721-742, 752-760	95	52	92	74	99	116	-	148	112	78
Personal services 761-791	102	80	97	A 146	118	100	40	153	92	112
Private households 761	100	129	95	A 230	A 154	79	-	241	55	66
Beauty and barber shops 772-780	112	85	92	94	133	70	(¹)	92	116	172
Other personal services 762-771, 781-791	99	56	100	145	102	115	-	150	96	109

Entertainment and recreation services	800-802	111	221	96	103	83	102	-	146	A 151	B 199
Professional and related services	812-892	99	112	100	104	89	B 78	A 27	111	96	86
Health services	812-840	93	105	93	87	107	89	-	141	95	73
Educational services	842-860	92	94	104	113	85	B 80	33	103	105	88
Social services	861-881	A 116	120	99	93	80	B 57	70	106	A 50	102
Legal, engineering, and other services	841, 882-892	105	170	101	122	84	83	-	91	121	76
Public administration	900-932	102	71	101	81	94	91	113	104	99	104
Military	942	102	75	A 79	68	108	99	-	B 208	B 163	106
Industry not reported	951-990	B 114	82	94	109	B 159	B 121	124	120	84	B 153

Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Accidents and adverse effects (E800-E949)	Motor vehicle accidents (E810-E825)	Accidents mainly of industrial type (E846 . . . E923-E926)	Other accidents (E800-E807 . . . E927-E949)	Suicide (E950-E959)	Homicide and legal intervention (E960-E978)	All other causes (Residual)
Number of deaths							
All industries	7,321	3,587	657	3,077	3,216	1,408	14,842
Proportionate mortality ratios							
Agriculture, forestry, and fisheries 010-031	B 127	B 117	B 246	B 118	102	90	99
Mining 040-050	B 144	113	B 419	119	98	98	B 80
Construction 060	B 116	B 109	B 143	B 118	96	A 115	B 93
Manufacturing 100-392	102	B 110	92	96	A 93	B 79	B 94
Nondurable goods 100-222	99	A 113	B 67	92	95	B 74	97
Food and kindred products 100-130	101	A 125	91	A 78	86	86	100
Textile mill and finished products 132-152	93	101	A 53	92	98	81	94
Paper and allied products 160-162	95	107	77	87	71	76	A 85
Printing, publishing, and allied products 171-172	89	112	35	76	92	51	A 116
Chemicals and allied products 180-192	B 130	124	102	A 143	103	60	91
Petroleum and coal products 200-201	127	191	-	94	122	85	81
Rubber, plastics, and leather products 210-222	93	98	35	101	125	42	99
Durable goods 230-392	104	A 108	108	98	93	B 82	B 92
Lumber and other wood products, and furniture 230-242	B 137	B 130	B 262	119	100	97	90
Stone, clay, glass, and concrete products 250-262	111	116	175	90	104	120	100
Primary metal industries 270-280	98	109	73	92	94	123	96
Fabricated metal industries 281-301	99	94	94	107	84	68	100
Machinery, except electrical 310-332	88	94	A 47	91	94	B 44	A 88
Electrical machinery, equipment, and supplies 340-350	106	104	126	103	93	57	B 74
Transportation equipment 351-370	93	113	A 47	82	83	A 60	97
Miscellaneous manufacturing industries 371-392	98	98	72	104	97	92	90
Transportation, communications, and other public utilities 400-472	96	110	88	B 84	106	110	99
Transportation 400-432	97	A 115	A 66	A 87	111	113	98
Railroads 400	90	A 66	94	105	A 128	102	96
Trucking and warehousing 410-411	102	B 141	A 45	B 68	102	108	94
Other transportation 401-402, 412-432	97	109	78	89	110	125	103
Communications 440-442	91	87	101	93	87	66	97
Utilities and sanitary services 460-472	94	100	A 165	A 72	94	117	106
Wholesale trade 500-571	106	100	111	112	105	111	A 90
Retail trade 580-691	B 89	99	B 40	A 87	98	112	A 106
Food, bakery, and dairy stores 601-611	88	100	45	81	97	98	108
Auto dealers and supply stores 612-620	90	98	A 39	91	104	112	101
Eating and drinking places 641	94	100	B 14	105	94	122	93
Other retail trade 580-600, 621-640, 642-691	B 86	98	B 50	A 80	98	109	B 110
Finance, insurance, and real estate 700-712	95	80	94	110	117	99	98
Business and repair services 721-760	A 90	97	87	A 80	111	A 127	101
Automotive services and repair 750-751	95	103	99	83	105	B 142	100
Other business and repair services 721-742, 752-760	A 85	91	75	78	117	112	102
Personal services 761-791	87	A 76	53	106	A 129	124	107
Private households 761	105	104	118	103	128	A 152	116
Beauty and barber shops 772-780	A 53	58	-	58	117	81	A 124
Other personal services 762-771, 781-791	89	A 70	46	120	A 132	115	98

Entertainment and recreation services	800-802	A 81	80	56	89	124	87	94
Professional and related services	812-892	93	96	B 49	100	102	A 74	105
Health services	812-840	90	81	A 38	110	B 143	A 61	107
Educational services	842-860	95	101	58	96	84	A 66	103
Social services	861-881	100	115	86	90	B 45	108	101
Legal, engineering, and other services	841, 882-892	89	91	A 16	104	128	94	111
Public administration	900-932	B 80	95	B 37	B 75	93	83	104
Military	942	93	100	B 11	105	99	B 59	108
Industry not reported	951-990	B 73	B 64	B 36	97	99	A 116	B 143

¹Proportionate mortality ratio not computed since observed deaths equaled 1 and expected deaths were less than 1.0.

A-Proportionate mortality ratio is significantly different from 100 at the 0.05 level of significance; see Technical notes.

B-Proportionate mortality ratio is significantly different from 100 at the 0.01 level of significance; see Technical notes.

Table 4. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Number of deaths	Tuberculosis (010-018, 137)	Septicemia (038)	All cancers (140-208)	Cancer of oral cavity (140-149)	Cancer of esophagus (150)	Cancer of stomach (151)	Cancer of colon (153)	Cancer of rectum (154)	Cancer of liver (155)	
Number of deaths											
All industries	129,082	100	1,096	27,667	374	272	717	3,433	517	350	
Proportionate mortality ratios											
Agriculture, forestry, and fisheries	010-031	1,110	65	71	98	157	135	118	79	158	102
Mining	040-050	47	-	-	120	-	-	-	-	-	-
Construction	060	317	(¹)	44	116	277	(¹)	114	127	-	-
Manufacturing	100-392	10,547	127	94	B 108	90	117	108	94	92	103
Nondurable goods	100-222	7,881	138	105	104	91	96	101	98	99	88
Food and kindred products	100-130	1,154	-	A 180	103	78	72	144	84	122	114
Textile mill and finished products	132-152	4,354	184	93	98	114	107	99	93	59	103
Paper and allied products	160-162	266	(¹)	141	112	-	-	66	39	82	(¹)
Printing, publishing, and allied products	171-172	608	-	67	B 131	98	171	59	127	188	55
Chemicals and allied products	180-192	205	-	64	120	-	-	247	166	(¹)	-
Petroleum and coal products	200-201	17	-	-	76	(¹)	-	-	(¹)	-	-
Rubber, plastics, and leather products	210-222	1,077	(¹)	87	104	27	89	66	114	188	31
Durable goods	230-392	2,866	95	61	B 118	89	171	124	86	75	139
Lumber and other wood products, and furniture	230-242	202	-	63	101	(¹)	(¹)	-	86	-	(¹)
Stone, clay, glass, and concrete products	250-262	84	-	-	109	-	(¹)	(¹)	41	-	-
Primary metal industries	270-280	135	-	93	102	-	-	-	124	(¹)	-
Fabricated metal industries	281-301	290	-	-	B 124	-	(¹)	118	94	148	219
Machinery, except electrical	310-332	334	(¹)	42	115	78	302	155	41	-	94
Electrical machinery, equipment, and supplies	340-350	551	-	126	B 121	170	234	208	112	112	156
Transportation equipment	351-370	375	(¹)	71	B 129	68	(¹)	45	115	57	164
Miscellaneous manufacturing industries	371-392	895	-	44	B 116	86	97	133	70	73	140
Transportation, communications, and other public utilities	400-472	2,085	137	62	B 111	141	74	106	124	A 185	69
Transportation	400-432	912	(¹)	94	A 113	142	53	177	125	188	39
Railroads	400	249	-	90	122	(¹)	-	74	A 186	210	-
Trucking and warehousing	410-411	148	-	-	108	(¹)	-	227	119	302	-
Other transportation	401-402, 412-432	515	(¹)	119	111	122	93	211	97	143	68
Communications	440-442	927	(¹)	A 14	108	145	119	61	116	181	118
Utilities and sanitary services	460-472	246	-	108	112	(¹)	-	-	146	186	-
Wholesale trade	500-571	713	-	114	A 115	80	144	198	128	157	45
Retail trade	580-691	8,781	94	90	A 104	124	114	102	103	93	89
Food, bakery, and dairy stores	601-611	1,097	-	72	106	54	181	82	100	168	30
Auto dealers and supply stores	612-620	165	-	87	102	(¹)	-	-	21	257	(¹)
Eating and drinking places	641	2,605	47	76	94	B 198	A 185	111	84	71	99
Other retail trade	580-600, 621-640, 642-691	4,914	149	101	B 110	97	61	105	116	81	94
Finance, insurance, and real estate	700-712	2,053	72	117	B 121	98	148	86	A 133	146	127
Business and repair services	721-760	847	-	120	102	68	155	41	114	168	37
Automotive services and repair	750-751	53	-	-	A 153	-	-	-	-	(¹)	-
Other business and repair services	721-742, 752-760	794	-	128	99	73	165	44	121	150	40
Personal services	761-791	7,115	97	113	96	85	93	90	90	97	99
Private households	761	4,334	106	114	B 92	70	77	88	89	116	116
Beauty and barber shops	772-780	773	-	76	A 113	36	51	149	109	58	40
Other personal services	762-771, 781-791	2,008	97	121	96	133	151	74	84	77	90
Entertainment and recreation services	800-802	413	-	153	110	259	317	169	115	-	-

Professional and related services	812-892	15,387	110	87	B 114	75	102	103	B 113	A 124	98
Health services	812-840	6,183	121	101	103	64	120	79	98	119	57
Educational services	842-860	7,376	90	A 71	B 121	60	78	122	B 124	128	130
Social services	861-881	1,189	215	122	B 121	107	148	146	A 135	122	148
Legal, engineering, and other services	841, 882-892	639	-	66	B 129	A 275	85	57	97	145	101
Public administration	900-932	2,197	59	104	B 118	161	96	85	A 128	111	A 174
Military	942	93	-	(1)	117	718	-	-	85	-	-
Industry not reported	951-990	77,377	98	103	B 93	99	93	99	B 96	A 92	102

Table 4. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.

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Industry	Cancer of gall-bladder (156)	Cancer of pancreas (157)	Cancer of larynx (161)	Cancer of trachea, bronchus, lung (162)	Cancer of pleura (163)	Cancer of bone (170)	Cancer of connective tissue (171)	Malignant melanoma of skin (172)	Cancer of female breast (174)	Cancer of cervix uteri (180)
Number of deaths										
All industries	367	1,532	88	4,466	13	56	200	301	5,110	606
Proportionate mortality ratios										
Agriculture, forestry, and fisheries 010-031	74	81	(1)	95	-	-	-	56	106	75
Mining 040-050	-	(1)	-	150	-	-	-	-	197	-
Construction 060	-	104	(1)	141	(1)	-	(1)	83	113	93
Manufacturing 100-392	105	106	78	B 117	77	75	127	66	105	B 141
Nondurable goods 100-222	127	103	32	104	(1)	110	131	69	100	A 136
Food and kindred products 100-130	119	75	-	A 129	(1)	(1)	90	33	104	148
Textile mill and finished products 132-152	105	90	30	91	-	98	139	73	91	123
Paper and allied products 160-162	238	143	-	93	-	-	(1)	-	132	137
Printing, publishing, and allied products 171-172	159	158	-	136	-	-	98	111	A 142	130
Chemicals and allied products 180-192	-	A 255	(1)	114	-	-	-	(1)	A 156	267
Petroleum and coal products 200-201	-	-	-	-	-	-	-	-	-	-
Rubber, plastics, and leather products 210-222	201	114	-	108	-	(1)	182	68	88	142
Durable goods 230-392	45	112	177	B 146	-	-	118	61	A 116	A 152
Lumber and other wood products, and furniture 230-242	(1)	75	(1)	147	-	-	(1)	485	106	159
Stone, clay, glass, and concrete products 250-262	-	-	-	113	-	-	-	-	119	-
Primary metal industries 270-280	-	56	-	114	-	-	(1)	-	120	274
Fabricated metal industries 281-301	-	132	-	B 204	-	-	(1)	-	110	111
Machinery, except electrical 310-332	99	115	(1)	146	-	-	-	-	111	214
Electrical machinery, equipment, and supplies 340-350	-	155	(1)	B 161	-	-	162	48	78	174
Transportation equipment 351-370	-	137	555	131	-	-	-	-	134	251
Miscellaneous manufacturing industries 371-392	74	94	-	A 132	-	-	105	68	B 139	85
Transportation, communications, and other public utilities 400-472	116	93	275	91	-	202	114	102	101	82
Transportation 400-432	197	93	306	92	-	(1)	61	153	76	74
Railroads 400	(1)	70	-	89	-	-	-	(1)	51	347
Trucking and warehousing 410-411	450	104	(1)	94	-	-	-	-	44	-
Other transportation 401-402, 412-432	144	100	(1)	92	-	(1)	100	194	95	30
Communications 440-442	72	101	330	87	-	(1)	212	79	125	72
Utilities and sanitary services 460-472	-	65	-	99	-	-	-	-	110	145
Wholesale trade 500-571	45	55	337	91	(1)	-	75	257	127	150
Retail trade 580-691	95	92	44	B 123	-	41	115	98	101	110
Food, bakery, and dairy stores 601-611	151	102	-	120	-	-	102	121	113	102
Auto dealers and supply stores 612-620	-	47	(1)	132	-	-	(1)	-	137	-
Eating and drinking places 641	66	97	87	B 129	-	53	105	74	B 75	A 151
Other retail trade 580-600, 621-640, 642-691	100	88	-	B 120	-	43	120	112	112	87
Finance, insurance, and real estate 700-712	49	A 149	59	115	-	174	122	115	B 133	85
Business and repair services 721-760	172	A 163	264	113	-	324	-	101	86	98
Automotive services and repair 750-751	(1)	B 615	-	239	-	-	-	-	127	(1)
Other business and repair services 721-742, 752-760	137	133	284	104	-	351	-	109	83	88
Personal services 761-791	119	110	130	110	-	-	93	148	91	75
Private households 761	141	102	65	94	-	-	83	82	89	79
Beauty and barber shops 772-780	128	B 181	274	B 145	-	-	127	258	84	80
Other personal services 762-771, 781-791	75	100	191	121	-	-	102	180	97	63
Entertainment and recreation services 800-802	-	136	-	113	-	(1)	(1)	140	111	32

Professional and related services	812-892	84	A 114	85	104	56	137	115	110	B 131	84
Health services	812-840	72	101	106	B 119	(¹)	174	118	97	101	94
Educational services	842-860	91	B 127	64	B 83	-	104	92	132	B 158	75
Social services	861-881	119	83	-	116	-	(¹)	47	62	B 159	60
Legal, engineering, and other services	841, 882-892	53	169	(¹)	126	-	-	A 370	128	131	100
Public administration	900-932	29	103	96	B 138	-	-	73	32	A 123	79
Military	942	(¹)	190	-	196	-	-	-	-	121	(¹)
Industry not reported	951-990	106	B 94	102	B 89	136	109	94	100	B 90	102

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Industry	Cancer of body of uterus (182)	Cancer of ovary (183)	Cancer of prostate (185)	Cancer of testis (186)	Cancer of bladder (188)	Cancer of kidney, urinary organs (189)	Cancer of brain, nervous system (191-192)	Hodgkin's disease (201)	Other malignant lymphoma (200, 202)	Multiple myeloma, immuno- proliferative neoplasms (203)
	Number of deaths									
All industries	458	1,569	...	...	426	475	633	79	924	522
	Proportionate mortality ratios									
Agriculture, forestry, and fisheries 010-031	45	85	...	...	112	195	167	-	110	61
Mining 040-050	-	(¹)	...	...	(¹)	-	-	-	-	-
Construction 060	87	A-	...	...	206	-	167	(¹)	37	-
Manufacturing 100-392	B 138	107	...	...	105	116	122	52	98	109
Nondurable goods 100-222	114	115	...	...	96	100	115	38	93	101
Food and kindred products 100-130	87	98	...	...	130	84	104	-	67	77
Textile mill and finished products 132-152	96	111	...	...	95	108	A 145	69	83	117
Paper and allied products 160-162	A 377	99	...	...	-	-	118	-	269	-
Printing, publishing, and allied products 171-172	87	A 166	...	...	98	38	79	-	176	115
Chemicals and allied products 180-192	-	112	...	...	-	-	63	-	56	-
Petroleum and coal products 200-201	-	-	...	...	-	-	-	-	-	-
Rubber, plastics, and leather products 210-222	185	125	...	...	106	168	47	-	76	103
Durable goods 230-392	B 197	90	...	...	129	A 156	136	80	110	127
Lumber and other wood products, and furniture 230-242	-	63	...	...	-	(¹)	69	(¹)	58	(¹)
Stone, clay, glass, and concrete products 250-262	(¹)	137	...	...	-	-	(¹)	-	-	(¹)
Primary metal industries 270-280	353	49	...	...	(¹)	-	(¹)	(¹)	-	(¹)
Fabricated metal industries 281-301	249	128	...	...	(¹)	A 376	95	-	117	74
Machinery, except electrical 310-332	298	121	...	...	-	A 334	76	-	67	66
Electrical machinery, equipment, and supplies 340-350	240	58	...	...	224	142	153	-	153	111
Transportation equipment 351-370	A 360	78	...	...	80	169	148	-	180	113
Miscellaneous manufacturing industries 371-392	55	101	...	...	175	73	170	-	103	172
Transportation, communications, and other public utilities 400-472	113	124	...	...	118	86	B 203	128	125	131
Transportation 400-432	97	116	...	...	174	114	B 286	282	118	163
Railroads 400	251	80	...	...	235	-	A 429	(¹)	122	(¹)
Trucking and warehousing 410-411	-	77	...	...	450	(¹)	159	-	153	(¹)
Other transportation 401-402, 412-432	58	144	...	...	64	149	B 294	(¹)	104	192
Communications 440-442	131	142	...	...	96	55	119	-	110	109
Utilities and sanitary services 460-472	(¹)	85	...	...	-	98	195	-	197	96
Wholesale trade 500-571	184	126	...	...	126	97	41	-	82	226
Retail trade 580-691	126	108	...	...	93	98	113	45	95	86
Food, bakery, and dairy stores 601-611	144	110	...	...	82	107	72	-	110	127
Auto dealers and supply stores 612-620	A 589	70	...	...	-	-	284	-	-	-
Eating and drinking places 641	96	93	...	...	97	81	73	41	107	A 26
Other retail trade 580-600, 621-640, 642-691	122	118	...	...	96	110	A 140	62	89	113
Finance, insurance, and real estate 700-712	92	110	...	...	91	57	126	162	117	102
Business and repair services 721-760	96	84	...	...	157	116	162	-	131	140
Automotive services and repair 750-751	-	329	...	...	-	-	-	-	-	-
Other business and repair services 721-742, 752-760	102	66	...	...	166	124	174	-	141	149
Personal services 761-791	109	95	...	...	93	69	66	91	90	97
Private households 761	106	91	...	...	96	71	72	143	73	93
Beauty and barber shops 772-780	87	91	...	...	77	90	117	-	94	191
Other personal services 762-771, 781-791	127	105	...	...	93	55	A 31	79	112	68
Entertainment and recreation services 800-802	-	46	...	...	159	178	98	-	210	168

Professional and related services	812-892	124	B 131	...	...	103	104	110	B 187	A 119	A 124
Health services	812-840	108	106	...	...	119	103	96	145	112	90
Educational services	842-860	129	B 160	...	...	98	119	131	206	119	B 159
Social services	861-881	209	120	...	...	78	65	106	235	112	161
Legal, engineering, and other services	841, 882-892	90	140	...	...	49	38	88	313	A 185	38
Public administration	900-932	97	119	...	...	136	71	147	128	76	99
Military	942	(¹)	78	...	...	-	-	-	-	(¹)	-
Industry not reported	951-990	B 85	B 90	...	...	97	101	B 86	96	97	94

Table 4. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.

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Industry	Leukemia (204–208)	All other cancers (152 . . . 193–199)	Diabetes mellitus (250)	Aplastic anemia (284)	Diseases of heart (390–398, 402, 404–429)	Hypertensive heart disease (402)	Hypertensive heart, renal disease (404)	Ischemic heart disease (410–414)	Acute myocardial infarction (410)	All other ischemic heart disease (411–414)
Number of deaths										
All industries	1,018	3,161	2,941	100	49,887	1,572	253	33,609	17,236	16,373
Proportionate mortality ratios										
Agriculture, forestry, and fisheries 010–031	83	118	106	–	101	97	213	99	101	97
Mining 040–050	–	257	–	–	112	–	–	101	108	95
Construction 060	98	B 194	87	–	B 78	35	–	B 69	B 59	81
Manufacturing 100–392	108	A 112	A 88	72	99	99	62	102	101	103
Nondurable goods 100–222	103	112	90	81	100	97	81	102	101	103
Food and kindred products 100–130	123	98	116	(¹)	95	122	50	99	97	103
Textile mill and finished products 132–152	94	117	96	112	102	97	84	A 105	106	104
Paper and allied products 160–162	84	A 180	81	–	91	69	–	94	92	95
Printing, publishing, and allied products 171–172	130	132	59	–	98	135	(¹)	91	83	101
Chemicals and allied products 180–192	51	68	62	–	85	91	–	85	87	83
Petroleum and coal products 200–201	–	(¹)	–	–	81	–	–	71	136	–
Rubber, plastics, and leather products 210–222	117	91	64	–	102	55	119	101	100	103
Durable goods 230–392	121	111	83	45	97	103	–	102	100	104
Lumber and other wood products, and furniture 230–242	53	53	138	–	89	132	–	91	101	77
Stone, clay, glass, and concrete products 250–262	–	A 293	206	–	92	–	–	76	47	116
Primary metal industries 270–280	–	80	151	–	113	196	–	115	116	114
Fabricated metal industries 281–301	37	75	44	–	97	136	–	104	89	125
Machinery, except electrical 310–332	A 245	85	65	–	106	160	–	A 121	109	A 137
Electrical machinery, equipment, and supplies 340–350	91	104	53	(¹)	94	77	–	97	93	102
Transportation equipment 351–370	143	139	44	–	95	52	–	93	91	96
Miscellaneous manufacturing industries 371–392	155	125	104	–	96	96	–	103	111	92
Transportation, communications, and other public utilities 400–472	96	119	B 48	61	99	102	56	101	105	96
Transportation 400–432	79	136	B 29	(¹)	94	114	62	99	107	91
Railroads 400	168	124	A –	(¹)	99	223	–	93	84	102
Trucking and warehousing 410–411	69	193	–	–	94	–	–	108	132	75
Other transportation 401–402, 412–432	46	123	52	–	92	83	(¹)	101	112	88
Communications 440–442	51	105	65	–	103	96	64	102	104	100
Utilities and sanitary services 460–472	A 314	109	54	–	100	79	–	101	103	98
Wholesale trade 500–571	107	110	62	–	91	A 14	195	98	99	96
Retail trade 580–691	104	96	B 78	113	99	118	99	100	99	100
Food, bakery, and dairy stores 601–611	71	93	72	(¹)	A 108	144	176	106	A 115	96
Auto dealers and supply stores 612–620	182	44	132	–	100	71	–	107	114	96
Eating and drinking places 641	100	B 69	91	48	102	129	50	102	96	109
Other retail trade 580–600, 621–640, 642–691	111	114	B 70	150	A 96	107	109	97	97	97
Finance, insurance, and real estate 700–712	144	121	B 54	128	B 91	93	134	94	91	97
Business and repair services 721–760	77	67	97	–	93	161	83	A 86	B 72	103
Automotive services and repair 750–751	(¹)	70	–	–	68	(¹)	(¹)	55	81	21
Other business and repair services 721–742, 752–760	69	67	103	–	95	159	–	88	B 71	108
Personal services 761–791	B 65	105	A 87	131	100	111	98	98	101	94
Private households 761	B 52	112	95	122	A 104	108	85	101	107	93
Beauty and barber shops 772–780	145	102	76	(¹)	B 79	53	–	B 82	A 77	89
Other personal services 762–771, 781–791	A 51	93	A 72	132	100	A 138	167	98	97	98
Entertainment and recreation services 800–802	53	117	95	–	A 85	65	–	A 82	87	77

Professional and related services	812-892	A 121	103	A 88	135	B 95	100	80	B 95	B 92	98
Health services	812-840	115	96	101	149	99	117	82	100	97	102
Educational services	842-860	A 132	105	B 80	122	B 92	88	95	B 92	B 89	95
Social services	861-881	112	86	83	(¹)	96	83	-	92	86	99
Legal, engineering, and other services	841, 882-892	84	B 180	58	(¹)	95	102	-	91	89	95
Public administration	900-932	143	108	A 72	121	B 91	124	181	A 92	B 86	99
Military	942	(¹)	43	98	(¹)	83	(¹)	-	70	A 36	111
Industry not reported	951-990	A 95	B 95	B 112	95	B 102	97	104	B 102	B 102	101

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Industry	All other diseases of heart (390-398, 415-429)	Hypertension with or without renal disease (410,403)	Cerebro-vascular diseases (430-438)	Atherosclerosis (440)	Pneumonia and influenza (480-487)	Chronic obstructive pulmonary diseases (490-496)	Pneumo-conioses and pneumopathy (500-505)	Ulcer of stomach and duodenum (531-533)	Chronic liver disease and cirrhosis (571)	Nephritis and nephrosis (580-589)
Number of deaths										
All industries	14,453	613	13,639	2,231	4,085	3,486	6	464	1,159	1,480
Proportionate mortality ratios										
Agriculture, forestry, and fisheries 010-031	102	93	96	119	98	116	-	92	102	116
Mining 040-050	148	-	90	-	146	161	-	-	-	-
Construction 060	105	85	90	77	63	B 227	-	96	76	33
Manufacturing 100-392	A 94	116	98	101	A 86	93	A 570	A 64	94	99
Nondurable goods 100-222	96	129	102	103	A 87	89	B 869	A 62	103	109
Food and kindred products 100-130	A 83	146	94	113	91	109	-	129	117	98
Textile mill and finished products 132-152	96	127	A 110	107	A 83	B 73	B 1,579	69	101	120
Paper and allied products 160-162	88	174	83	114	128	131	-	-	63	72
Printing, publishing, and allied products 171-172	109	123	85	58	88	89	-	-	74	98
Chemicals and allied products 180-192	83	-	87	48	64	171	-	(1)	94	147
Petroleum and coal products 200-201	114	-	186	(1)	-	(1)	-	-	-	-
Rubber, plastics, and leather products 210-222	109	133	91	99	97	106	-	-	126	90
Durable goods 230-392	A 87	79	88	96	81	103	-	73	75	70
Lumber and other wood products, and furniture 230-242	82	-	114	95	149	156	-	-	39	46
Stone, clay, glass, and concrete products 250-262	140	-	74	(1)	52	73	-	-	76	-
Primary metal industries 270-280	101	-	62	59	57	92	-	(1)	-	-
Fabricated metal industries 281-301	75	174	86	121	70	106	-	-	81	138
Machinery, except electrical 310-332	A 64	327	78	28	115	86	-	-	64	62
Electrical machinery, equipment, and supplies 340-350	91	49	98	65	53	109	-	55	81	58
Transportation equipment 351-370	105	-	80	49	78	104	-	78	98	53
Miscellaneous manufacturing industries 371-392	82	55	91	153	79	95	-	133	81	88
Transportation, communications, and other public utilities 400-472	94	123	96	94	97	103	-	67	87	100
Transportation 400-432	A 81	99	90	134	74	135	-	32	107	101
Railroads 400	101	-	79	122	126	80	-	(1)	131	133
Trucking and warehousing 410-411	74	-	124	134	30	178	-	-	45	-
Other transportation 401-402, 412-432	A 72	177	88	141	53	147	-	-	123	108
Communications 440-442	105	128	101	59	132	76	-	59	68	94
Utilities and sanitary services 460-472	104	197	98	90	44	94	-	231	73	120
Wholesale trade 500-571	82	211	100	139	85	116	-	-	118	99
Retail trade 580-691	96	99	97	99	91	108	-	115	96	85
Food, bakery, and dairy stores 601-611	106	66	95	86	99	107	-	51	89	53
Auto dealers and supply stores 612-620	86	(1)	112	117	107	56	-	(1)	45	129
Eating and drinking places 641	99	89	93	88	103	A 128	-	72	123	107
Other retail trade 580-600, 621-640, 642-691	A 92	110	100	105	A 84	100	-	A 147	82	78
Finance, insurance, and real estate 700-712	A 85	61	B 80	98	92	98	-	86	104	78
Business and repair services 721-760	102	170	87	69	A 152	118	-	-	122	56
Automotive services and repair 750-751	62	(1)	140	-	86	67	-	-	(1)	-
Other business and repair services 721-742, 752-760	104	150	84	73	A 156	122	-	-	122	60
Personal services 761-791	104	97	98	104	93	102	-	121	108	105
Private households 761	B 110	98	98	103	94	A 78	-	95	102	107
Beauty and barber shops 772-780	A 75	112	104	94	98	126	-	116	140	102
Other personal services 762-771, 781-791	100	90	97	110	89	126	-	171	104	99
Entertainment and recreation services 800-802	96	113	92	19	141	86	-	75	90	114

Professional and related services	812-892	96	86	100	93	102	93	-	113	B 74	A 82
Health services	812-840	97	94	99	92	100	A 114	-	82	84	88
Educational services	842-860	A 94	84	102	92	104	B 76	-	A 145	A 71	A 79
Social services	861-881	107	90	88	111	92	86	-	74	A 46	76
Legal, engineering, and other services	841, 882-892	104	-	97	94	117	69	-	92	51	64
Public administration	900-932	A 86	95	92	119	97	112	-	91	122	108
Military	942	111	-	89	-	43	113	-	(1)	167	215
Industry not reported	951-990	B 102	100	B 102	101	A 102	100	62	102	A 107	A 105

Table 4. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Accidents and adverse effects (E800–E949)	Motor vehicle accidents (E810–E825)	Accidents mainly of industrial type (E846 . . . E923–E926)	Other accidents (E800–E807 . . . E927–E949)	Suicide (E950–E959)	Homicide and legal intervention (E960–E978)	All other causes (Residual)
Number of deaths							
All industries	3,442	1,469	34	1,939	865	515	15,306
Proportionate mortality ratios							
Agriculture, forestry, and fisheries 010–031	95	118	(¹)	78	172	124	98
Mining 040–050	223	220	(¹)	(¹)	(¹)	–	35
Construction 060	A 144	136	(¹)	144	101	186	100
Manufacturing. 100–392	107	B 121	67	95	A 82	115	A 95
Nondurable goods 100–222	105	A 123	49	90	B 63	120	98
Food and kindred products 100–130	117	134	(¹)	99	A 39	A 178	94
Textile mill and finished products 132–152	99	110	–	91	A 57	115	99
Paper and allied products 160–162	123	179	–	78	48	96	103
Printing, publishing, and allied products. 171–172	88	91	–	86	87	165	83
Chemicals and allied products 180–192	157	166	–	149	156	–	91
Petroleum and coal products 200–201	289	522	–	–	(¹)	–	50
Rubber, plastics, and leather products 210–222	104	150	–	73	66	36	103
Durable goods 230–392	112	117	(¹)	106	112	106	B 86
Lumber and other wood products, and furniture. 230–242	125	171	–	58	78	68	101
Stone, clay, glass, and concrete products 250–262	32	62	–	–	271	A 503	108
Primary metal industries 270–280	127	–	–	213	–	B 934	90
Fabricated metal industries. 281–301	131	154	–	108	87	–	83
Machinery, except electrical 310–332	111	131	–	85	151	42	77
Electrical machinery, equipment, and supplies 340–350	116	131	–	99	101	98	83
Transportation equipment 351–370	104	123	(¹)	70	149	51	86
Miscellaneous manufacturing industries. 371–392	109	87	–	138	95	85	87
Transportation, communications, and other public utilities 400–472	103	130	(¹)	78	B 161	133	93
Transportation 400–432	122	B 183	–	66	A 179	173	94
Railroads 400	126	233	–	88	A 480	–	85
Trucking and warehousing 410–411	144	196	–	71	106	217	91
Other transportation 401–402, 412–432	112	A 170	–	56	171	172	98
Communications. 440–442	70	55	–	84	156	74	98
Utilities and sanitary services 460–472	147	167	(¹)	100	114	140	76
Wholesale trade 500–571	99	96	–	105	120	26	95
Retail trade 580–691	A 112	B 118	157	103	106	B 141	97
Food, bakery, and dairy stores. 601–611	85	130	–	A 41	143	A 196	A 80
Auto dealers and supply stores 612–620	104	176	–	–	163	163	77
Eating and drinking places 641	111	106	(¹)	118	100	B 152	99
Other retail trade 580–600, 621–640, 642–691	A 120	A 126	238	113	96	104	100
Finance, insurance, and real estate 700–712	A 122	B 139	290	99	84	105	104
Business and repair services 721–760	B 135	134	(¹)	134	131	115	93
Automotive services and repair. 750–751	121	140	–	88	88	337	46
Other business and repair services 721–742, 752–760	A 136	133	(¹)	137	135	97	97
Personal services 761–791	108	A 124	81	97	103	A 131	105
Private households 761	96	94	–	99	96	116	104
Beauty and barber shops 772–780	117	129	(¹)	98	118	96	A 121
Other personal services 762–771, 781–791	121	B 150	(¹)	93	99	A 158	99
Entertainment and recreation services. 800–802	75	84	–	66	A 184	187	119

Professional and related services	812-892	A 109	A 115	46	104	104	104	B 95
Health services	812-840	103	112	52	94	96	113	94
Educational services	842-860	B 120	A 126	54	117	121	109	95
Social services	861-881	111	130	-	95	56	61	97
Legal, engineering, and other services	841, 882-892	77	71	-	86	138	64	87
Public administration	900-932	106	118	(¹)	94	95	68	93
Military	942	140	136	-	149	69	176	77
Industry not reported	951-990	B 92	B 78	86	100	96	B 78	B 102

¹Proportionate mortality ratio not computed since observed deaths equaled 1 and expected deaths were less than 1.0.
A-Proportionate mortality ratio is significantly different from 100 at the 0.05 level of significance (see Technical notes).
B-Proportionate mortality ratio is significantly different from 100 at the 0.01 level of significance (see Technical notes).

Table 5. Deaths and percent distribution by selected occupations: Total of 12 reporting States and each State, 1984

[Data include only deaths to residents of a 12-State reporting area occurring in the area. For a listing of reporting States, see Technical notes]

State of residence	All occupations	U.S. Bureau of the Census occupation categories	Special death certificate occupation categories						
			Military	Homemaker	Volunteer	Student	Unemployed, never worked	Retired	Unknown
Number									
All reporting States	269,797	183,652	2,573	74,359	12	494	3,311	1,716	3,680
Colorado	19,001	11,985	319	5,803	1	78	149	27	639
Georgia	43,207	30,493	609	11,004	—	84	643	95	279
Kansas	21,345	13,862	156	6,739	5	44	193	194	152
Kentucky	30,742	18,777	214	8,510	1	57	693	1,288	1,202
Maine	10,393	7,414	92	2,607	1	13	122	5	139
Missouri	46,573	31,704	292	13,287	3	98	587	81	521
Nebraska	13,785	8,905	90	4,605	—	39	88	1	57
Nevada	6,097	4,363	116	1,441	—	4	32	—	141
New Hampshire	7,000	5,252	68	1,507	—	16	56	16	85
Rhode Island	8,824	6,337	54	2,137	—	8	84	8	196
South Carolina	24,317	18,100	455	5,260	1	51	375	—	75
Wisconsin	38,513	26,460	108	11,459	—	2	289	1	194
Percent distribution ¹									
All reporting States	100.0	68.1	1.0	27.6	0.0	0.2	1.2	0.6	1.4
Colorado	100.0	63.1	1.7	30.5	0.0	0.4	0.8	0.1	3.4
Georgia	100.0	70.6	1.4	25.5	—	0.2	1.5	0.2	0.6
Kansas	100.0	64.9	0.7	31.6	0.0	0.2	0.9	0.9	0.7
Kentucky	100.0	61.1	0.7	27.7	0.0	0.2	2.3	4.2	3.9
Maine	100.0	71.3	0.9	25.1	0.0	0.1	1.2	0.0	1.3
Missouri	100.0	68.1	0.6	28.5	0.0	0.2	1.3	0.2	1.1
Nebraska	100.0	64.6	0.7	33.4	—	0.3	0.6	0.0	0.4
Nevada	100.0	71.6	1.9	23.6	—	0.1	0.5	—	2.3
New Hampshire	100.0	75.0	1.0	21.5	—	0.2	0.8	0.2	1.2
Rhode Island	100.0	71.8	0.6	24.2	—	0.1	1.0	0.1	2.2
South Carolina	100.0	74.4	1.9	21.6	0.0	0.2	1.5	—	0.3
Wisconsin	100.0	68.7	0.3	29.8	—	0.0	0.8	0.0	0.5

¹Due to rounding, percents may not add to total.**Table 6. Deaths and percent distribution by selected industries: Total of 12 reporting States and each State, 1984**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. For a listing of reporting States, see Technical notes]

State of residence	All industries	U.S. Bureau of the Census industry categories	Special death certificate industry categories			
			Military	Never worked, unemployed, home-making, student, etc.	Retired	Unknown
Number						
All reporting States	269,797	183,709	2,789	77,737	763	4,799
Colorado	19,001	12,152	318	5,842	5	684
Georgia	43,207	30,576	648	11,682	1	300
Kansas	21,345	14,087	166	6,901	28	163
Kentucky	30,742	19,016	267	9,223	670	1,566
Maine	10,393	7,341	95	2,738	2	217
Missouri	46,573	31,494	340	13,908	51	780
Nebraska	13,785	8,886	92	4,729	—	78
Nevada	6,097	4,262	121	1,472	—	242
New Hampshire	7,000	5,267	65	1,578	4	86
Rhode Island	8,824	6,325	55	2,230	2	212
South Carolina	24,317	18,109	456	5,684	—	68
Wisconsin	38,513	26,194	166	11,750	—	403
Percent distribution ¹						
All reporting States	100.0	68.1	1.0	28.8	0.3	1.8
Colorado	100.0	64.0	1.7	30.7	0.0	3.6
Georgia	100.0	70.8	1.5	27.0	0.0	0.7
Kansas	100.0	66.0	0.8	32.3	0.1	0.8
Kentucky	100.0	61.9	0.9	30.0	2.2	5.1
Maine	100.0	70.6	0.9	26.3	0.0	2.1
Missouri	100.0	67.6	0.7	29.9	0.1	1.7
Nebraska	100.0	64.5	0.7	34.3	—	0.6
Nevada	100.0	69.9	2.0	24.1	—	4.0
New Hampshire	100.0	75.2	0.9	22.5	0.1	1.2
Rhode Island	100.0	71.7	0.6	25.3	0.0	2.4
South Carolina	100.0	74.5	1.9	23.4	—	0.3
Wisconsin	100.0	68.0	0.4	30.5	—	1.0

¹Due to rounding, percents may not add to total.

Technical notes

Nature and sources of data

Data shown in this report are based on information for deaths occurring in 12 reporting States in 1984, and this information was coded by the States from original death certificates filed in State vital registration offices. The 12 reporting States are Colorado, Georgia, Kansas, Kentucky, Maine, Missouri, Nebraska, Nevada, New Hampshire, Rhode Island, South Carolina, and Wisconsin. Except for the occupation and industry information, coded information from individual certificates was provided to the National Center for Health Statistics (NCHS) through the Vital Statistics Cooperative Program (VSCP). Of the 12 States reporting coded occupation and industry information in 1984, all but Georgia participated in the VSCP program; for these States part or all of the mortality data for 1984 was provided on computer tape to NCHS. Mortality data in this report refer to all deaths to residents of the 12-State reporting area occurring in that area.

Occupation and industry items on death certificate

The information in this report is based on occupation and industry entries on the death certificate, in response to the questions in item 14a of the Standard Certificate of Death, "Usual Occupation (Give kind of work done during most of the working life, even if retired)" and item 14b, "Kind

of Business or Industry." Illustrative occupation, industry, and medical entries on a death certificate of a 63-year-old female are shown in figure I. The Standard Certificate of Death is issued by the Public Health Service as a means of attaining uniformity in the content of vital statistics information collected by the States. Although the certificates in each State may differ somewhat from the Standard to the extent required by the needs of the State or by special provisions of the State vital statistics law, the certificates of most States conform closely in content and arrangement to the Standard.

Cause-of-death classification

The mortality statistics in this report were compiled in accordance with the World Health Organization (WHO) regulations, which specify that member nations classify causes of death by the current *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* (22). Causes of death for 1984 were classified according to the *Ninth Revision International Classification of Diseases* (ICD-9). Besides specifying the classification, the WHO regulations outline the form of the medical certification and the procedures to be used in coding cause of death. Cause-of-death data presented in this publication were coded by procedures outlined in issues of Part 2a of the NCHS Instruction Manual (35).

Cause-of-death lists

For analysis of occupation and industry mortality data a special cause-of-death list was developed jointly by NCHS, NIOSH, and NCI. The list of 52 causes (table I) includes 13 of the 15 leading causes of death in the United States for 1984, along with a number of causes of special interest in relation to occupational exposures, particularly malignant neoplasms of selected sites. Congenital anomalies and Certain conditions originating in the perinatal period are the 2 of the 15 leading causes not included among the 52 causes of death because they occur primarily among infants.

Classification of occupation and industry

Occupation and industry information from the death certificate is classified according to the U.S. Bureau of the Census publication, *Classified Index of Industries and Occupations* (20). The information is coded using a special adaptation of the occupation and industry coding instructions used by the U.S. Bureau of the Census for information reported on censuses and surveys. The instructions, used by NCHS and the reporting States, are in the *NCHS Instruction Manual, Industry and Occupation Coding for Death Certificates* (21).

Proportionate mortality ratios and significance testing

The computer program for computing proportionate mortality ratios

CONDITIONS IF ANY WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST CAUSE OF DEATH		14a. USUAL OCCUPATION (Give kind of work done during most of working life, even if retired) Weaver		14b. KIND OF BUSINESS OR INDUSTRY Cotton cloth mill	
		25. IMMEDIATE CAUSE [ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).] PART I (a) Respiratory acidosis DUE TO, OR AS A CONSEQUENCE OF: (b) Bronchopneumonia DUE TO, OR AS A CONSEQUENCE OF: (c) Byssinosis		Interval between onset and death 12 hours Interval between onset and death 4 days Interval between onset and death 5 years	
		PART II OTHER SIGNIFICANT CONDITIONS—Conditions contributing to death but not related to cause given in PART I (a)		26. Yes 27. NO	
ACC., SUICIDE, HOM., UNDET., OR PENDING INVEST. (Specify) Natural		DATE OF INJURY (Mo., Day, Yr.) 28b.		HOUR OF INJURY 28c. M	
28a. INJURY AT WORK (Specify Yes or No)		PLACE OF INJURY—At home, farm, street, factory, office building, etc. (Specify)		DESCRIBE HOW INJURY OCCURRED 28d.	
28e.		28f.		LOCATION STREET OR R.F.D. No. CITY OR TOWN STATE	

Figure I. Illustrative entries on death certificate of a 63-year-old female

Table I. List of 52 selected causes of death

Number	Cause of death	
1	Tuberculosis, including late effects	010-018,137
2	Septicemia	038
	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	140-208
3	Malignant neoplasms of lip, oral cavity, and pharynx	140-149
4	Malignant neoplasm of esophagus	150
5	Malignant neoplasm of stomach	151
6	Malignant neoplasm of colon	153
7	Malignant neoplasms of rectum, rectosigmoid junction, and anus	154
8	Malignant neoplasms of liver and intrahepatic bile ducts	155
9	Malignant neoplasms of gallbladder and extrahepatic bile ducts	156
10	Malignant neoplasm of pancreas	157
11	Malignant neoplasm of larynx	161
12	Malignant neoplasms of trachea, bronchus, and lung	162
13	Malignant neoplasm of pleura	163
14	Malignant neoplasms of bone and articular cartilage	170
15	Malignant neoplasms of connective and other soft tissue	171
16	Malignant melanoma of skin	172
17	Malignant neoplasm of female breast	174
18	Malignant neoplasm of cervix uteri	180
19	Malignant neoplasm of body of uterus	182
20	Malignant neoplasms of ovary and other uterine adnexa	183
21	Malignant neoplasm of prostate	185
22	Malignant neoplasm of testis	186
23	Malignant neoplasm of bladder	188
24	Malignant neoplasms of kidney and other and unspecified urinary organs	189
25	Malignant neoplasms of brain and other and unspecified parts of nervous system	191-192
26	Hodgkin's disease	201
27	Malignant lymphoma other than Hodgkin's disease	200,202
28	Multiple myeloma and immunoproliferative neoplasms	203
29	Leukemia	204-208
30	All other malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues	152,158-160,164-165,173,175,179,181,184,187,190,193-199
31	Diabetes mellitus	250
32	Aplastic anemia	284
	Diseases of heart	390-398,402,404-429
33	Hypertensive heart disease	402
34	Hypertensive heart and renal disease	404
	Ischemic heart disease	410-414
35	Acute myocardial infarction	410
36	All other ischemic heart disease	411-414
37	All other diseases of heart	390-398,415-429
38	Hypertension with or without renal disease	401,403
39	Cerebrovascular diseases	430-438
40	Atherosclerosis	440
41	Pneumonia and influenza	480-487
42	Chronic obstructive pulmonary diseases and allied conditions	490-496
43	Pneumoconioses and pneumopathy due to inhalation of other dust	500-505
44	Ulcer of stomach and duodenum	531-533
45	Chronic liver disease and cirrhosis	571
46	Nephritis, nephrotic syndrome, and nephrosis	580-589
	Accidents and adverse effects	E800-E949
47	Motor vehicle accidents	E810-E825
48	Accidents mainly of industrial type	E846,E881-E882,E916-E919,E921,E923-E926
49	Other accidents and adverse effects	E800-E807,E826-E845,E847-E880,E883-E915,E920, E922,E927-E949
50	Suicide	E950-E959
51	Homicide and legal intervention	E960-E978
52	All other causes	Residual

(PMR's) and statistical tests was developed by NIOSH. The PMR does not make use of a population at risk and, therefore, is not equivalent to a death rate. The PMR for an occupation (industry) indicates whether the proportion of deaths attributed to a particular cause of death is higher (greater than 100) or lower (less than 100) than the corresponding proportion for all occupations (industries) combined. In this report PMR's are age-race-adjusted for males and females.

PMR's for males and females are computed using the following typical table for a specific age-race group:

Occupation (Industry)	Cause of death		All causes
	Cause X	Other causes	
Occupation Y	A _i	B _i	N _{1i}
Other occupations	C _i	D _i	N _{2i}
All occupations	M _{1i}	M _{2i}	T _i

where:

- i = ith age-race group (5-year age groups 20–24, 25–29, etc. for the white and black populations)
- A_i = observed number of deaths for a specific occupation (industry) and cause-of-death combination for the ith age-race group
- E(A_i) = expected number of deaths for a specific occupation (industry) and cause-of-death combination for the ith age-race group

$$E(A_i) = \frac{M_{1i}N_{1i}}{T_i}$$

$$PMR = \frac{\sum A_i}{\sum E(A_i)} \cdot 100$$

To test the hypothesis of independence between the occupation (industry) and the cause of death (that is, to test the hypothesis that the PMR = 100), the following Mantel-Haenszel (M-H) chi-square test with one-degree of freedom (36) is used when the expected number of deaths was five or more:

$$M-H \chi^2 = \frac{[\sum A_i - \sum E(A_i)]^2}{\sum \frac{M_{1i}M_{2i}N_{1i}N_{2i}}{T_i^2(T_i - 1)}}$$

For this study this formula excludes the correction for continuity. A PMR is significantly different from 100 at the 0.05 level or 0.01 level if the computed M-H chi-square is greater than or equal to 3.84 or 6.63, respectively. In the tables the 0.05 level is indicated by an "A" and the 0.01 level, by a "B".

When the expected number of deaths is less than five, the statistical test used is the ratio of an observed value of a Poisson variable to its expectation (37).

Caution should be exercised in accepting statistically significant PMR's as being truly significant. Since approximately 12,000 PMR's in tables 1–4 were statistically tested, about 600 would be expected to be statistically significant at least at the 0.05 level, just due to chance (24).

Quality of cause of death

The use of a standard classification list, essential for the presentation and analysis of cause-of-death data, does not assure strict comparability of tabulated figures. A high degree of comparability could only be attained if all records of cause of death were reported with equal accuracy and completeness. The medical certification of cause of death can be made only by a qualified person, usually a physician, a medical examiner, or a coroner. Therefore, the reliability and accuracy of cause-of-death statistics are, to a large extent, governed by the ability of the certifier to make the proper diagnosis and by the care with which this information is recorded on the death certificate.

A number of studies have been undertaken on the quality of medical certification on the death certificate. In general, these have been for relatively small samples and for limited geographic areas. A bibliography (38) covering 128 references over a period of 23 years indicates that no definitive conclusions have been reached about the quality of medical certification on the death certificate.

Occupation and industry lists

The list of 46 selected occupations and the list of 42 selected industries were developed by NIOSH, NCHS, and NCI, based on the U.S. Bureau of the Census' tabulation list presented in the *Classified Index of Industries and Occupations* (20). The occupation categories shown in the list of 46 selected occupations are similar to the U.S. Bureau of the Census' major groups, some of which were subdivided on the basis of similarity of occupations. Military and Homemaker were added to the occupation categories. The industry categories shown in the list of 42 selected industries are identical with the U.S. Bureau of the Census' major groups, some of which were also subdivided on the basis of similarity of industries. The category "Military" was added to the industry categories.

Public-use data tapes

Beginning with data for 1985, mortality public-use data tapes include information on the occupation and industry of the decedent, along with other coded demographic and medical information. The detailed contents of the mortality data tapes and other public-use data tapes from NCHS are described in the NCHS publication *Catalog of Public Use Data Tapes from the National Center for Health Statistics* (39), although the occupation and industry items were inadvertently left out of the list of contents. Mortality public-use data tapes for 1985–91 may be purchased from:

National Technical Information
Service
5285 Port Royal Road
Springfield, Virginia 22161
(703) 487-4650

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