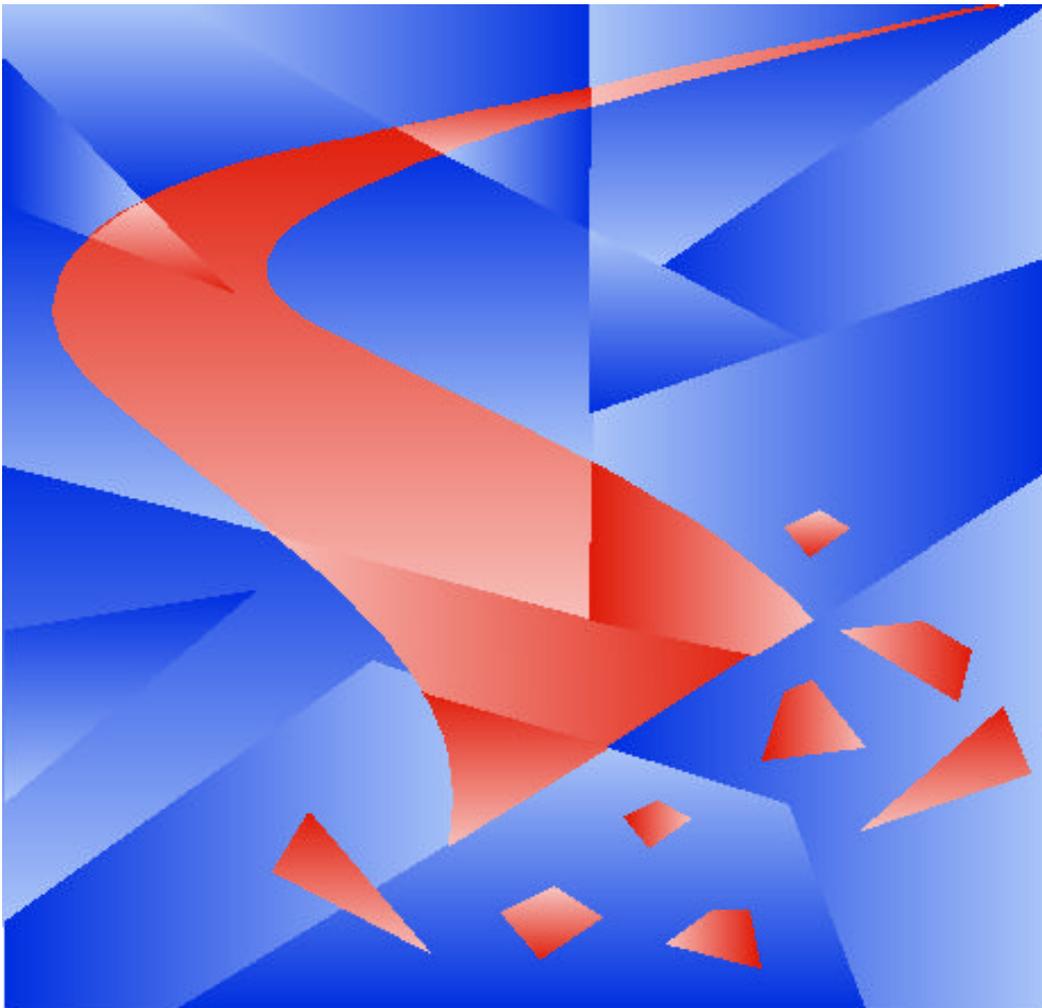


Catalogue No. 84-546-XCB



Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965 - 1991



Statistique
Canada Statistics
Canada

Canada

**Occupational Surveillance in Canada:
Cause-Specific Mortality Among Workers, 1965-1991**

Published by authority of the Minister responsible for Statistics Canada

©Minister of Industry, 2,000

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior written permission from Licence Services, Marketing Division, Statistics Canada, Ottawa, Ontario, Canada K1A 0T6.

June, 2000

**Catalogue Number 84-546-XCB
ISBN: 0-660-59382-3
Frequency: Occasional**

Ottawa

Note of Appreciation

Canada owes the success of its statistical system to a long-standing co-operation involving Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-91

Kristan J. Aronson, Ph.D.¹
Geoffrey R. Howe, Ph.D.²
Maureen Carpenter, M.A.³
Martha E. Fair, M.Sc.³

¹ Queen's University, Faculty of Health Sciences, Community Health and Epidemiology, Kingston, Ontario, Canada

² Columbia University, School of Public Health, Division of Epidemiology, Presbyterian Hospital, New York, New York, U.S.A.

³ Statistics Canada, Health Statistics Division, Ottawa, Ontario, Canada

Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-91

Table of Contents

| | |
|--|-----------|
| PREFACE | 6 |
| ACKNOWLEDGEMENTS | 7 |
| SUMMARY | 8 |
| 1. INTRODUCTION | 9 |
| 2. OBJECTIVES | 10 |
| 3. THE FILES AND METHODS | 11 |
| 3.1 The Files..... | 11 |
| 3.1.1 Canadian Occupational Cohort..... | 11 |
| 3.1.2 Canadian Mortality Data Base (CMDDB)..... | 12 |
| 3.2 Follow-Up Procedures..... | 13 |
| 3.3 Statistical Analysis..... | 14 |
| 3.4 Ethical Issues..... | 16 |
| 3.5 Previous Analyses of this Cohort..... | 16 |
| 4. RESULTS | 17 |
| 4.1 Descriptive Results..... | 17 |
| 4.2 Results: FULL TABLES..... | 18 |
| 4.3 Results: SELECTED TABLES..... | 18 |
| 4.4 Results: Highlight Examples..... | 18 |
| 4.4.1 Top 10 Relative Risks by Specific Causes of Death..... | 18 |
| 4.4.2 Highest Relative Risks by Sex and Occupational Classification..... | 20 |
| 4.4.3 Additional Ways of Examining the Results..... | 25 |
| 5. DISCUSSION | 25 |
| 5.1 General..... | 25 |
| 5.2 Strengths and Limitations..... | 25 |
| 5.3 Quality of Data Sources..... | 26 |
| 5.4 Confounders..... | 27 |
| 5.5 Generalizability..... | 28 |
| 5.6 Multiple Tests..... | 28 |

| | | |
|-----------|---------------------------------------|-----------|
| 6. | FUTURE WORK..... | 8 |
| 6.1 | Next Steps | 28 |
| 6.2 | What Can be Done? Preventability..... | 29 |
| 7. | REFERENCES | 31 |

APPENDICES

| | | |
|--------------------|--|------------|
| Appendix 1: | 1961 Occupation Codes – sorted by code number..... | 38 |
| Appendix 2: | 1971 Occupation Codes – sorted by code number..... | 48 |
| Appendix 3: | 1961 Occupations – sorted alphabetically..... | 67 |
| Appendix 4: | 1971 Occupations - sorted alphabetically | 75 |
| Appendix 5: | Cause of Death Codes – sorted by code group number..... | 89 |
| Appendix 6: | Cause of Death Codes– sorted alphabetically by short title..... | 94 |
| Appendix 7: | Record Layout and Data Dictionary for ASCII File | 100 |
| Appendix 8: | Glossary of Terms | 108 |

PREFACE

This report introduces a Canadian occupational surveillance system. It includes i) a brief review of the methodology, ii) highlights of selected comparisons between occupations and iii) mortality risks, plus a discussion of the strengths, limitations and quality of the data. Complete results are available in the accompanying ASCII file found on the root of this CD-ROM. The ASCII file record layout and data dictionary showing the contents of this file can be found both on the root of this CD-ROM and also in Appendix 7. Wherever there is at least one death for the specific cause for the occupation, the result is included in the set of prepared FULL TABLES. These FULL TABLES are prepared in two formats which can be viewed both by cause of death (Table 1) and by occupation (Table 2). These tables contain all relative risks whether less than, equal to, or greater than one. In addition, a second set of prepared SELECTED TABLES can also be viewed. The selection criteria used are relative risk > 1 , number of observed deaths ≥ 5 , and p-value < 0.05 . They can be viewed similarly by cause of death (Table 3) and by occupation (Table 4). Both sets of tables are included on this CD-ROM after the appendices. The tables have been prepared in EXCEL and can be downloaded by those with Excel, Lotus and Quatro-Pro. The CD-ROM includes a viewer for those without compatible software.

How to Obtain More Information

Questions about the data or its use should be directed to:

Maureen Carpenter
Health Statistics Division
Statistics Canada
R.H. Coats Building, 18th Floor,
Tunney's Pasture,
Ottawa, Ontario K1A 0T6
Telephone: (613) 951-1760; Fax: (613) 951-0792

For technical support call: Lucie Desjardins, Manager of the Electronic Products
HelpLine at 1 800 949-9491

Citation Recommendation:

Aronson KJ, Howe GR, Carpenter M, Fair ME. *Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-1991*. CD-ROM (Catalogue no. 84-546-XCB) Ottawa: Statistics Canada, 2000.

ACKNOWLEDGEMENTS

This study was conducted through the collaboration of university researchers, Employment Canada, and Statistics Canada, with additional funding from the National Cancer Institute of Canada, through their Epidemiology Unit at the University of Toronto. This mortality update study was funded by Health Canada through the National Health Research and Development Program (NHRDP), grant number 6606-5027-53. Dr. Aronson was supported in part through a Research Scholar Award, also from NHRDP. She is now supported through a Career Scientist Award from the Ontario Ministry of Health.

Special thanks is given to Pierre Lalonde, Kevin Buzdygan, Trung Dang, Jason Bennett and Russell Wilkins at Statistics Canada; Lucille Poirier at Health Canada; Sevag Serimazi at University of Toronto; Tong Li, Susan Squires, and Tanya Weston at Queen's University. We are especially grateful to Dr. Lorraine Marrett for helpful comments in reviewing the original manuscript.

Finally, we wish to thank the vital statistics registrars in each of the provinces and territories of Canada for their agreement to release their data from the Canadian Mortality Data Base for this important study.

Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-91

SUMMARY

This CD-ROM product presents information and results of a follow-up study of approximately 700,000 workers (457,224 men and 242,196 women) employed between 1965 and 1971, constituting approximately 10% of the Canadian labour force at that time. The purpose of this study is to identify and show potential associations detected between possible workplace exposures and specific causes of death. It provides an unique and useful occupational surveillance system.

Each individual's occupation was available from a federal labour force survey, and the mortality of the cohort between 1965 and 1991 has been determined by computerized record linkage to the national death file, the Canadian Mortality Data Base. Relative risks and 95% confidence intervals have been determined.

There were almost 116,000 deaths among men and over 26,800 deaths among women. More than 27,000 comparisons between occupations and specific causes of death groupings can be accessed through the ASCII file and the full prepared tables available on the CD-ROM.

Some of the findings presented here may simply be due to chance, since so many comparisons have been investigated. While some of these potential associations confirm earlier work, most have not been the subject of previous study, and thus no earlier evidence is available for comparison. Where excess mortality risk is apparent through the use of this occupational surveillance system, further research should be conducted to confirm it. Ultimately, this work may lead to action to reduce or prevent excess mortality risk associated with specific occupations.

Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-91

1. INTRODUCTION

Most advances in the understanding of occupational hazards have been motivated by anecdotal reports of extreme risk among workers (bladder cancer in dye workers, for example) and from the results of studies that have concentrated on specific occupations (asbestos workers, for example). However, many occupational hazards may remain undetected because they are not the subject of systematic study. In fact, for the vast majority of workplace environments, there is no evidence concerning hazard one way or the other, and recognized risks may represent only the tip of the iceberg (Siemiatycki, 1991).

Occupational surveillance can be defined as the systematic collection, evaluation and dissemination of data relating workplace exposures to disease or mortality, with the ultimate aim of reducing or preventing excess risk (Langmuir, 1963; Baker et al., 1989). Relatively few surveillance systems have been set up to routinely monitor for associations between occupation and mortality. There are a number of examples of countries which produce publications which tabulate deaths by occupation, where occupation and cause of death is captured from the death registration. These include the statistical reports and decennial supplements for England and Wales, which have used mortality data to give reports on patterns of mortality by occupation groups from 1851 (Office of Population Censuses and Surveys, 1995); mortality by occupation, industry and cause of death for 24 States in the United States (Burnett et al, 1997); plus a number of separate U.S. States especially North Carolina (Surlles et al, 1999), Washington (Milham, 1983), California (Petersen and Milham, 1980), Massachusetts (Dubrow and Wegman, 1984) and Rhode Island (Gute, 1981). In Canada death registration data with occupation has been published by British Columbia from 1950-84 (Gallagher et al, 1989).

Other studies in a number of countries link death certificate and census data, or cancer incidence and census data to follow up health outcomes. These include the United Kingdom for its 1% sample of the 1971 census population (Goldblatt, 1990), Norway (Borgan and Kristofersen, 1986), Sweden (Statistiska Centralbyran, 1982), Finland (Marin, 1986; Pukkala, 1995), Denmark (Andersen, 1985) and the combined Nordic countries (Nordic Statistical Secretariat, 1988; Andersen et al, 1999).

Studies of linked data such as this one, where occupation for a specific large cohort is collected at the time of employment and then followed up to see what happens to an individual with other sources such as mortality or cancer, are much rarer. The origin of this study was a research report by Dr. Howard Newcombe (Newcombe, 1974) prepared for the Environmental Secretariat of the National Research Council Associate Committee on Scientific Criteria for Environmental Quality. The present study takes advantage of a previously established set of Canadian data and the availability of the computerized record linkage system to link this to the Canadian Mortality Data Base to create a surveillance system that can provide valuable information at a relatively low cost. This study is unique in that it is able to ascertain subsequent mortality in a large cohort of working Canadians about whom occupational information was collected before death. As well, this study unlike most previous work, identifies occupation-related mortality risks among women. Increasingly, women are participating in the labour force and taking on less traditional, more hazardous employment (Passannante and Nathanson, 1987). By 1994, women constituted 45% of Canada's labour force, up from 37% in 1970 and just 27% in 1960 (Statistics Canada, 1995). Occupational hazards for the vast majority of working women have not previously been studied (Klitzman et al., 1990). The utility of this cohort for examining associations between work and cancer among women was the subject of an earlier publication (Aronson and Howe, 1994).

2. OBJECTIVES

The aim of this study was to determine the mortality experience of the cohort of approximately 700,000 persons from 1965 to the end of 1991, thus providing up to 27 years of follow-up, and to determine the associations between job titles and specific causes of death for both women and men.

The purpose of this as a surveillance system is to consolidate the results in a systematic way and disseminate them to those who need to know, particularly those who are in a position to take further action. This will also help to identify previously unsuspected potential associations between occupations and cause-specific mortality risk.

3. THE FILES AND METHODS

3.1 The Files

3.1.1 Canadian Occupational Cohort

This cohort was created through the collaboration of Employment Canada, Statistics Canada, and university researchers with additional funding from the National Cancer Institute of Canada and Health Canada.

As part of their mandate to collect statistics on employment patterns in Canada, Employment Canada conducted a national survey between 1965 and 1971. Employers were contacted and asked to provide information for each individual they employed, who contributed to Canadian unemployment insurance and whose Social Insurance Number (S.I.N.) ended in the digit "4" for the years 1965-1968, and from 1969 through 1971 for those whose numbers which ended in the number 4 preceded by an odd number. The information collected was: S.I.N., given name, surname, year of birth, and occupation and industry in which that individual was currently employed. This constituted approximately a 10% sample of Canadian workers up to 1968 and approximately 5% from 1969-1971, who were covered under the Unemployment Insurance Act at the time.

Approximately 3 million records were collected during the survey. Since one individual could have up to six records on the file (i.e., for 1965 through 1969, and for 1971), it was first necessary to bring together records referring to the same individual. This was done by sorting the file on S.I.N. and then by cross-checking the names, sex and years of birth for individuals with the same S.I.N. (Howe and Lindsay, 1983). This formed composite occupational histories. Less than 0.1% of the records were sufficiently discrepant to indicate that they referred to different individuals. The discrepant records were dropped from the file.

To link the cohort records to the Canadian Mortality Data Base, it was necessary to abstract further identifying information from the master file of S.I.N.s maintained by the federal government. The S.I.N. is not generally available from death data, and the other identifying information available for the cohort was considered potentially inadequate for record linkage. However, comparison with the master S.I.N. index file provided detailed information on a number of identifiers, including surname, first and second given names, complete date of birth, sex, mother's maiden name, and province of most recent employment. The quality and

completeness of the master index file is extremely high, and therefore, the resulting record linkage to the Canadian Mortality Data Base was also of very high quality.

As the data were collected, occupation data were coded centrally at Statistics Canada using the 1961 census Standard Occupation Codes (SOC) (Statistics Canada, 1961) for data collected between 1965 and 1969, and the 1971 census codes (Statistics Canada, 1971) for data collected in 1971. Data for the year 1970 were lost before the start of this study. The 1961 Canadian Occupational Classification Manual (Statistics Canada, 1961) contains 274 3-digit job-title codes. The 1971 occupation codes are 4 digits, and are much more extensive, constituting several thousand in all. The data for analysis, therefore, consisted of a cohort of 699,420 individuals: 457,224 men, and 242,196 women for the years 1965-1971 (excluding 1970).

The two occupational coding groups were analysed separately as the 1961 and 1971 occupation codes were not compatible. Complete lists of the three-digit 1961 codes and the four-digit 1971 codes are given in Appendices 1 - 4. Appendices 1 and 2 provide the occupation codes sorted numerically by code number for the 1961 and 1971 codes respectively. Appendices 3 and 4 provide the occupation codes sorted alphabetically for 1961 and 1971 respectively. For this report, occupations were divided into two socio-economic groups: "white-collar" (professional and semi-professional workers) and "blue-collar" (non-professional workers).

3.1.2 Canadian Mortality Data Base (CMDB)

The Canadian Mortality Data Base is a file in machine readable form containing approximately 7.9 million death events from 1950 to 1997, reported by all Canadian provinces and territories. The file is updated annually. It contains, among other variables, identifying information including names, plus the date, place and coded cause of death, sex, residence, birth date and place..

The CMDB is maintained at Statistics Canada in Ottawa, on microfiche and computer tape, with source records also on microfilm and computer optical imaging. Since its creation in the late 1970's, this file has been used for many national historical mortality record linkage research studies, epidemiology studies and the generation of other statistical products (Smith and Newcombe, 1982). Strict confidentiality of all records is maintained in accordance with the Statistics Act and Privacy Act of Canada.

A subset of the CMDB was used for this project consisting of death events for the years 1965-1991, amounting to 4.6 million records.

For subjects identified in the Canadian Mortality Data Base as having died between 1965 and the end of 1991, the underlying cause of death was obtained from the CMDB as coded from the death registrations. The cause of death codes are based on the International Classification of Disease Codes in effect at the time of death included ICD-7 from 1965-1968 (WHO, 1957); ICDA-8 from 1969-1978 (NCHS 1968); and ICD-9 from 1979-1991 (WHO 1979). These historic individual cause of death codes were combined into 70 cause of death code groups for this study. Appendices 5 and 6 outline the cause of death groupings: Appendix 5 shows the causes of death sorted numerically by code group and Appendix 6 gives the same list sorted alphabetically by the short title.

3.2 Follow-up Procedures

Records from employment surveys of about 10% of the Canadian labour force between 1965 and 1971 were linked with records of deaths that occurred from 1965 through 1991 among the people identified in the surveys.

In 1993-1994, a record linkage with the Canadian Mortality Data Base was conducted to determine the mortality experience of the cohort. To ensure consistent quality of the linkage procedure over the entire study period, previous linkages were disregarded and this linkage, using improved computer matching techniques, covered the period 1965 through to the end of 1991. Seventy specific causes of death were investigated in relation to 670 occupational titles.

As a complement to the death search, Statistics Canada conducted an "alive" search to verify that those not found deceased were indeed alive. The advantage of the "alive" search is that instead of having to assume, say, an alive status to all that are not found dead, some proportion of the percent of lost to follow-up, i.e. those who did not die, will be known for this cohort. This methodology also helps verify the results of the death linkage. Elsewhere, evaluations of linking a specific occupational cohort to the CMDB and comparing computerised linkage with more traditional manual follow-up methods have reported about 4% of deaths not

found (Shannon et al, 1989; Goldberg et al, 1993). This is mainly due to deaths occurring outside Canada. The occupational cohort was matched to a summary historical income tax file for 1984-1991 through the availability of the S.I.N. to determine if the person was alive, dead or emigrated. Only summary tabular information (i.e. not specific to individuals) was made available to researchers outside Statistics Canada.

3.3 Statistical Analysis

There are many possible strategies for analysing this type of surveillance data. Separate but parallel analyses were performed for men and women, and separately for those working in 1965 through 1969 and in 1971, since the two coding schemes used in these two periods could not be combined. An individual was defined as being "exposed" to a particular occupation if he or she was employed during at least one year of the survey; that is, individuals working in more than one occupation were counted again as exposed for each occupation in which they worked: there was an average of 1.06 jobs per person. Observed deaths were classified by occupation, two age groups (15-64, and all ages 15 and older) and specific cause of death.

To obtain a measure of risk associated with each occupation, comparisons were made only within the labour force cohort. That is, internal standardization was used (Breslow and Day, 1987). This is the preferred approach for avoiding the healthy worker effect (McMichael, 1976; Howe et al., 1988; Thun, 1991), which occurs when workers are compared to the general population. In an effort to take socio-economic status into consideration, the cohort was divided into two broad groups representing professional and non-professional roles. Each occupation was classified into one of six levels of the Pineo scale, a scheme for classifying occupations according to income and status (Pineo, 1985). The first three levels constituted professional or "white-collar" jobs (professional and high-level managerial; semi-professional, technical and middle managerial; supervisors, foremen and forewomen). The other three classifications were grouped into non-professional or "blue-collar" jobs (skilled workers and employees; semi-skilled workers and employees; unskilled workers and employees). Occupation, other (i.e. not specified) was always blue. Appendices 1-4 listing occupations and occupation codes show the label of "blue" or "white" for each occupation.

The magnitude of associations is measured by the relative risk, with 95% confidence intervals based on a Poisson distribution. Relative risks were calculated separately for each

occupation, by sex, cause of death, and by two age at risk categories, namely ages 15 to 64 and all ages (15 and older). The former age group enables identification of potential occupational associations appearing at younger ages, e.g. accidents. The latter group, in addition, allows for any latency time that may be associated with occupational exposures. All analyses were stratified by five-year age and calendar periods.

The analysis compared the rate of death for each specific cause in one occupation with that observed in the comparison group, which consisted of the entire sub-group of the cohort in the same sex and Pineo socio-economic classification (white or blue collar) (Pineo, 1985). This means that the mortality rate for each specific cause in one occupation was compared to that in all occupations within the same sex and occupational classification, and the ratio of the rates is expressed as the relative risk. For example, the rate of lung cancer among male miners was compared with that among all male blue-collar workers. Age-adjustment was done in five year groups, and analyses were conducted separately for men and women. Within each sex, two age-at-death groups were considered (all ages 15 and older, and ages 15 to 64). Analysis using the AMFIT package within EPICURE (EPICURE, 1993) produced the maximum likelihood estimate of relative risk. Tests of significance and confidence intervals around the relative risk were estimated using the likelihood ratio method.

In summary, for each occupation, the absolute number of people who worked in that occupation and the person-years they contributed to follow-up from their entry into the cohort until the time of death, or to the end of 1991 if they were still alive, is presented. The absolute number of deaths is presented for each cause of death, as well as the relative risk associated with the particular occupation and its 95% confidence interval. The p-value refers to the log-likelihood ratio statistic for each fit of the regression model.

Thousands of comparisons were made in this analysis. Caution should be exercised in interpreting statistically significant relative risks. Just due to chance alone, several hundred relative risks would be expected to be statistically significant at least at the $p < 0.05$ level. While this approach was warranted in order to find potentially new associations that might otherwise not be the subject of study, testing these potential associations in subsequent studies is necessary.

3.4 Ethical Issues

Statistics Canada approved the record linkage, and the vital statistics Registrar General in each province/territory granted permission to release mortality data from the Canadian Mortality Data Base for analysis. Approval was also given by a Human Ethics Review Committee at the Office of Research Services, University of Toronto, and by the Ethics Committee, Faculty of Health Sciences, Queen's University.

The confidentiality of individuals has been protected throughout the creation and use of this database. Before researchers outside Statistics Canada can handle the data, all names are deleted. Individuals are identified only by a Statistics Canada identification number which cannot be linked to other databases. Personal identifiers were kept under security regulations by Statistics Canada and were not available to the university researchers. No subject was contacted, and it is not possible to identify any individual in any report.

3.5 Previous Analyses of this Cohort

Two previous computerized record linkages of this cohort to the Canadian Mortality Data Base have been conducted. The first covered deaths to the end of 1973, and the cancer mortality results for men were published (Howe and Lindsay, 1983). The second linkage, which updated mortality to the end of 1979, was the focus of a Ph.D. thesis by Dr. Joan Lindsay (Lindsay, 1989), and updated results for cancer mortality among men were published (Lindsay et al., 1993). The smaller size of the female group and their relatively young age has prohibited meaningful analysis until now (Aronson and Howe, 1994).

4. RESULTS

4.1 Descriptive Results

The maximum length of follow-up for this study was 27 years, with over 457,000 men contributing over 11 million person-years, and over 242,000 women, more than 6 million. There were almost 116,000 deaths among men and over 26,800 among women: see Table 4.1 for details. The statistical analyses yielded over 27,000 comparisons between occupations and specific causes of death. The study has examined the results within 8 categories; sex (female, male), socio-economic classification (blue collar, white collar), and for each of these four, two age-groups (15-64, all ages 15+).

Cohort Description Table

Table 4.1

| | MALES | | | FEMALES | | | TOTAL | | |
|------------------------------------|-------------|--------------|------------|-------------|--------------|-----------|-------------|--------------|------------|
| | Blue Collar | White Collar | Total | Blue Collar | White Collar | Total | Blue Collar | White Collar | Total |
| Individuals | | | 457,224 | | | 242,196 | | | 699,420 |
| Persons counted in all occupations | 405,841 | 88,687 | 494,528 | 223,229 | 24,096 | 247,325 | 629,070 | 112,783 | 741,853 |
| Person-Years | 9,443,114 | 1,966,873 | 11,409,987 | 5,473,232 | 536,042 | 6,009,274 | 14,916,346 | 2,502,915 | 17,419,261 |
| No. of Associations Occup-Death | 14,523 | 5,598 | 20,121 | 5,607 | 1,869 | 7,476 | 20,130 | 7,467 | 27,597 |
| Deaths | | | | | | | | | |
| All ages 15+ | 97,773 | 18,184 | 115,957 | 24,088 | 2,752 | 26,840 | 121,861 | 20,936 | 142,797 |
| Ages 15-64 | 45,137 | 8,382 | 53,519 | 1,229 | 1,124 | 12,353 | 56,366 | 9,506 | 65,872 |

Source: Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-1991

Overall, about 19% had died according to the CMDB. In addition to the ~19% deaths, it was possible through the "alive" follow-up to verify that an additional ~70% of the cohort was still alive in 1991. For the remainder of ~11% vital status could not be determined; they were not found to be dead, or among the tax filers for 1991. This remaining percentage would be a mixture of those dying outside Canada, non-residents/emigrants who are still alive, and/or living persons in Canada who did not file a tax return in 1991.

4.2 Results: FULL TABLES

With such a large pool of results, it is very difficult to make selections that would please everyone. We have, therefore, provided all the results in a set of prepared FULL TABLES for readers to browse through and make their own selections (see "DATA" button). These FULL TABLES are sorted into 70 causes of death and 670 occupations. Where no death occurred in a particular occupation/cause-of-death combination, statistical information is not presented. (See under the DATA button, prepared Table 1. FULL TABLES: All Results by Cause of Death; and prepared Table 2. FULL TABLES: All Results by Occupation).

4.3 Results: SELECTED TABLES (RR > 1, Observed Deaths [≥] 5, and p-value < 0.05)

Tables have also been prepared to highlight cases of suggested increased risk. This second set of tables is based on the relative risk being greater than 1, the number of observed deaths being greater than or equal to 5, and the p-value being less than 0.05. These SELECTED TABLES are presented using the same 70 causes of death and 670 occupations. (See under the DATA button, prepared Table 3, SELECTED TABLES: Selected Results by Cause of Death, and prepared Table 4, SELECTED TABLES: Selected Results by Occupation).

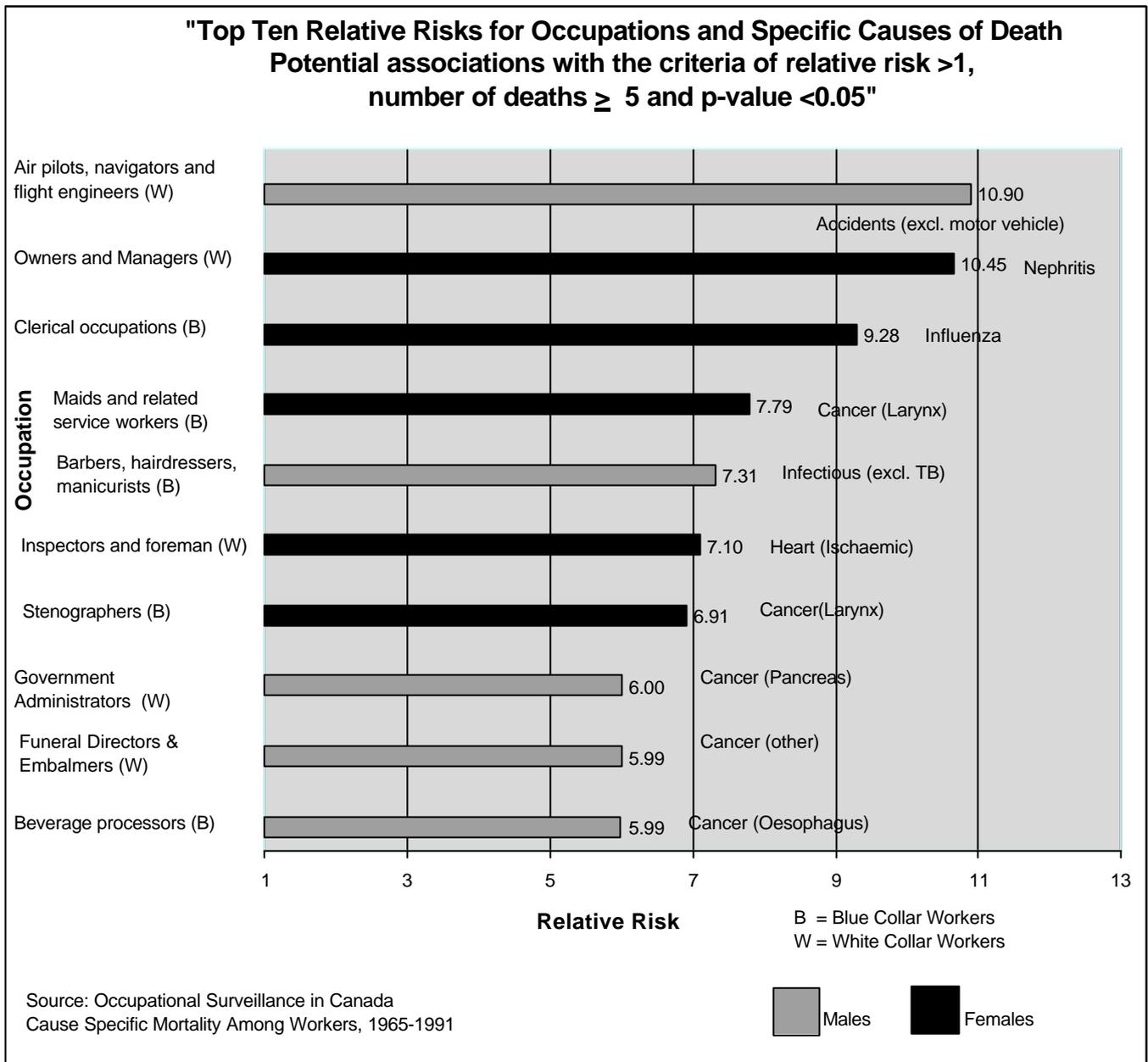
4.4 Results: Some Highlight Examples

In addition to the prepared tables giving the complete results and the selected results as detailed above, some highlights are given as examples of the way in which other information can be obtained from the data.

4.4.1 Top 10 Relative Risks by Specific Causes of Death

Figure 4.1 provides a graphic presentation of the study's relative risk estimates with 95% confidence intervals for each of the ten top relative risk findings by specific causes of death.

Figure 4.1



4.4.2 Highest Relative Risks by Sex and Occupational Classification

Tables 4.2 to 4.5 provide another way of looking at the results, listing occupations with the highest relative risk for a specific cause of death for each sex and each of the two socio-economic classifications. The four tables are prepared for ~~the four categories of~~ the selected top 12 relative risks for occupations analysed by sex and occupational classification (blue-collar and white-collar workers). Results are given where the number of deaths for that occupation and specific cause is greater than or equal to 5 and the p-value is less than 0.05.

Table 4.2
Female Blue-Collar Workers

Twelve potential associations between occupations and specific causes of death for female blue-collar workers.

Selection Criteria: Relative Risk > 1; Deaths ≥ 5; p-value < 0.05

By descending order of relative risk.

| Death Code Group | Death Cause | Occupation | Age Group | Person Years | Deaths | Rel. Risk | 95% Confidence Interval |
|------------------|----------------------------------|---|-----------|--------------|--------|-----------|-------------------------|
| 55 | Influenza | Clerical Occupations | 15-64 | 830,546 | 5 | 9.28 | 2.22 - 38.87 |
| 16 | Cancer (Larynx) | Maids and related service workers | All | 164,070 | 9 | 7.79 | 3.56 - 17.05 |
| 16 | Cancer (Larynx) | Stenographers | 15-64 | 460,245 | 5 | 6.91 | 2.25 - 21.28 |
| | | | All | 497,943 | 7 | 3.40 | 1.47 - 7.89 |
| 67 | Suicide | Stock clerks and storekeepers | 15-64 | 14,313 | 5 | 4.59 | 1.90 - 11.09 |
| | | | All | 16,400 | 5 | 4.08 | 1.69 - 9.86 |
| 49 | Alcohol related mental disorders | Maids and related service workers | 15-64 | 131,374 | 10 | 4.55 | 2.31 - 8.98 |
| 34 | Myeloma | General office clerks | All | 12,994 | 5 | 4.44 | 1.84 - 10.71 |
| 28 | Cancer (Brain) | Dressmakers and seamstresses – not in factory | All | 24,023 | 6 | 4.41 | 1.95 - 9.97 |
| 44 | Leukaemia (Other) | Telephone operators | All | 115,179 | 5 | 4.02 | 1.75 - 9.24 |
| 54 | Cerebrovascular | Metalworking machine operators | 15-64 | 10,907 | 7 | 3.97 | 1.88 - 8.36 |
| 66 | Accidents (excl. Code 65*) | Other textile occupations | 15-64 | 19,063 | 5 | 3.93 | 1.63 - 9.52 |
| 60 | Cirrhosis (Non-alcoholic) | Dressmakers and seamstresses – not in factory | All | 24,023 | 6 | 3.52 | 1.56 - 7.95 |
| 69 | External (excl. Codes 65-68*) | Janitors and cleaners (building) | 15-64 | 69,418 | 7 | 3.50 | 1.62 - 7.59 |

Source: Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-91

* See Appendix 5 for Cause of Death Codes sorted by death code group number

Table 4.3
Female White-Collar Workers

Twelve potential associations between occupations and specific causes of death for female white-collar workers.

Selection Criteria: Relative Risk > 1; Deaths \geq 5; p-value < 0.05

By descending order of relative risk.

| Death Code Group | Death Cause | Occupation | Age Group | Person Years | Deaths | Rel. Risk | 95% Confidence Interval |
|------------------|----------------------------------|---|-----------|--------------|--------|-----------|-------------------------|
| 61 | Nephritis | Owners and managers | 15-64 | 42,423 | 5 | 10.45 | 2.38 - 45.89 |
| 52 | Heart (Ischaemic) | Inspectors and foremen | 15-64 | 2,843 | 6 | 7.10 | 3.13 - 16.13 |
| | | | All | 3,330 | 15 | 3.94 | 2.36 - 6.59 |
| 66 | Accidents (excl. Code 65*) | Attendants, doctors' and dentists' offices | 15-64 | 20,932 | 6 | 5.61 | 2.31 - 13.64 |
| | | | All | 22,517 | 7 | 4.78 | 2.14 - 10.70 |
| 58 | Emphysema | Owners and Managers | All | 54,267 | 6 | 4.68 | 1.55 - 14.12 |
| 21 | Cancer (Cervix) | Accountants and auditors | All | 29,288 | 5 | 4.58 | 1.71 - 12.28 |
| 50 | Heart (Chronic Rheumatic) | Foremen | All | 24,102 | 9 | 4.11 | 1.97 - 8.56 |
| 30 | Cancer Other (excl. Codes 6-29*) | Science and engineering technicians | All | 15,735 | 6 | 3.22 | 1.41 - 7.35 |
| 53 | Heart (excl. Codes 50, 52*) | Accountants and auditors | 15-64 | 25,506 | 5 | 3.18 | 1.20 - 8.46 |
| 11 | Cancer (Colon) | Supervisors: Sales occupations, commodities | All | 5,817 | 5 | 3.15 | 1.28 - 7.75 |
| 17 | Cancer (Lung) | Supervisors: Other clerical and related occupations | All | 7,161 | 7 | 2.59 | 1.21 - 5.57 |
| 17 | Cancer (Lung) | Office managers | All | 11,409 | 8 | 2.44 | 1.19 - 4.99 |
| 9 | Cancer (Stomach) | Owners and managers | All | 54,267 | 9 | 2.34 | 1.05 - 5.18 |

Source: Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-91

* See Appendix 5 for Cause of Death Codes sorted by death code group number

Table 4.4
Male Blue-Collar Workers

Twelve potential associations between occupations and specific causes of death for male blue-collar workers

Selection Criteria: Relative Risk > 1; Deaths [≥] 5; p-value < 0.05

By descending order of relative risk

| Death Code Group | Death Cause | Occupation | Age Group | Person Years | Deaths | Rel. Risk | 95% Confidence Interval |
|------------------|--|---|-----------|--------------|--------|-----------|-------------------------|
| 2 | Infectious (excl. TB) | Barbers, hairdressers, manicurists | 15-64 | 24,813 | 9 | 10.93 | 5.62-21.26 |
| | | | All | 26,953 | 9 | 7.31 | 3.78-14.15 |
| 8 | Cancer (Esophagus) | Beverage processors | All | 10,404 | 5 | 5.99 | 2.48-14.45 |
| 60 | Cirrhosis (Non-alcohol) | Paper makers | All | 7,724 | 5 | 5.98 | 2.48-14.40 |
| 50 | Heart (Chronic Rheumatic) | Policemen and detectives | 15-64 | 19,502 | 5 | 5.89 | 2.43-14.25 |
| 6 | Cancer (Lip) | Labourers (excl. agricultural, fishing, logging or mining operations) | 15-64 | 1,763,229 | 5 | 5.87 | 1.58 - 21.89 |
| 44 | Leukaemia (Other) (excl. Codes 35-43*) | Construction workers, n.e.s. | All | 29,883 | 5 | 5.66 | 2.34 - 13.71 |
| 14 | Cancer (Gallbladder) | Operators of earth-moving and other construction machinery, n.e.s. | 15-64 | 79,185 | 5 | 5.49 | 2.22 - 13.56 |
| 66 | Accidents (excl. Code 65*) | Pipefitting, plumbing and related occupations | All | 2,799 | 5 | 5.28 | 2.19 - 12.70 |
| 66 | Accidents (excl. Code 65*) | Rolling-mill operators | 15-64 | 4,511 | 7 | 5.14 | 2.44 - 10.79 |
| | | | All | 5,377 | 7 | 4.26 | 2.03 - 8.94 |
| 60 | Cirrhosis (Non-alcoholic) | Other clerical and related occupations, n.e.s. | 15-64 | 14,865 | 5 | 4.94 | 2.05 - 11.92 |
| 16 | Cancer (Larynx) | Bartenders | All | 27,156 | 9 | 4.94 | 2.55 - 9.55 |
| 16 | Cancer (Larynx) | Fitters and assemblers – metal | 15-64 | 81,419 | 11 | 4.85 | 2.65 - 8.89 |

Source: Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-91

* See Appendix 5 for Cause of Death Codes sorted by death code group number

Table 4.5
Male White-Collar Workers

Twelve potential associations between occupations and specific causes of death for male white-collar workers.

Selection Criteria: Relative Risk > 1; Deaths [≥] 5; p-value < 0.05

By descending order of relative risk.

| Death Code Group | Death Cause | Occupation | Age Group | Person Years | Deaths | Rel. Risk | 95% Confidence Interval |
|------------------|--|--|-----------|--------------|--------|-----------|-------------------------|
| 66 | Accidents (excl. Code 65*) | Air pilots, navigators, and flight engineers | 15-64 | 4,468 | 9 | 11.76 | 6.05 - 22.86 |
| | | | All | 4,622 | 9 | 10.90 | 5.61 - 21.16 |
| 15 | Cancer (Pancreas) | Government administrators | All | 3,759 | 5 | 6.0 | 2.48 - 14.53 |
| 30 | Cancer (Other) (excl. Codes 6-29*) | Funeral directors and embalmers | All | 4,187 | 5 | 5.99 | 2.48 - 14.47 |
| 44 | Leukaemia (Other) (excl. Codes 35-43*) | Purchasing agents and buyers | All | 27,623 | 5 | 5.90 | 2.35 - 14.82 |
| 5 | All cancer | Foremen: Textile processing occupations | 15-64 | 833 | 6 | 5.79 | 2.60 - 12.91 |
| 39 | Leukaemia (Chronic myeloid) | Foremen, n.e.s. | 15-64 | 190,770 | 5 | 5.10 | 1.60 - 16.27 |
| 30 | Cancer (Other) (excl. Codes 6-29*) | Draughtsmen | 15-64 | 8,844 | 5 | 4.68 | 1.93 - 11.37 |
| 66 | Accidents (excl. Code 65*) | Logging foremen | 15-64 | 6,930 | 7 | 4.51 | 2.13 - 9.57 |
| 69 | External (excl. Codes 65-68*) | General foremen – construction | 15-64 | 48,212 | 6 | 3.96 | 1.67 - 9.38 |
| | | | All | 57,340 | 6 | 3.79 | 1.60 - 8.96 |
| 24 | Cancer (Prostate) | Civil engineers | All | 7,095 | 5 | 3.94 | 1.63 - 9.52 |
| 15 | Cancer (Pancreas) | Logging foremen | All | 9,189 | 9 | 3.82 | 1.97 - 7.44 |
| 9 | Cancer (Stomach) | Logging foremen | All | 9,189 | 9 | 3.76 | 1.93 - 7.31 |

Source: Occupational Surveillance in Canada: Cause-Specific Mortality Among Workers, 1965-91

* See Appendix 5 for Cause of Death Codes sorted by death code group number

4.4.3 Additional Ways of Examining the Results

There are many ways of looking at the results. Some examples include (i) reviewing cases where the number of observed deaths is greater than a certain number (n), where n could be 20, 25, 50, or 100, for a particular occupation, for specific causes of death. This review could be undertaken with the selection of the relative risk being greater than 1 and the p-value less than 0.05 (or lower); (ii) examining cases where the relative risk is greater than, say, 2 (or 3) and the p-value less than 0.05 (or lower); (iii) checking specific occupations for the relative risk by cause of death, taking into account the number of observed deaths to determine the potential risk for that occupation; or (iv) making a selection on specific causes of death.

Some tables of other specific results have been included in a published journal article (Aronson et al, 1999).

5. DISCUSSION

5.1 General

Possible associations between occupational factors and health outcomes can be identified in these occupational surveillance data. As measured by the relative risk, a number of occupations are characterized by elevated mortality ($RR > 1$) for specific causes of death. Complete results, without reporting criteria, are available in the FULL TABLES. The SELECTED TABLES, selected on the basis of $RR > 1$, number of deaths ≥ 5 , and $p\text{-value} < 0.05$, show the more significant findings. Associations flagged here may confirm earlier research, but more often, they raise new hypotheses about which there is no prior evidence. By design, causal inference is not possible with this type of study, and further investigations must test the hypotheses raised here.

5.2 Strengths and Limitations

Several strengths and limitations must be considered in the interpretation of these results. This database is unique in that it contains occupational information collected before death, whereas most other systems rely on occupational information entered on death registrations. Further, unlike individual studies, one key advantage is the assessment of risk potentially associated with many occupations at once. However, it is a challenge to analyse the vast quantity of data and

present the results in a meaningful way. The interpretation of these results may be tempered by the accuracy and completeness of reporting occupation in the employment surveys and deaths and causes of death in the mortality data base; the absence of information on potential confounders; and employment selection patterns.

5.3 Quality of Data Sources

Occupational information was reported to the employment surveys by employers, so is probably quite reliable. It is certainly of higher quality than occupational information on death registrations, which is usually reported by the funeral director from the next-of-kin (where level of agreement with various other sources is in the range of 50% to 80% (Swanson et al., 1984; Steenland and Beaumont, 1984; Schumacher, 1986; Wigle et al, 1982). Many studies using death registrations as the source of occupational information have excluded women, since most women were classified as "housewife" or "homemaker" (Gallagher et al., 1989), which may mask employment outside the home.

The major limitation of this occupational surveillance system is it provides no information on job titles after 1971, the last year of the employment surveys used for this cohort. That is, the maximum duration of recorded job titles for individuals in the cohort is six years and their work histories after 1971 are not known. The stability of occupations over time varies by occupation. Occupations with a professional or vocational training usually represent relatively well life-long occupational history, whereas in less specialised occupations there is more heterogeneity. Therefore, an occupation at one point in time may or may not reflect lifelong occupational history, depending on the occupation. The effect of this potential misclassification for "unstable" occupations is to dilute risk estimates.

This study evaluates risks potentially associated with employment in a particular occupation for at least one year of the survey. This is based partly on the fact that for many people, employment for a survey year is likely to represent prior and future employment for a number of years, and partly because occupational mortality associations are often observed in individuals with comparatively limited occupational experience. The relatively high statistical power of this investigation for many occupations may offset the consequences of potential misclassification (and therefore, attenuated relative risks), since outcome assessment occurs often long after exposure assessment. Actual exposures or measures of exposure, such as duration and intensity, are not considered. Therefore, before more definitive associations are

established between occupation and cause of death, in-depth epidemiologic studies must be performed.

All deaths occurring in Canada are recorded in the Canadian Mortality Data Base. There are also notifications of some deaths occurring in the United States for Canadian residents. The accuracy of the files used for the record linkage was enhanced by the availability of Social Insurance Number. An additional linkage to income tax files within Statistics Canada was made to determine who was still filing income tax returns to determine and help confirm their vital status. This procedure also provided evidence that the mortality linkage is of high quality. Coupled with the fact that this is an extremely large cohort, and that there are large numbers of subjects even for some very rare causes of death, the risk estimates are considered to be reliable. However, some of the categories of death used to allow examination of a wide spectrum of causes were broad and may mask important increases in risk that would be apparent in a more specific study of, for example, accidents. This was intended to be a "big picture" study of the potential impact of occupations on causes of death. Finally, for many non-cancer outcomes, mortality may be a poor indicator of non-fatal chronic conditions that are associated with specific occupations.

5.4 Confounders

The study has limitations, particularly the absence of individual data on potential confounders such as smoking. Associations between occupations and causes of death may reflect socio-economic status (for example, income and educational attainment), which in turn, entails lifestyle confounding factors such as smoking or alcohol consumption, and which may be more closely associated with mortality than the occupation per se. An attempt has been made to minimize this possible effect by comparing people within the same occupational class (white or blue collar), although such a broad classification into only two groups may not obviate the problem. These internal comparisons also avoid the healthy worker effect. Since the primary objective is to generate hypotheses, issues of confounding may properly be addressed in other data sources used to confirm or negate those hypotheses.

5.5 Generalizability

In terms of the cohort's representativeness of the entire Canadian working population, there appears to have been a reduced sampling of white-collar workers compared to blue-collar workers. Certain occupations, such as self-employed farmers, were excluded altogether. In addition, the S.I.N. was not introduced in Canada until 1964, so, when the survey started, not all individuals had been allocated a number. Workers with higher salaries and those who were self-employed, such as farmers who owned their farms, did not have to pay unemployment insurance and thus were less likely to obtain a S.I.N. The extent of the non-representativeness of the cohort cannot be quantified, but in view of the design of the study, this does not pose a problem in terms of selection bias, and the study may provide a reasonable approximation for inferences that involve generalization to the entire Canadian working population.

5.6 Multiple Tests

This study produced over 27,000 occupation, cause-specific, sex, and age group specific relative risks. Because so many comparisons have been made, the p-values of 0.05 or less should not be interpreted in the usual way as nominal values (i.e., a less than 1 in 20 chance). It is impossible to know which are true increased or decreased risks, and which occurred by chance alone. Nonetheless, this approach is justified by the objectives of this work, principally flagging all potential associations. The usual criterion of statistical significance should be viewed as only one tool in interpreting these data, with results from other studies, both past and future, taken into consideration as well as the biologic plausibility of potential associations. More research must be conducted before a potential association found here is labelled causal.

6. FUTURE WORK

6.1 Next Steps

Priorities for future research and preventive action related to occupation, cancer incidence and mortality in Canada will be established, at least in part, with the information provided through the continued use of this database. Investigations currently underway include translating job titles into exposure to specific substances, and including measures of exposure, such as

duration and intensity. Future work on this cohort may include a linkage to determine cancer incidence experience, using the Canadian Cancer Data Base. In addition, job titles will be classified according to physical activity level, and analyses will examine risk according to sedentary and active jobs, for example.

6.2 What Can be Done? Preventability

The results (see the FULL and SELECTED TABLES, which can be found under the *Data* button), together with some of the highlight results shown in the Section 4, above, quantify the relationships found so far.

These results provide clues to possible occupational health problem areas. They can be used to generate leads for further research. Users should take care to examine the relative risks in conjunction with the number of deaths involved to determine priorities and to incorporate the overall burden of illness in the population.

Assistance in targeting areas for further study can also be obtained from comparing and considering results of other major occupational studies, as well as consulting major publications reviewing occupational factors. These latter include the International Agency for Research on Cancer (IARC) Monographs 1982 - present. IARC publishes evaluations of the carcinogenic risks to humans of chemicals, complex mixtures, occupational exposures and cultural habits and divides the risks into five groups:

- Group 1: carcinogenic to humans;
- Group 2A: probably carcinogenic to humans;
- Group 2B: possibly carcinogenic to humans;
- Group 3: unclassifiable as to carcinogenicity to humans;
- Group 4: probably not carcinogenic to humans.

Other reviews can be found in Schottenfeld and Fraumeni, eds, 1996; Higginson, Muir and Munoz, 1992; Siemiatycki, 1991; Monson, 1990; National Centres for Health Statistics (NCHS) Workshop, 1988; Alderson, 1986, IARC, 1986.

In addition to using these results for further research, this surveillance information can be useful as a source of information for health departments, unions, workers and employers, to check hypothesised associations between a cause of death and an occupation. They can also be used for reviewing health promotion/disease prevention activities such as screening or other programs for tracking progress toward elimination of preventable disease, accidents and possible health risks for workers.

7. REFERENCES

Alderson MR. *Occupational Cancer*. London. Butterworths, 1986.

Andersen A, Barlow L, Engeland A, Kjaerheim K, Lyng E, Pukkala E. *Work-Related Cancer in the Nordic Countries*. Scandinavian Journal of Work, Environment and Health, Volume 25, Supplement 2, 1999.

Andersen O. *Occupational Mortality 1970-1980*. Danmarks Statistik, Copenhagen, Denmark. Statistiske undersøgelser nr 41, 1985 (in Danish).

Aronson KJ, Howe GR. Utility of a surveillance system to detect associations between work and cancer among women in Canada, 1965-1991. *Journal of Occupational Medicine* 1994; 36: 1174-1179.

Aronson KJ, Howe GR, Carpenter M, Fair ME. Surveillance of potential associations between occupations and causes of death in Canada, 1965-1991. *Occupational and Environmental Medicine*, 1999; 56: 265-269.

Baker EL, Honchar PA, Fine LJ. I. Surveillance in occupational illness and injury: Concepts and content. *American Journal of Public Health* 1989; 79 Suppl: 9-11.

Borgan J-K, Kristofersen LB. *Mortality by Occupation and Socio-economic Group in Norway 1970-1980*, Statistiske analyser 56, Oslo, Central Bureau of Statistics in Norway, 1986.

Breslow NE, Day NE. *Statistical Methods in Cancer Research. Volume II - The Design and Analysis of Cohort Studies*. IARC Scientific Publications, Lyon, France 1987; No. 82.

Burnett C, Maurer J, Dosemeci M. *Mortality by Occupation, Industry and Cause of Death: 24 reporting States, 1984-1988*. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Cincinnati, Ohio. DHHS (NIOSH) Publication No. 97-114. June 1997.

Carpenter M, Aronson KJ., Fair ME, Howe GR. Creation of an occupational surveillance system in Canada: combining data for a unique Canadian study. *Symposium 99: Combining Data from Different Sources - Proceedings, May 1999*. Statistics Canada, Ottawa, Ontario, Canada K1A 0T6 (In preparation).

Dubrow R, Wegman DH, Cancer and occupation in Massachusetts: a death certificate study. *American Journal of Industrial Medicine* 6: 207-230, 1984

EPICURE Software. HiroSoft International Corporation, 1993.

Fair ME. An overview of record linkage in Canada. *Proceedings of the Social Statistics Section of the American Statistical Association*, 1995; 25-33.

Gallagher RP, Threlfall WJ, Band PR, Spinelli JJ. *Occupational Mortality in British Columbia 1950-1984*. Cancer Control Agency of British Columbia and Workers Compensation Board of British Columbia, Vancouver, British Columbia, Canada. 1989.

Goldberg MS, Carpenter M, Theriault G, Fair ME. The accuracy of ascertaining vital status in a historical cohort study of synthetic textiles workers using computerized record linkage to the Canadian Mortality Data Base. *Canadian Journal of Public Health*, 1993; 84(3): 201-204.

Goldblatt P. *Longitudinal Study: Mortality and Social Organisation*. Office of Population Censuses and Surveys, London, United Kingdom. Her Majesty's Stationery Office, 1990.

Gute DM. *The Association of Occupation and Industry with Mortality in Rhode Island, 1968-1972*. Rhode Island Department of Health, Health Planning and Development, Providence, Rhode Island. Technical Report No. 23, 1981.

Higginson J., Muir CS, Munoz N. *Human Cancer: Epidemiology and Environmental Causes*. Cambridge, England. Cambridge University Press, 1992.

Howe GR, Lindsay JP. A follow-up study of a ten-percent sample of the Canadian labour force. I. Cancer mortality in males, 1965-73. *Journal of National Cancer Institute* 1983; 70: 37-44.

Howe GR, Chiarelli AM, Lindsay JP. Components and modifiers of the healthy worker effect: evidence from three occupational cohorts and implications for industrial compensation. *American Journal of Epidemiology* 1988; 128: 1364-1375.

International Agency for Research on Cancer (IARC). *Monographs on the evaluation of the carcinogenic risks to humans*. Lyon, France. List of IARC evaluations, 1994.

International Agency for Research on Cancer. *Priorities in Occupational Cancer Epidemiology*. Lyon France. IARC Internal Technical Report No. 86/004, 1986.

Klitzman S, Silverstein B, Punnett L, Mock A. A Women's Occupational Health Agenda for the 1990's. *New Solutions* 1990; 1(1): 7-17.

Langmuir AD. The surveillance of communicable diseases of national importance. *New England Journal of Medicine* 1963; 268: 182-192.

Last JM. (ed.) *A Dictionary of Epidemiology*. 3rd Edition, Oxford University Press, 1995.

Leigh JP, Markowitz SB, Fahs M, Shin C, Landrigan PJ. Occupational injury and illness in the United States. *Arch Internal Medicine* 1997; 157: 1557-1568.

Lindsay JP. *Occupational cancer mortality in a ten percent sample of males in the Canadian labour force, 1965-1979: the establishment of a monitoring system.* Ph.D. Thesis, London, Ontario: University of Western Ontario, 1989.

Lindsay JP, Stavrakys KM, Howe GR. Cancer mortality among males 1965-1979, in a 10-percent sample of the Canadian labour force. *Journal of Occupational Medicine* 1993; 35: 408-414.

Marin R. *Occupational Mortality in 1971-1980.* Central Statistical Office of Finland, Helsinki, Finland. Study No. 129, 1986.

McMichael AJ. Standardized mortality ratios and the "healthy worker effect": Scratching beneath the surface. *Journal of Occupational Medicine* 1976; 18(3): 165-168.

Milham S. *Occupational Mortality in Washington State, 1950-79.* U.S. Department of Health and Human Services, Cincinnati Ohio, 1983.

Monson RR. *Occupational Epidemiology*, 2nd Edition, Boca Raton, Florida. CRC Press, 1990.

National Center for Health Statistics. *Eighth Revision, International Classification of Diseases, Adapted for use in the United States.* U.S. Department of Health, Education and Welfare, Public Health Service, Washington, D.C., 1968.

National Center for Health Statistics. *Proceedings of the Workshop on Needs and Resources for Occupational Mortality Data.* Series 4, No. 26 Vital and Health Statistics, Hyattsville, Maryland. DHHS Pub. No. 88-1463, 1988.

Newcombe HB. *A Method of Monitoring Nationally for Possible Delayed Effects of Various Occupational Environments*. National Research Council of Canada, Ottawa. NRCC No. 13686, 1974.

Nordic Statistical Secretariat. *Occupational Mortality in the Nordic Countries 1971-1980*. Copenhagen, Denmark. Statistical Reports of the Nordic Countries 49, 1988.

Office of Population Censuses and Surveys. *Registrar General's Decennial Supplements for England and Wales*. Series DS No.10. London, England: Her Majesty's Stationery Office, 1995.

Passannante MRC, Nathanson CA. Women in the labour force: are sex mortality differentials changing? *Journal of Occupational Medicine* 1987; 29 (1): 21-28.

Petersen GR, Milham S. *NIOSH Research Report: Occupational Mortality in the State of California 1959-1961*. National Institute for Occupational Safety and Health, DHEW (NIOSH), Cincinnati, Ohio. Publication No. 80-104, 1980.

Pineo PC. *Revisions of the Pineo-Porter-McRoberts socio-economic classification of occupation for the 1981 census*. QSEP (Quantitative Studies in Economics and Population) Research Report No. 125. McMaster University, Hamilton, Ontario 1985.

Pukkala E. *Cancer Risk by Social Class and Occupation, A Survey of 109,000 Cancer Cases Among Finns of Working Age*. Contributions to Epidemiology and Biostatistics, Volume 7. P.O. Box CH-4009, Basel, Switzerland. Karger 1995.

Schottenfeld D, Fraumeni JF Jr. (eds.) *Cancer Epidemiology and Prevention*, 2nd Edition. Oxford, England. Oxford University Press, 1996.

Schumacher MC. Comparison of occupation and industry information from death certificates and interviews. *American Journal of Public Health* 1986; 76: 635-637.

Shannon H, Jamieson E, Walsh C, Julian J, Fair M, Buffet A. Comparison of individual follow-up and computerized record linkage using the Canadian Mortality Data Base. *Canadian Journal of Public Health* 1989; 80: 54-57.

Siemiatycki J. (ed.) *Risk Factors for Cancer in the Workplace*. Boca Raton, Florida, CRC Press, 1991.

Smith ME, Newcombe HB. Use of the Canadian Mortality Data Base for epidemiological follow-up. *Canadian Journal of Public Health*, Vol.73: 39-46, 1982.

Statistics Canada. *Occupational Classification Manual Census of Canada, 1961*, Ottawa, Ontario, Canada, K1A 0T6. Catalogue No. 12-506, 1961.

Statistics Canada. *Occupational Classification Manual Census of Canada, 1971*. (Based on Canadian Classification and Dictionary of Occupations), Ottawa, Ontario, Canada, K1A 0T6. Catalogue No. 12-536/7, 1971.

Statistics Canada. *Women in Canada: A Statistical Report*. 3rd edition, Statistics Canada, Ottawa, Ontario, Canada K1A 0T6. Cat. No. 89-503XPE/F, 1995.

Statistiska Centralbyran: Dodsfall-register 1961-70 (Death register 1961-70). *Socialstyrelsen*, Stockholm, Sweden. Promemorior fran SBC 1981:5. 1982 (in Swedish).

Steenland K, Beaumont J. The accuracy of occupation and industry data on death certificates. *Journal of Occupational Medicine* 1984; 26: 288-296.

Surles KB, Gizlice Z, Buescher PA, Martin RD. *Occupational Mortality Among Working-age North Carolinians 1988-97*. North Carolina Department of Health and Human Services, State Center for Health Statistics, SCHS Study No. 115, May 1999.

Swanson GM, Schwartz AG, Burrows RW. An assessment of occupation and industry data from death certificates and hospital medical records for population-based cancer surveillance. *American Journal of Public Health* 1984; 74: 464-467.

Thun MJ. Measuring occupational effects: How could we do it better? *Epidemiology* 1991; 2: 5-7.

Wigle DT, Mao Y, Howe G, Lindsay J. Comparison of occupation on survey and death records in Canada. *Canadian Journal of Public Health* 1982; 73: 242-247.

World Health Organization *International Classification of Diseases, 7th Revision*, Geneva, 1957.

World Health Organization *International Classification of Diseases, 9th Revision*, Geneva, 1979.

Appendix 1: 1961 Occupations Codes – sorted by code number**MANAGERIAL OCCUPATIONS****Managers, specified**

| | | |
|----|---|------------------------------|
| 1 | W | Advertising managers |
| 2 | W | Credit managers |
| 4 | W | Sales managers |
| 5 | W | Delivery managers |
| 6 | W | Office managers |
| 7 | W | Postmasters |
| 8 | W | Purchasing agents and buyers |
| 10 | W | Owners and managers, n.e.s. |

PROFESSIONAL AND TECHNICAL OCCUPATIONS**Professional engineers**

| | | |
|-----|---|--------------------------------|
| 101 | W | Civil engineers |
| 102 | W | Mechanical engineers |
| 104 | W | Industrial engineers |
| 105 | W | Electrical engineers |
| 107 | W | Mining engineers |
| 108 | W | Chemical engineers |
| 109 | W | Professional engineers, n.e.s. |

Physical scientists

| | | |
|-----|---|-----------------------------|
| 111 | W | Chemists |
| 112 | W | Geologists |
| 114 | W | Physicists |
| 119 | W | Physical scientists, n.e.s. |

Biologists and agricultural professionals

| | | |
|-----|---|------------------------------------|
| 121 | W | Biological scientists |
| 124 | W | Veterinarians |
| 129 | W | Agricultural professionals, n.e.s. |

Teachers

| | | |
|-----|---|-----------------------------------|
| 131 | W | Professors and college principals |
| 135 | W | School teachers |
| 139 | W | Teachers and instructors, n.e.s. |

Health professionals

| | | |
|-----|---|--------------------------------------|
| 140 | W | Physicians and surgeons |
| 141 | | Dentists |
| 142 | W | Nurses, graduate |
| 143 | | Nurses-in-training |
| 144 | W | Physical and occupational therapists |
| 145 | W | Optometrists |
| 146 | | Osteopaths and chiropractors |
| 147 | W | Pharmacists |
| 148 | W | Medical and dental technicians |
| 149 | W | Other health professionals |

Law professionals

| | | |
|-----|---|------------------------|
| 151 | W | Judges and magistrates |
| 153 | W | Lawyers and notaries |

Religion professionals

| | | |
|-----|---|-------------------------------|
| 161 | W | Clergymen and priests, n.o.r. |
| 163 | | Nuns and brothers, n.o.r. |
| 169 | W | Religious workers, n.o.r. |

Artists, writers and musicians

| | | |
|-----|---|---|
| 171 | W | Artists, commercial |
| 172 | W | Artists (except commercial), art teachers |
| 174 | W | Authors, editors and journalists |
| 176 | W | Musicians and music teachers |

Other professionals

| | | |
|-----|---|---|
| 181 | W | Architects |
| 182 | W | Draughtsmen |
| 183 | W | Surveyors |
| 184 | W | Actuaries and statisticians |
| 186 | W | Economists |
| 187 | W | Computer programmers |
| 188 | W | Accountants and auditors |
| 191 | W | Dietitians |
| 192 | W | Social welfare workers |
| 194 | W | Librarians |
| 195 | W | Interior decorators and window dressers |
| 196 | W | Photographers |
| 198 | W | Science and engineering technicians, n.e.s. |

199 Professional occupations, n.e.s.

CLERICAL OCCUPATIONS

| | | |
|-----|---|---|
| 201 | B | Bookkeepers and cashiers |
| 203 | B | Office appliance operators |
| 212 | B | Stock clerks and storekeepers |
| 214 | B | Shipping and receiving clerks |
| 221 | | Baggagemen and expressmen, transport |
| 223 | B | Ticket, station and express agents, transport |
| 232 | B | Stenographers |
| 234 | B | Typists and clerk-typists |
| 241 | W | Attendants, doctors' and dentists' offices |
| 249 | B | Clerical occupations, n.e.s. |

SALES OCCUPATIONS

| | | |
|-----|---|--|
| 301 | W | Foremen, trade |
| 303 | | Auctioneers |
| 307 | B | Canvassers and other door-to-door salesmen |
| 312 | | Hawkers and pedlars |
| 314 | B | Commercial travellers |
| 316 | | Newsvendors |
| 323 | B | Service station attendants |
| 325 | B | Sales clerks |
| 327 | B | Advertising salesmen and agents |
| 331 | B | Insurance salesmen and agents |
| 334 | B | Real estate salesmen and agents |
| 336 | B | Security salesmen and brokers |
| 338 | B | Brokers, agents and appraisers, n.e.s. |
| 339 | B | Other sales occupations |

SERVICE AND RECREATION OCCUPATIONS

Protective service occupations

| | | |
|-----|---|-------------------------------------|
| 401 | B | Firemen, fire protection |
| 403 | B | Policemen and detectives |
| 405 | B | Guards, watchmen, n.e.s. |
| 407 | | Commissioned officers, armed forces |
| 408 | | Other ranks, armed forces |

Housekeepers, waiters, cooks and related workers

| | | |
|-----|---|---|
| 411 | W | Lodging and boarding house keepers |
| 412 | B | Housekeepers (except private household), matron, stewards |
| 413 | B | Cooks |
| 414 | B | Bartenders |
| 415 | B | Waiters |
| 416 | B | Nursing assistants and aides |
| 417 | B | Porters, baggage and pullman |
| 418 | B | Baby sitters |
| 419 | B | Maids and related service workers, n.e.s. |

Athletes, entertainers and related workers

| | | |
|-----|---|----------------------------------|
| 431 | W | Actors, entertainers and showmen |
| 433 | W | Athletes and sports officials |

Other service occupations

| | | |
|-----|---|--------------------------------------|
| 451 | B | Barbers, hairdressers, manicurists |
| 452 | B | Launderers and dry cleaners |
| 453 | B | Elevator tenders, buildings |
| 454 | B | Janitors and cleaners, building |
| 455 | W | Funeral directors and embalmers |
| 456 | B | Guides |
| 457 | B | Attendants, recreation and amusement |
| 459 | B | Service workers, n.e.s. |

TRANSPORT AND COMMUNICATION OCCUPATIONS

Supervisors of transport operations

| | | |
|-----|---|------------------------|
| 510 | W | Inspectors and foremen |
|-----|---|------------------------|

Operators, aircraft

| | | |
|-----|---|---|
| 520 | W | Air pilots, navigators and flight engineers |
|-----|---|---|

Operators, railroad

| | | |
|-----|---|-------------------------|
| 531 | B | Locomotive engineers |
| 532 | B | Locomotive fireman |
| 534 | B | Conductors railroad |
| 535 | B | Brakemen, railroad |
| 537 | B | Switchmen and signalmen |

Operators, water transport

| | | |
|-----|---|--|
| 541 | W | Deck officers, ship |
| 543 | W | Engineering officers, ship |
| 545 | B | Deck ratings (ship), barge crews and boatmen |
| 547 | B | Engine-room ratings, firemen and oilers (ship) |

Operators, road transport

| | | |
|-----|---|-----------------------------|
| 551 | B | Bus drivers |
| 552 | B | Taxi drivers and chauffeurs |
| 554 | B | Driver-salesmen |
| 556 | B | Truck drivers |

Other transport occupations

| | | |
|-----|---|------------------------------------|
| 561 | B | Operators, electric street railway |
| 563 | B | Teamsters |
| 569 | B | Transport occupations, n.e.s. |

Supervisors of communication operations

| | | |
|-----|---|---------------------------------------|
| 570 | W | Inspectors and foremen, communication |
|-----|---|---------------------------------------|

Other communicative occupations

| | | |
|-----|---|--|
| 581 | B | Radio and television announcers |
| 582 | W | Radio and television equipment operators |
| 584 | B | Telephone operators |
| 585 | B | Telegraph operators |
| 587 | B | Postmen and mail carriers |
| 588 | B | Messengers |

FARMERS AND FARM WORKERS

| | | |
|-----|---|--|
| 601 | B | Farmers and stockraisers |
| 603 | W | Farm managers and foremen |
| 605 | B | Farm labourers |
| 607 | B | Gardeners (except farm) and groundskeepers |
| 609 | B | Other agricultural occupations |

LOGGERS AND RELATED WORKERS

| | | |
|-----|---|---|
| 611 | W | Logging foremen |
| 613 | B | Forest rangers and cruisers |
| 615 | B | Lumbermen, including labourers in logging |

FISHERMEN, TRAPPERS AND HUNTERS

| | | |
|-----|---|----------------------|
| 631 | B | Fishermen |
| 633 | B | Trappers and hunters |

MINERS, QUARRYMEN AND RELATED WORKERS

| | | |
|-----|---|---------------------------------------|
| 651 | W | Foremen-mine, quarry petrol, well |
| 652 | W | Prospectors |
| 653 | B | Timbermen |
| 654 | B | Miners, n.e.s. |
| 655 | B | Millmen |
| 656 | B | Well drillers and related workers |
| 657 | B | Labourers, mine |
| 659 | B | Quarriers and related workers, n.e.s. |

CRAFTSMEN, PRODUCTION PROCESS AND RELATED WORKERS

Millers, bakers, brewers and related food workers

| | | |
|-----|---|---|
| 701 | B | Millers of flour and grain |
| 702 | B | Bakers |
| 703 | B | Butchers and meat cutters |
| 704 | B | Meat canners, curers, packers |
| 705 | B | Fish canners, curers, packers |
| 706 | B | Fruit and vegetable canners and packers |
| 707 | B | Milk processors |
| 708 | B | Other food processing occupations |
| 709 | B | Beverage processors |

Tire builders, vulcanizers and other rubber workers

| | | |
|-----|---|------------------------|
| 711 | B | Tire and tube builders |
| 713 | B | Vulcanizers |
| 719 | B | Other rubber workers |

**Leather Cutters, lasters, sewers and other leather workers
(except glove and garment)**

| | | |
|-----|---|--|
| 721 | B | Leather cutters |
| 722 | B | Shoemakers and repairers-factory, n.e.s. |
| 724 | B | Shoemakers and repairers-not in factory |
| 729 | B | Other leather products makers |

Spinners, weavers, knitters and related workers

| | | |
|-----|---|---|
| 731 | B | Carders, combers, and other fibre preparers |
| 732 | B | Spinners and twisters |
| 733 | B | Winders, reelers |
| 734 | B | Weavers |
| 735 | B | Loom fixers and loom preparers |
| 736 | B | Knitters |
| 737 | B | Bleachers and dyers-textile |
| 738 | B | Finishers and calenderers |
| 739 | B | Other textile occupations |

Tailors, furriers, upholsterers and related workers

| | | |
|-----|---|--|
| 741 | B | Tailors and tailoresses |
| 742 | B | Dressmakers and seamstresses-not in factory |
| 743 | B | Furriers |
| 744 | B | Milliners; hat and cap makers |
| 745 | B | Cutters, markers-textiles; garment and glove leather |
| 746 | B | Sewers and sewing machine operators, n. e. s. |
| 747 | B | Upholsterers |
| 749 | B | Apparel and related product makers, n. e. s. |

Carpenters, cabinetmakers, sawyers and related workers

| | | |
|-----|---|--|
| 751 | B | Carpenters |
| 752 | B | Cabinet and furniture makers-wood |
| 754 | B | Sawyers |
| 756 | B | Woodworking machine operators, n.e.s. |
| 758 | B | Inspectors, graders, scalers, log and lumber |
| 759 | B | Woodworking occupations, n.e.s. |

Paper makers, still operators, chemical and related workers

| | | |
|-----|---|---|
| 761 | B | Batch and continuous still operators |
| 762 | B | Roasters, cookers and other heat treaters, chemical |
| 763 | B | Cellulose pulp preparers, n.e.s. |
| 765 | B | Paper makers |
| 766 | B | Paper making occupations, n.e.s. |
| 768 | B | Crushers, millers, calenderers, n.e.s.-chemical |
| 769 | | Chemical and related process workers, n.e.s. |

Printers, bookbinders and related workers

| | | |
|-----|---|---|
| 771 | B | Compositors and typesetters |
| 772 | B | Pressmen, printing |
| 773 | B | Lithographic and photo-offset occupations |
| 775 | B | Photoengravers |
| 776 | B | Bookbinders |
| 778 | B | Other occupations in bookbinding |

779 B Printing workers, n.e.s.

Furnacemen, moulders, blacksmiths and related metal workers

781 B Furnacemen and heaters, metal
 782 B Heat treaters, annealers, temperers
 783 B Rolling mill operators
 784 B Blacksmiths, hammermen, forgemen
 786 B Moulders
 787 B Coremakers
 788 B Metal drawers and extruders
 789 B Metal treating occupations, n.e.s.

Jewellers, watchmakers and engravers

791 B Jewellers and watchmakers
 793 B Engravers, except photoengravers

Machinists, plumbers, sheet metal workers and related workers

801 B Toolmakers, diemakers
 802 B Machinists and machine tool setters
 803 B Filers, grinders, sharpeners
 805 B Millwrights
 806 B Fitters and assemblers, n.e.s. -metal
 808 B Metalworking machine operators, n.e.s.
 810 B Plumbers and pipefitters
 811 B Sheet metal workers
 812 B Riveters and rivet heaters
 813 B Boilermakers, platers and structural metal workers
 815 B Electroplaters, dip platers and related workers
 817 B Welders and flame cutters
 818 B Polishers and buffers - metal
 819 B Metalworking occupation, n.e.s.

Mechanics and repairmen, except electrical and electronic

| | | |
|-----|---|---|
| 821 | B | Mechanics and repairmen, aircraft |
| 822 | B | Mechanics and repairmen, motor vehicle |
| 824 | B | Mechanics and repairmen, office machine |
| 825 | B | Mechanics and repairmen, railroad equipment |
| 829 | B | Mechanics and repairmen, n.e.s. |

Electricians and related electric and electronics workers

| | | |
|-----|---|---|
| 831 | B | Electricians, wiremen and electrical repairmen |
| 832 | B | Fitters and assemblers - electrical and electronics equipment |
| 833 | B | Power station operators |
| 835 | B | Mechanics and repairmen, radio and television receivers |
| 836 | B | Projectionists, motion picture |
| 838 | B | Linemen and servicemen - telephone, telegraph and power |
| 839 | B | Electrical and electronics workers, n.e.s. |

Painters, paperhangers and glaziers

| | | |
|-----|---|--|
| 841 | B | Painters (construction and maintenance), paperhangers and glaziers |
| 843 | B | Painters, except construction and maintenance |

Bricklayers, plasterers and construction workers, n.e.s.

| | | |
|-----|---|---------------------------------------|
| 851 | W | General foremen - construction |
| 852 | W | Inspectors - construction |
| 854 | B | Bricklayers, stonemasons, tilesetters |
| 855 | B | Cement and concrete finishers |
| 856 | B | Plasterers and lathers |
| 857 | B | Insulation applicers |
| 859 | B | Construction workers, n.e.s. |

Clay, glass and stone workers

| | | |
|-----|---|--|
| 861 | B | Lens grinders and polishers; opticians |
| 862 | B | Furnacemen and kilnmen, ceramics and glass |
| 864 | B | Stone cutters and dressers |
| 869 | B | Clay, glass and stone workers, n.e.s. |

Stationary engine and excavating and lifting equipment operators and related workers

| | | |
|-----|---|------------------------------|
| 871 | B | Boiler firemen (except ship) |
| 872 | B | Stationary enginemen |

| | | |
|-----|---|---|
| 873 | B | Motormen (vehicle), except railway |
| 874 | B | Hoistmen, cranemen, derrickmen |
| 875 | B | Riggers and cable splicers, except telephone, telegraph and power |
| 876 | B | Operators of earth-moving and other construction machinery, n.e. s. |
| 877 | B | Materials-handling equipment operators |
| 878 | B | Oilers and greasers - machinery and vehicles (except ships) |

Longshoremen and other freight handlers

| | | |
|-----|---|---|
| 881 | B | Longshoremen and stevedores |
| 883 | B | Warehousemen and freight handlers, n.e.s. |

Sectionmen and trackmen

| | | |
|-----|---|-------------------------|
| 890 | B | Sectionmen and trackmen |
|-----|---|-------------------------|

Other production process and related occupations

| | | |
|-----|---|--|
| 900 | W | Foremen, n.e.s. |
| 911 | B | Tobacco preparers and products makers |
| 912 | B | Patternmakers (except paper) |
| 913 | B | Bottlers, wrappers, labelers |
| 914 | B | Paper product makers |
| 915 | B | Photographic processing occupations |
| 916 | B | Tanners and tannery operatives |
| 917 | B | Inspectors, examiners, gaugers, n.e.s. - metal |
| 918 | B | Inspectors, graders and samplers, n.e.s. |
| 919 | B | Production process and related workers, n.e.s. |

LABOURERS, N.E.S.

| | | |
|-----|---|---|
| 920 | B | Labourers, excluding those engaged in agricultural, fishing, logging or mining operations |
|-----|---|---|

Occupation not stated

| | | |
|-----|--|-----------------------|
| 980 | | Occupation not stated |
|-----|--|-----------------------|

B = Blue-collar socio-economic classification
W = White-collar socio-economic classification
Blank = Not in this study cohort

n.e.s. means not elsewhere specified
n.e.c. means not elsewhere classified
n.o.r. means not otherwise reported

Appendix 2: 1971 Occupations Codes – sorted by code number**MANAGERIAL, ADMINISTRATIVE AND RELATED OCCUPATIONS****Officials and administrators unique to government**

| | | |
|------|---|---|
| 1111 | W | Members of Legislative Bodies |
| 1113 | W | Government Administrators |
| 1115 | W | Postmasters |
| 1116 | W | Inspectors and Regulatory Officers, Government |
| 1119 | W | Officials and Administrators Unique to Government, n. e. c. |

Other managers and administrators

| | | |
|------|---|---|
| 1130 | W | General Managers and Other Senior Officials |
| 1131 | W | Management Occupations, Natural Sciences and Engineering |
| 1132 | W | Management Occupations, Social Sciences and Related Fields |
| 1133 | W | Administrators in Teaching and Related Fields |
| 1134 | W | Administrators in Medicine and Health |
| 1135 | W | Financial Management Occupations |
| 1136 | W | Personnel and Industrial Relations Management Occupations |
| 1137 | W | Sales and Advertising Management Occupations |
| 1141 | W | Purchasing Management Occupations |
| 1142 | W | Services Management Occupations |
| 1143 | W | Production Management Occupations |
| 1145 | W | Management Occupations, Construction Operations |
| 1147 | W | Management Occupations, Transport and Communications Operations |
| 1149 | W | Other Managers and Administrators, n.e.c. |

Occupations related to management and administration

| | | |
|------|---|---|
| 1171 | W | Accountants, Auditors and Other Financial Officers |
| 1174 | W | Personnel and Related Officers |
| 1175 | W | Purchasing Officers and Buyers, Except Wholesale and Retail Trade |
| 1176 | W | Inspectors and Regulatory Officers, Non-Government |
| 1179 | W | Occupations Related to Management and Administration, n.e.c. |

OCCUPATIONS IN NATURAL SCIENCES, ENGINEERING AND MATHEMATICS**Occupations in physical sciences**

| | | |
|------|---|------------|
| 2111 | W | Chemists |
| 2112 | W | Geologists |

| | | |
|------|---|---|
| 2113 | | Physicists |
| 2114 | W | Meteorologists |
| 2117 | W | Physical Sciences Technologists and Technicians |
| 2119 | W | Occupations in Physical Sciences, n.e.c. |

Occupations in life sciences

| | | |
|------|---|---|
| 2131 | W | Agriculturists and Related Scientists |
| 2133 | W | Biologists and Related Scientists |
| 2135 | W | Life Sciences Technologists and Technicians |
| 2139 | W | Occupations in Life Sciences, n.e.c. |

Architects and engineers

| | | |
|------|---|----------------------------------|
| 2141 | W | Architects |
| 2142 | W | Chemical Engineers |
| 2143 | W | Civil Engineers |
| 2144 | W | Electrical Engineers |
| 2145 | W | Industrial Engineers |
| 2147 | W | Mechanical Engineers |
| 2151 | W | Metallurgical Engineers |
| 2153 | W | Mining Engineers |
| 2154 | W | Petroleum Engineers |
| 2155 | W | Aeronautical Engineers |
| 2157 | W | Nuclear Engineers |
| 2159 | W | Architects and Engineers, n.e.c. |

Other occupations architecture and engineering

| | | |
|------|---|--|
| 2160 | W | Supervisors: Other Occupations in Architecture and Engineering |
| 2161 | W | Surveyors |
| 2163 | W | Draughtsmen |
| 2165 | W | Architectural and Engineering Technologists and Technicians |
| 2169 | W | Other Occupations in Architecture and Engineering, n.e.c. |

Occupations in mathematics, statistics, systems analysis and related fields

| | | |
|------|---|---|
| 2181 | W | Mathematicians, Statisticians and Actuaries |
| 2183 | W | Systems Analysts, Computer Programmers and Related Occupations |
| 2189 | | Occupations in Mathematics, Statistics, Systems Analysis and Related Fields. n.e.c. |

OCCUPATIONS IN SOCIAL SCIENCES AND RELATED FIELDS

Occupations in social sciences

| | | |
|------|---|---|
| 2311 | W | Economists |
| 2313 | | Sociologists, Anthropologists and Related Social Scientists |
| 2315 | W | Psychologists |
| 2319 | W | Occupations in Social Sciences, n.e.c. |

Occupations in social work and related fields

| | | |
|------|---|---|
| 2331 | W | Social Workers |
| 2333 | W | Occupations in Welfare and Community Services |
| 2339 | | Occupations in Social Work and Related Fields, n.e.c. |

Occupations in law and jurisprudence

| | | |
|------|---|--|
| 2341 | W | Judges and Magistrates |
| 2343 | W | Lawyers and Notaries |
| 2349 | W | Occupations in Law and Jurisprudence, n.e.c. |

Occupations in library, museum and archival sciences

| | | |
|------|---|---|
| 2350 | W | Supervisors: Occupations in Library, Museum and Archival Sciences |
| 2351 | W | Librarians and Archivists |
| 2353 | W | Technicians in Library, Museum and Archival Sciences |
| 2359 | B | Occupations in Library, Museum and Archival Sciences, n.e.c. |

Other occupations in social sciences and related fields

| | | |
|------|---|---|
| 2391 | W | Educational and Vocational Counsellors |
| 2399 | W | Other Occupations in Social Sciences and Related Fields, n.e.c. |

OCCUPATIONS IN RELIGION

Occupations in religion

| | | |
|------|---|---------------------------------|
| 2511 | W | Ministers of Religion |
| 2513 | W | Nuns and Brothers, n.o.r. |
| 2519 | W | Occupations in Religion, n.e.c. |

TEACHING AND RELATED OCCUPATIONS

University teaching and related occupations

| | | |
|------|---|---|
| 2711 | W | University Teachers |
| 2719 | W | University Teaching and Related Occupations, n.e.c. |

Elementary and secondary school teaching and related occupations

| | | |
|------|---|--|
| 2731 | W | Elementary and Kindergarten Teachers |
| 2733 | W | Secondary School Teachers |
| 2739 | W | Elementary and Secondary School Teaching and Related Occupations, n.e.c. |

Other teaching and related occupations

| | | |
|------|---|--|
| 2791 | W | Community College and Vocational School Teachers |
| 2792 | W | Fine Arts School Teachers |
| 2793 | W | Post-Secondary School Teachers, n.e.c. |
| 2795 | W | Teachers of Exceptional Students, n.e.c. |
| 2797 | W | Instructors and Training Officers, n.e.c. |
| 2799 | W | Other Teaching and Related Occupations, n.e.c. |

OCCUPATIONS IN MEDICINE AND HEALTH

Health diagnosing and treating occupations

| | | |
|------|---|--|
| 3111 | W | Physicians and Surgeons |
| 3113 | W | Dentists |
| 3115 | W | Veterinarians |
| 3117 | | Osteopaths and Chiropractors |
| 3119 | | Health Diagnosing and Treating Occupations, n.e.c. |

Nursing, therapy and related assisting occupations

| | | |
|------|---|--|
| 3130 | W | Supervisors: Nursing Occupations |
| 3131 | W | Nurses, Graduate, Except Supervisors |
| 3133 | | Nurses-in-Training |
| 3134 | B | Nursing Assistants |
| 3135 | B | Nursing Aides and Orderlies |
| 3137 | | Physiotherapists, Occupational and Other Therapists |
| 3139 | B | Nursing, Therapy and Related Assisting Occupations, n.e.c. |

Other occupations in medicine and health

| | | |
|------|---|--|
| 3151 | W | Pharmacists |
| 3152 | W | Dietitians and Nutritionists |
| 3153 | W | Optometrists |
| 3154 | W | Dispensing Opticians |
| 3155 | W | Radiological Technologists and Technicians |
| 3156 | W | Medical Laboratory Technologists and Technicians |
| 3157 | W | Dental Hygienists, Assistants and Technicians |
| 3159 | B | Other Occupations in Medicine and Health, n.e.c. |

ARTISTIC, LITERARY, RECREATIONAL AND RELATED OCCUPATIONS**Occupations in fine and commercial art, photography and related fields**

| | | |
|------|---|--|
| 3311 | W | Painters, Sculptors and Related Artists |
| 3313 | W | Product and Interior Designers |
| 3314 | W | Advertising and Illustrating Artists |
| 3315 | W | Photographers and Cameramen |
| 3319 | | Occupations in Fine and Commercial Art, Photography and Related Fields, n.e.c. |

Occupations in performing and audio-visual arts

| | | |
|------|---|---|
| 3330 | W | Producers and Directors, Performing and Audio-visual Arts |
| 3332 | W | Musicians |
| 3333 | | Dancers and Choreographers |
| 3335 | | Actors |
| 3337 | B | Radio and Television Announcers |
| 3339 | B | Occupations in Performing and Audio-visual Arts, n.e.c. |

Occupations in writing

| | | |
|------|---|--------------------------------|
| 3352 | W | Writers and Editors |
| 3355 | W | Translators and Interpreters |
| 3359 | | Occupations in Writing, n.e.c. |

Occupations in sport and recreation

| | | |
|------|---|---|
| 3370 | W | Coaches, Trainers, Instructors and Managers, Sport and Recreation |
| 3371 | | Referees and Related Officials |
| 3373 | | Athletes |
| 3375 | B | Attendants, Sport and Recreation |
| 3379 | B | Occupations in Sport and Recreation, n.e.c. |

CLERICAL AND RELATED OCCUPATIONS**Stenographic and typing occupations**

| | | |
|------|---|--|
| 4110 | | Supervisors: Stenographic and Typing Occupations |
| 4111 | B | Secretaries and Stenographers |
| 4113 | B | Typists and Clerk-Typists |

Bookkeeping, account-recording and related occupations

| | | |
|------|---|---|
| 4130 | W | Supervisors: Bookkeeping, Account-recording and Related Occupations |
| 4131 | B | Bookkeepers and Accounting Clerks |
| 4133 | B | Tellers and Cashiers |
| 4135 | B | Insurance, Bank and Other Finance Clerks |
| 4137 | B | Statistical Clerks |
| 4139 | B | Bookkeeping, Account-recording and Related Occupations, n.e.c. |

Office machine and electronic data processing equipment operators

| | | |
|------|---|---|
| 4140 | W | Supervisors: Office Machine and Electronic Data-processing Equipment Operators |
| 4141 | B | Office Machine Operators |
| 4143 | B | Electronic Data-Processing Equipment Operators |

Material recording, scheduling and distributing occupations

| | | |
|------|---|--|
| 4150 | W | Supervisors: Material Recording, Scheduling and Distributing Occupations |
| 4151 | B | Production Clerks |
| 4153 | B | Shipping and Receiving Clerks |
| 4155 | B | Stock Clerks and Related Occupations |
| 4157 | B | Weighers |
| 4159 | B | Material Recording, Scheduling and Distributing Occupations, n.e.c. |

Library, file and correspondence clerks and related occupations

| | | |
|------|---|---|
| 4160 | W | Supervisors: Library, File and Correspondence Clerks and Related Occupations |
| 4161 | B | Library and File Clerks |
| 4169 | B | Library, File and Correspondence Clerks and Related Occupations, n.e.c. |

Reception, information, mail and message distribution occupations

| | | |
|------|---|---|
| 4170 | W | Supervisors: Reception, Information, Mail and Message Distribution Occupations |
| 4171 | B | Receptionists and Information Clerks |
| 4172 | B | Mail Carriers |
| 4173 | B | Mail and Postal Clerks |

| | | |
|------|---|---|
| 4175 | B | Telephone Operators |
| 4177 | B | Messengers |
| 4179 | B | Reception, Information, Mail and Message Distribution Occupations, n.e.c. |

Other clerical and related occupations

| | | |
|------|---|---|
| 4190 | W | Supervisors: Other Clerical and Related Occupations, n.e.c. |
| 4191 | B | Collectors |
| 4192 | B | Adjusters, Claim |
| 4193 | B | Travel Clerks, Ticket, Station and Freight Agents |
| 4194 | B | Hotel Clerks |
| 4195 | B | Personnel Clerks |
| 4197 | B | General Office Clerks |
| 4199 | B | Other Clerical and Related Occupations, n.e.c. |

SALES OCCUPATIONS

Sales occupations, commodities

| | | |
|------|---|--|
| 5130 | W | Supervisors: Sales Occupations, Commodities |
| 5131 | B | Technical Salesmen and Related Advisers |
| 5133 | B | Commercial Travellers |
| 5135 | B | Salesmen and Salespersons, Commodities, n.e.c. |
| 5137 | B | Sales Clerks, Commodities |
| 5141 | B | Street Vendors and Door-to Door Salesmen |
| 5143 | | Newsboys |
| 5145 | B | Service Station Attendants |
| 5149 | B | Sales Occupations: Commodities, n.e.c. |

Sales occupations, services

| | | |
|------|---|--|
| 5170 | W | Supervisors: Sales Occupations, Services |
| 5171 | W | Insurance Salesmen and Agents |
| 5172 | B | Real Estate Salesmen |
| 5173 | B | Salesmen and Traders, Securities |
| 5174 | B | Advertising Salesmen |
| 5177 | B | Business Services Salesmen |
| 5179 | B | Sales Occupations: Services, n.e.c. |

Other sales occupations

| | | |
|------|---|--------------------------------------|
| 5190 | W | Supervisors: Other Sales Occupations |
| 5191 | W | Buyers, Wholesale and Retail Trade |
| 5193 | B | Driver-salesmen |
| 5199 | B | Other Sales Occupations, n.e.c. |

SERVICE OCCUPATIONS**Protective service occupations**

| | | |
|------|---|--|
| 6111 | B | Fire-fighting Occupations |
| 6112 | B | Policemen and Detectives, Government |
| 6113 | B | Policemen and Investigators, Private |
| 6115 | B | Guards and Watchmen |
| 6116 | | Commissioned Officers, Armed Forces |
| 6117 | | Other Ranks, Armed Forces |
| 6119 | B | Protective Service Occupations, n.e.c. |

Food and beverage preparation and related service occupations

| | | |
|------|---|--|
| 6120 | W | Supervisors: Food and Beverage Preparation and Related Service Occupations |
| 6121 | B | Chefs and Cooks |
| 6123 | B | Bartenders |
| 6125 | B | Waiters, Hostesses and Stewards, Food and Beverage |
| 6129 | B | Food and Beverage Preparation and Related Service Occupations, n.e.c. |

Occupations in lodging and other accommodation

| | | |
|------|---|---|
| 6130 | W | Supervisors: Occupations in Lodging and Other Accommodation |
| 6131 | W | Managers: Hotel, Motel and Other Accommodation |
| 6133 | B | Chambermaids and Housemen |
| 6135 | B | Sleeping-Car and Baggage Porters, and Bellmen |
| 6139 | B | Occupations in Lodging and Other Accommodation, n.e.c. |

Personal service occupations

| | | |
|------|---|--|
| 6141 | W | Funeral Directors, Embalmers and Related Occupations |
| 6143 | B | Barbers, Hairdressers and Related Occupations |
| 6144 | | Guides |
| 6145 | B | Hostesses and stewards, Except Food and Beverage |
| 6147 | B | Babysitters |
| 6149 | B | Personal Service Occupations, n.e.c. |

Apparel and furnishings service occupations

| | | |
|------|---|--|
| 6160 | W | Supervisors: Apparel and Furnishings Service Occupations |
| 6162 | B | Laundering and Dry Cleaning Occupations |
| 6165 | | Pressing Occupations |
| 6169 | B | Apparel and Furnishings Service Occupations, n.e.c. |

Other service occupations

| | | |
|------|---|---|
| 6190 | W | Supervisors: Other Service Occupations |
| 6191 | B | Janitors, Charworkers and Cleaners |
| 6193 | B | Elevator Operating Occupations |
| 6198 | B | Occupations in Labouring and Other Elemental Work, Services |
| 6199 | B | Other Service Occupations, n.e.c. |

FARMING, HORTICULTURAL AND ANIMAL HUSBANDRY OCCUPATIONS**Farmers**

| | | |
|------|---|---------|
| 7112 | B | Farmers |
|------|---|---------|

Farm management occupations

| | | |
|------|---|-----------------------------|
| 7131 | W | Farm Management Occupations |
|------|---|-----------------------------|

Other farming, horticultural and animal husbandry occupations

| | | |
|------|---|--|
| 7180 | W | Foremen: Other Farming, Horticultural and Animal Husbandry Occupations |
| 7182 | B | Farm Workers |
| 7195 | B | Nursery and Related Workers |
| 7197 | | Farm Machinery Operators and Custom Operators |
| 7199 | B | Other Farming, Horticultural and Animal Husbandry Occupations, n.e.c. |

FISHING, HUNTING, TRAPPING AND RELATED OCCUPATIONS

| | | |
|------|---|--|
| 7311 | W | Captains and Other Officers, Fishing Vessels |
| 7313 | B | Fishermen: Net, Trap and Line |
| 7315 | | Hunting, Trapping and Related Occupations |
| 7319 | | Fishing, Hunting, Trapping and Related Occupations, n.e.c. |

FORESTRY AND LOGGING OCCUPATIONS

| | | |
|------|---|---|
| 7510 | W | Foremen: Forestry and Logging Occupations |
| 7511 | B | Forestry Conservation Occupations |
| 7513 | B | Timber Cutting and Related Occupations |
| 7516 | B | Log Inspecting, Grading, Scaling and Related Occupations |
| 7517 | B | Log Hoisting, Sorting, Moving and Related Occupations |
| 7518 | B | Occupations in Labouring and Other Elemental Work, Forestry and Logging |
| 7519 | B | Forestry and Logging Occupations, n.e.c. |

MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS

| | | |
|------|---|--|
| 7710 | W | Foremen: Mining and Quarrying Including Oil and Gas Field Occupations |
| 7711 | B | Rotary Well-drilling and Related Occupations |
| 7713 | B | Other Rock and Soil Drilling Occupations |
| 7715 | | Blasting Occupations |
| 7717 | B | Mining and Quarrying: Cutting, Handling and Loading Occupations |
| 7718 | B | Occupations in Labouring and Other Elemental Work, Mining and Quarrying Including Oil and Gas Fields |
| 7719 | B | Mining and Quarrying Including Oil and Gas Field Occupations, n.e.c. |

PROCESSING OCCUPATIONS

Mineral ore treating occupations

| | | |
|------|---|---|
| 8110 | W | Foremen: Mineral Ore Treating Occupations |
| 8111 | B | Crushing and Grinding Occupations, Mineral Ores |
| 8113 | B | Mixing, Separating, Filtering and Related Occupations, Mineral Ores |
| 8115 | | Melting and Roasting Occupations, Mineral Ores |
| 8116 | | Inspecting, Testing, Grading and Sampling Occupations, Mineral Ore Treating |
| 8118 | B | Occupations in Labouring and Other Elemental Work, Mineral Ore Treating |
| 8119 | | Mineral Ore Treating Occupations, n.e.c. |

Metal processing and related occupations

| | | |
|------|---|---|
| 8130 | W | Foremen: Metal Processing and Related Occupations |
| 8131 | B | Metal Smelting, Converting and Refining Furnacemen |
| 8133 | | Metal Heat Treating Occupations |
| 8135 | B | Metal Rolling Occupations |
| 8137 | B | Moulding, Coremaking and Metal Casting Occupations |
| 8141 | | Metal Extruding and Drawing Occupations |
| 8143 | B | Plating, Metal Spraying and Related Occupations |
| 8146 | W | Inspecting, Testing, Grading and Sampling Occupations, Metal Processing |
| 8148 | B | Occupations in Labouring and Other Elemental Work, Metal Processing |
| 8149 | B | Metal Processing and Related Occupations, n.e.c. |

Clay, glass and stone processing, forming and related occupations

| | | |
|------|---|--|
| 8150 | W | Foremen: Clay, Glass and Stone Processing, Forming and Related Occupations |
| 8151 | | Furnacemen and Kilnmen: Clay, Glass and Stone |
| 8153 | B | Separating, Grinding, Crushing and Mixing Occupations: Clay, |

| | | |
|------|---|---|
| | | Glass and Stone |
| 8155 | B | Forming Occupations: Clay, Glass and Stone |
| 8156 | B | Inspecting, Testing, Grading and Sampling Occupations: Clay, Glass and Stone Processing and Forming |
| 8158 | B | Occupations in Labouring and Other Elemental Work: Clay, Glass and Stone Processing and Forming |
| 8159 | B | Clay, Glass and Stone Processing, Forming and Related Occupations, n.e.c. |

Chemicals, petroleum, rubber, plastic and related materials processing occupations

| | | |
|------|---|---|
| 8160 | W | Foremen: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations |
| 8161 | B | Mixing and Blending Occupations, Chemicals and Related Materials |
| 8163 | | Filtering, Straining and Separating Occupations, Chemicals and Related Materials |
| 8165 | B | Distilling, Subliming and Carbonizing Occupations, Chemicals and Related Materials |
| 8167 | B | Roasting, Cooking and Drying Occupations, Chemicals and Related Materials |
| 8171 | | Crushing and Grinding Occupations, Chemicals and Related Materials |
| 8173 | | Coating and Calendering Occupations, Chemicals and Related Materials |
| 8176 | W | Inspecting, Testing, Grading and Sampling Occupations: Petroleum, Rubber, Plastic and Related Materials Processing |
| 8178 | B | Occupations in Labouring and Other Elemental Work: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing |
| 8179 | B | Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations, n.e.c. |

Food, beverage and related processing occupations

| | | |
|------|---|--|
| 8210 | W | Foremen: Food, Beverage and Related Processing Occupations |
| 8211 | B | Flour and Grain Milling Occupations |
| 8213 | B | Baking, Confectionery Making and Related Occupations |
| 8215 | B | Slaughtering and Meat Cutting, Canning, Curing and Packing Occupations |
| 8217 | B | Fish Canning, Curing and Packing Occupations |
| 8221 | | Fruit and Vegetable Canning, Preserving and Packing Occupations |
| 8223 | B | Milk Processing Occupations |
| 8225 | B | Sugar Processing and Related Occupations |
| 8226 | B | Inspecting, Testing, Grading and Sampling Occupations: Food, Beverage and Related Processing |
| 8227 | B | Beverage Processing Occupations |
| 8228 | B | Occupations in Labouring and Other Elemental Work: Food, Beverage and Related Processing |
| 8229 | B | Food, Beverage and Related Processing Occupations, n.e.c. |

Wood processing occupations, except pulp and papermaking

| | | |
|------|---|---|
| 8230 | W | Foremen: Wood Processing Occupations, Except Pulp and Papermaking |
| 8231 | B | Sawmill Sawyers and Related Occupations |
| 8233 | | Plywood Making and Related Occupations |
| 8235 | | Wood Treating Occupations |
| 8236 | | Inspecting, Testing, Grading and Sampling Occupations: Wood Processing, Except Pulp and Papermaking |
| 8238 | B | Occupations in Labouring and Other Elemental Work: Wood Processing, Except Pulp and Papermaking |
| 8239 | B | Wood Processing Occupations, Except Pulp and Papermaking, n.e.c. |

Pulp and papermaking and related occupations

| | | |
|------|---|---|
| 8250 | W | Foremen: Pulp and Papermaking and Related Occupations |
| 8251 | | Cellulose Pulp Preparing Occupations |
| 8253 | | Papermaking and Finishing Occupations |
| 8256 | B | Inspecting, Testing, Grading and Sampling Occupations, Pulp and Papermaking |
| 8258 | B | Occupations in Labouring and Other Elemental Work, Pulp and Papermaking |
| 8259 | B | Pulp and Papermaking and Related Occupations, n.e.c. |

Textile processing occupations

| | | |
|------|---|---|
| 8260 | W | Foremen: Textile Processing Occupations |
| 8261 | B | Textile Fibre Preparing Occupations |
| 8263 | | Textile Spinning and Twisting Occupations |
| 8265 | | Textile Winding and Reeling Occupations |
| 8267 | B | Textile Weaving Occupations |
| 8271 | B | Knitting Occupations |
| 8273 | B | Textile Bleaching and Dyeing Occupations |
| 8275 | B | Textile Finishing and Calendering Occupations |
| 8276 | B | Inspecting, Testing, Grading and Sampling Occupations, Textile Processing |
| 8278 | B | Occupations in Labouring and Other Elemental Work, Textile Processing |
| 8279 | B | Textile Processing Occupations, n.e.c. |

Other processing occupations

| | | |
|------|---|---|
| 8290 | W | Foremen: Other Processing Occupations |
| 8293 | B | Tobacco Processing Occupations |
| 8295 | | Hide and Pelt Processing Occupations |
| 8296 | | Inspecting, Testing, Grading and Sampling Occupations, Processing, n.e.c. |
| 8298 | B | Occupations in Labouring and Other Elemental Work, Other Processing |
| 8299 | B | Other Processing Occupations, n.e.c. |

MACHINING AND RELATED OCCUPATIONS

Metal machining occupations

| | | |
|------|---|--|
| 8310 | W | Foremen: Metal Machining Occupations |
| 8311 | B | Tool and Die Making Occupations |
| 8313 | B | Machinist and Machine Tool Setting-Up Occupations |
| 8315 | B | Machine Tool Operating Occupations |
| 8316 | | Inspecting, Testing, Grading and Sampling Occupations, Metal Machining |
| 8319 | | Metal Machining Occupations, n.e.c. |

Metal shaping and forming occupations, except machining

| | | |
|------|---|--|
| 8330 | W | Foremen: Metal Shaping and Forming Occupations, Except Machining |
| 8331 | B | Forging Occupations |
| 8333 | B | Sheet Metal Workers |
| 8334 | B | Metalworking-machine Operators, n.e.c. |
| 8335 | B | Welding and Flame Cutting Occupations |
| 8336 | W | Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining |
| 8337 | B | Boilermakers, Platers and Structural Metal Workers |
| 8339 | | Metal Shaping and Forming Occupations, Except Machining, n.e.c. |

Wood machining occupations

| | | |
|------|---|---|
| 8350 | W | Foremen: Wood Machining Occupations |
| 8351 | | Wood Patternmaking Occupations |
| 8353 | B | Wood Sawing and Related Occupations, Except Sawmill |
| 8355 | | Planing, Turning, Shaping and Related Wood Machining Occupations |
| 8356 | | Inspecting, Testing, Grading and Sampling Occupations, Wood Machining |
| 8357 | | Wood Sanding Occupations |
| 8359 | B | Wood Machining Occupations, n.e.c. |

Clay, glass and stone and related materials machining occupations

| | | |
|------|---|--|
| 8370 | W | Foremen: Clay, Glass and Stone and Related Materials Machining Occupations |
| 8371 | | Cutting and Shaping Occupations: Clay, Glass and Stone |
| 8373 | B | Abrading and Polishing Occupations: Clay, Glass and Stone, n.e.c. |
| 8376 | | Inspecting, Testing, Grading and Sampling Occupations: Clay, Glass and Stone Machining |
| 8379 | | Clay, Glass and Stone and Related Materials Machining Occupations, n.e.c. |

Other machining and related occupations

| | | |
|------|---|--|
| 8390 | W | Foremen: Other Machining and Related Occupations, n.e.c. |
| 8391 | | Engravers, Etchers and Related Occupations |

| | | |
|------|---|--|
| 8393 | B | Filing, Grinding, Buffing, Cleaning and Polishing Occupations, n.e.c. |
| 8395 | B | Patternmakers and Mouldmakers, n.e.c. |
| 8396 | | Inspecting, Testing, Grading and Sampling Occupations, Machining, n.e.c. |
| 8399 | | Other Machining and Related Occupations, n.e.c. |

PRODUCT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS

Fabricating and assembling occupations, metal products, n.e.c.

| | | |
|------|---|--|
| 8510 | W | Foremen: Fabricating and Assembling Occupations, Metal Products, n.e.c. |
| 8511 | B | Engine and Related Equipment Fabricating and Assembling Occupations, n.e.c. |
| 8513 | B | Motor Vehicle Fabricating and Assembling Occupations, n.e.c. |
| 8515 | B | Aircraft Fabricating and Assembling Occupations, n.e.c. |
| 8523 | B | Industrial, Farm, Construction and Other Mechanized Equipment and Machinery Fabricating and Assembling Occupations, n.e.c. |
| 8525 | B | Business and Commercial Machines Fabricating and Assembling Occupations, n.e.c. |
| 8526 | W | Inspecting, Testing, Grading and Sampling Occupations, Fabricating and Assembling Metal Products, n.e.c. |
| 8527 | | Precision Instruments and Related Equipment Fabricating and Assembling Occupations, n.e.c. |
| 8528 | B | Occupations in Labouring and Other Elemental Work, Fabricating and Assembling Metal Products, n.e.c. |
| 8529 | B | Other Fabricating and Assembling Occupations, Metal Products. n.e.c. |

Fabricating, assembling, installing and repairing occupations: electrical, electronic and related equipment

| | | |
|------|---|---|
| 8530 | W | Foremen: Fabricating, Assembling, Installing and Repairing Occupations, Electrical, Electronic and Related Equipment |
| 8531 | B | Electrical Equipment Fabricating and Assembling Occupations |
| 8533 | B | Electrical and Related Equipment Installing and Repairing Occupations, n.e.c. |
| 8534 | B | Electronic Equipment Fabricating and Assembling Occupations |
| 8535 | W | Electronic and Related Equipment Installing and Repairing Occupations, n.e.c. |
| 8536 | B | Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment |
| 8537 | B | Radio and Television Service Repairmen |
| 8538 | B | Occupations in Labouring and Other Elemental Work: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment |
| 8539 | B | Fabricating, Assembling, Installing and Repairing Occupations: Electrical, Electronic and Related Equipment, n.e.c. |

Fabricating, assembling and repairing occupations: wood products

| | | |
|------|---|---|
| 8540 | W | Foremen: Fabricating, Assembling and Repairing Occupations, Wood Products |
| 8541 | B | Cabinet and Wood Furniture Makers |
| 8546 | | Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing, Wood Products |
| 8548 | B | Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Wood Products |
| 8549 | | Fabricating, Assembling and Repairing Occupations, Wood Products, n.e.c. |

Fabricating, assembling and repairing occupations: textile, fur and leather products

| | | |
|------|---|---|
| 8550 | W | Foremen: Fabricating, Assembling and Repairing Occupations, Textile, Fur and Leather Products |
| 8551 | B | Patternmaking, Marking and Cutting Occupations: Textile, Fur and Leather Products |
| 8553 | B | Tailors and Dressmakers |
| 8555 | | Furriers |
| 8557 | | Milliners, Hat and Cap Makers |
| 8561 | B | Shoemaking and Repairing Occupations |
| 8562 | B | Upholsterers |
| 8563 | B | Sewing Machine Operators, Textile and Similar Materials |
| 8566 | B | Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing, Textile, Fur and Leather Products |
| 8568 | B | Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Textile, Fur and Leather Products |
| 8569 | B | Fabricating, Assembling and Repairing Occupations: Textile, Fur and Leather Products, n.e.c. |

Fabricating, assembling and repairing occupations: rubber, plastic and related products

| | | |
|------|---|--|
| 8570 | W | Foremen: Fabricating, Assembling and Repairing Occupations, Rubber, Plastic and Related Products |
| 8571 | B | Bonding and Cementing Occupations, Rubber, Plastic and Related Products |
| 8573 | B | Moulding Occupations, Rubber, Plastic and Related Products |
| 8575 | | Cutting and Finishing Occupations, Rubber, Plastic and Related Products |
| 8576 | | Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing, Rubber, Plastic and Related Products |
| 8578 | B | Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Rubber, Plastic and Related Products |
| 8579 | | Fabricating, Assembling and Repairing Occupations: Rubber, Plastic and Related Products, n.e.c. |

Mechanics and repairmen except electrical

| | | |
|------|---|---|
| 8580 | W | Foremen: Mechanics and Repairmen Except Electrical |
| 8581 | B | Motor Vehicle Mechanics and Repairmen |
| 8582 | B | Aircraft Mechanics and Repairmen |
| 8583 | B | Rail Transport Equipment Mechanics and Repairmen |
| 8584 | B | Industrial, Farm and Construction Machinery Mechanics and Repairmen |
| 8585 | B | Business and Commercial Machine Mechanics and Repairmen |
| 8586 | B | Inspecting, Testing, Grading and Sampling Occupations, Equipment Repair Except Electrical |
| 8587 | | Watch and Clock Repairmen |
| 8588 | B | Precision Instrument Mechanics and Repairmen |
| 8589 | B | Mechanics and Repairmen Except Electrical, n.e.c. |

Other product fabricating, assembling and repairing occupations

| | | |
|------|---|--|
| 8590 | W | Foremen: Product Fabricating, Assembling and Repairing Occupations, n.e.c. |
| 8591 | B | Jewellery and Silverware Fabricating, Assembling and Repairing Occupations |
| 8592 | | Marine Craft Fabricating, Assembling and Repairing Occupations |
| 8593 | B | Paper Product Fabricating and Assembling Occupations |
| 8595 | B | Painting and Decorating Occupations, Except Construction |
| 8596 | | Inspecting, Testing, Grading and Sampling Occupations: Product Fabricating, Assembling and Repairing, n.e.c. |
| 8598 | B | Occupations in Labouring and Other Elemental Work: Product Fabricating, Assembling and Repairing, n.e.c. |
| 8599 | B | Other Product Fabricating, Assembling and Repairing Occupations, n.e.c. |

CONSTRUCTION TRADES OCCUPATIONS**Excavating, grading, paving and related occupations**

| | | |
|------|---|--|
| 8710 | W | Foremen: Excavating, Grading, Paving and Related Occupations |
| 8711 | B | Excavating, Grading and Related Occupations |
| 8713 | | Paving, Surfacing and Related Occupations |
| 8715 | B | Railway Sectionmen and Trackmen |
| 8718 | B | Occupations in Labouring and Other Elemental Work: Excavating, Grading, and Paving |
| 8719 | B | Excavating, Grading, Paving and Related Occupations, n.e.c. |

Electrical power, lighting and wire communications equipment erecting, installing and repairing occupations

| | | |
|------|---|--|
| 8730 | W | Foremen: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations |
| 8731 | B | Electrical Power Linemen and Related Occupations |

| | | |
|------|---|--|
| 8733 | B | Construction Electricians and Repairmen |
| 8735 | B | Wire Communications and Related Equipment Installing and Repairing Occupations |
| 8736 | W | Inspecting, Testing, Grading and Sampling Occupations: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing |
| 8738 | B | Occupations in Labouring and Other Elemental Work: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing |
| 8739 | B | Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations, n.e.c. |

Other construction trades occupations

| | | |
|------|---|--|
| 8780 | W | Foremen: Other Construction Trades Occupations |
| 8781 | B | Carpenters and Related Occupations |
| 8782 | B | Brick and Stone Masons and Tile Setters |
| 8783 | B | Concrete Finishing and Related Occupations |
| 8784 | B | Plasterers and Related Occupations |
| 8785 | B | Painters, Paperhangers and Related Occupations |
| 8786 | B | Insulating Occupations, Construction |
| 8787 | B | Roofing, Waterproofing and Related Occupations |
| 8791 | B | Pipefitting, Plumbing and Related Occupations |
| 8793 | B | Structural Metal Erectors |
| 8795 | B | Glaziers |
| 8796 | W | Inspecting, Testing, Grading and Sampling Occupations, Construction, Except Electrical |
| 8798 | B | Occupations in Labouring and Other Elemental Work, Other Construction Trades |
| 8799 | B | Other Construction Trades Occupations, n.e.c. |

TRANSPORT EQUIPMENT OPERATING OCCUPATIONS

Air transport operating occupations

| | | |
|------|---|--|
| 9110 | W | Foremen: Air Transport Operating Occupations |
| 9111 | W | Air Pilots, Navigators and Flight Engineers |
| 9113 | W | Air Transport Operating Support Occupations |
| 9119 | | Air Transport Operating Occupations, n.e.c. |

Railway transport operating occupations

| | | |
|------|---|--|
| 9130 | W | Foremen: Railway Transport Operating Occupations |
| 9131 | B | Locomotive Engineers and Firemen |
| 9133 | B | Conductors and Brakemen, Railway |
| 9135 | B | Railway Transport Operating Support Occupations |
| 9139 | | Railway Transport Operating Occupations, n.e.c. |

Water transport operating occupations

| | | |
|------|---|---|
| 9151 | W | Deck Officers |
| 9153 | W | Engineering Officers, Ship |
| 9155 | B | Deck Crew, Ship |
| 9157 | B | Engine and Boiler-Room Crew, Ship |
| 9159 | B | Water Transport Operating Occupations, n.e.c. |

Motor transport operating occupations

| | | |
|------|---|--|
| 9170 | W | Foremen: Motor Transport Operating Occupations |
| 9171 | B | Bus Drivers |
| 9173 | B | Taxi Drivers and Chauffeurs |
| 9175 | B | Truck Drivers |
| 9179 | B | Motor Transport Operating Occupations, n.e.c. |

Other transport and related equipment operating occupations

| | | |
|------|---|--|
| 9190 | W | Foremen: Other Transport and Related Equipment Operating Occupations |
| 9191 | | Subway and Street Railway Operating Occupations |
| 9193 | | Motormen and Dinkeymen, Except Rail Transport |
| 9199 | B | Other Transport and Related Equipment Operating Occupations, n.e.c. |

**MATERIALS HANDLING AND RELATED OCCUPATIONS,
N.E.C.**

| | | |
|------|---|---|
| 9310 | W | Foremen: Materials Handling and Related Occupations, n.e.c. |
| 9311 | B | Hoisting Occupations, n.e.c. |
| 9313 | B | Longshoremen, Stevedores and Freight Handlers |
| 9315 | B | Materials Handling Equipment Operators, n.e.c. |
| 9317 | B | Packaging Occupations, n.e.c. |
| 9318 | B | Occupations in Labouring and Other Elemental Work, Materials Handling |
| 9319 | B | Materials Handling and Related Occupations, n.e.c. |

**OTHER CRAFTS AND EQUIPMENT OPERATING
OCCUPATIONS****Printing and related occupations**

| | | |
|------|---|---|
| 9510 | W | Foremen: Printing and Related Occupations |
| 9511 | B | Typesetters and Compositors |
| 9512 | B | Printing Press Occupations |
| 9513 | | Stereotypers and Electrotypers |
| 9514 | B | Printing Engravers, Except Photoengravers |
| 9515 | | Photoengravers and Related Occupations |

| | | |
|------|---|---|
| 9517 | B | Bookbinders and Related Occupations |
| 9518 | B | Occupations in Labouring and Other Elemental Work, Printing and Related, n.e.c. |
| 9519 | B | Printing and Related Occupations, n.e.c. |

Stationary engine and utilities equipment operating and related occupations

| | | |
|------|---|--|
| 9530 | W | Foremen: Stationary Engine and Utilities Equipment Operating and Related Occupations |
| 9531 | B | Power Station Operators |
| 9539 | B | Stationary Engine and Utilities Equipment Operating and Related Occupations, n.e.c. |

Electronic and related communications equipment operating occupations, n.e.c.

| | | |
|------|---|--|
| 9550 | W | Foremen: Electronic and Related Communications Equipment Operating Occupations, n.e.c. |
| 9551 | B | Radio and Television Broadcasting Equipment Operators |
| 9553 | B | Telegraph Operators |
| 9555 | | Sound Recording and Reproduction Equipment Operators |
| 9557 | B | Motion Picture Projectionists |
| 9559 | | Electronic and Related Communications Equipment Operating Occupations, n.e.c. |

Other crafts and equipment operating occupations, n.e.c.

| | | |
|------|---|---|
| 9590 | W | Foremen: Other Crafts and Equipment Operating Occupations, n.e.c. |
| 9591 | B | Photographic Processing Occupations |
| 9599 | | Other Crafts and Equipment Operating Occupations, n.e.c. |

OCCUPATIONS NOT ELSEWHERE CLASSIFIED

| | | |
|------|---|---|
| 9910 | W | Supervisors and Foremen, n.e.c. |
| 9916 | B | Inspecting, Testing, Grading and Sampling Occupations, n.e.c. |
| 9918 | B | Occupations in Labouring and Other Elemental Work, n.e.c. |
| 9919 | B | Other Occupations, n.e.c. |

B = Blue-collar socio-economic classification
W = White-collar socio-economic classification
Blank = Not in this study cohort

n.e.s. means not elsewhere specified
n.e.c. means not elsewhere classified
n.o.r. means not otherwise reported

Appendix 3: 1961 Occupations – sorted alphabetically

| | | |
|-----|---|--|
| 188 | W | Accountants and auditors |
| 431 | W | Actors, entertainers and showmen |
| 184 | W | Actuaries and statisticians |
| 1 | W | Advertising managers |
| 327 | B | Advertising salesmen and agents |
| 129 | W | Agricultural professionals, n.e.s. |
| 520 | W | Air pilots, navigators and flight engineers |
| 749 | B | Apparel and related product makers, n.e.s. |
| 181 | W | Architects |
| 172 | W | Artists (except commercial), art teachers |
| 171 | W | Artists, commercial |
| 433 | W | Athletes and sports officials |
| 241 | W | Attendants, doctors' and dentists' offices |
| 457 | B | Attendants, recreation and amusement |
| 303 | | Auctioneers |
| 174 | W | Authors, editors and journalists |
| 418 | B | Baby sitters |
| 221 | | Baggagemen and expressmen, transport |
| 702 | B | Bakers |
| 451 | B | Barbers, hairdressers, manicurists |
| 414 | B | Bartenders |
| 761 | B | Batch and continuous still operators |
| 709 | B | Beverage processors |
| 121 | W | Biological scientists |
| 784 | B | Blacksmiths, hammermen, forgemen |
| 737 | B | Bleachers and dyers-textile |
| 871 | B | Boiler firemen (except ship) |
| 813 | B | Boilermakers, platers and structural metal workers |
| 776 | B | Bookbinders |
| 201 | B | Bookkeepers and cashiers |
| 913 | B | Bottlers, wrappers, labelers |
| 535 | B | Brakemen, railroad |
| 854 | B | Bricklayers, stonemasons, tilesetters |
| 338 | B | Brokers, agents and appraisers, n.e.s. |
| 551 | B | Bus drivers |
| 703 | B | Butchers and meat cutters |

Appendix 3: 1961 Occupations Codes
Sorted alphabetically

| | | |
|-----|---|--|
| 752 | B | Cabinet and furniture makers-wood |
| 307 | B | Canvassers and other door-to-door salesmen |
| 731 | B | Carders, combers, and other fibre preparers |
| 751 | B | Carpenters |
| 763 | B | Cellulose pulp preparers, n.e.s. |
| 855 | B | Cement and concrete finishers |
| 769 | | Chemical and related process workers, n.e.s. |
| 108 | W | Chemical engineers |
| 111 | W | Chemists |
| 101 | W | Civil engineers |
| 869 | B | Clay, glass and stone workers, n.e.s. |
| 161 | W | Clergymen and priests, n.o.r. |
| 249 | B | Clerical occupations, n.e.s. |
| 314 | B | Commercial travellers |
| 407 | | Commissioned officers, armed forces |
| 771 | B | Compositors and typesetters |
| 187 | W | Computer programmers |
| 534 | B | Conductors railroad |
| 859 | B | Construction workers, n.e.s. |
| 413 | B | Cooks |
| 787 | B | Coremakers |
| 2 | W | Credit managers |
| 768 | B | Crushers, millers, calenderers, n.e.s.-chemical |
| 745 | B | Cutters, markers-textiles; garment and glove leather |
| 541 | W | Deck officers, ship |
| 545 | B | Deck ratings (ship), barge crews and boatmen |
| 5 | W | Delivery managers |
| 141 | | Dentists |
| 191 | W | Dietitians |
| 182 | W | Draughtsmen |
| 742 | B | Dressmakers and seamstresses-not in factory |
| 554 | B | Driver-salesmen |
| 186 | W | Economists |
| 839 | B | Electrical and electronics workers, n.e.s. |
| 105 | W | Electrical engineers |
| 831 | B | Electricians, wiremen and electrical repairmen |
| 815 | B | Electroplaters, dip platers and related workers |
| 453 | B | Elevator tenders, buildings |
| 543 | W | Engineering officers, ship |

Appendix 3: 1961 Occupations Codes
Sorted alphabetically

| | | |
|-----|---|---|
| 547 | B | Engine-room ratings, firemen and oilers (ship) |
| 793 | B | Engravers, except photoengravers |
| 605 | B | Farm labourers |
| 603 | W | Farm managers and foremen |
| 601 | B | Farmers and stockraisers |
| 803 | B | Filers, grinders, sharpeners |
| 738 | B | Finishers and calenderers |
| 401 | B | Firemen, fire protection |
| 705 | B | Fish canners, curers, packers |
| 631 | B | Fishermen |
| 832 | B | Fitters and assemblers - electrical and electronics equipment |
| 806 | B | Fitters and assemblers, n.e.s. -metal |
| 900 | W | Foremen, n.e.s. |
| 301 | W | Foremen, trade |
| 651 | W | Foremen-mine, quarry petrol, well |
| 613 | B | Forest rangers and cruisers |
| 706 | B | Fruit and vegetable canners and packers |
| 455 | W | Funeral directors and embalmers |
| 781 | B | Furnacemen and heaters, metal |
| 862 | B | Furnacemen and kilnmen, ceramics and glass |
| 743 | B | Furriers |
| 607 | B | Gardeners (except farm) and groundskeepers |
| 851 | W | General foremen - construction |
| 112 | W | Geologists |
| 405 | B | Guards, watchmen, n.e.s. |
| 456 | B | Guides |
| 312 | | Hawkers and pedlars |
| 782 | B | Heat treaters, annealers, temperers |
| 874 | B | Hoistmen, cranemen, derrickmen |
| 412 | B | Housekeepers (except private household), matron, stewards |
| 104 | W | Industrial engineers |
| 570 | W | Inspectors and foremen, communication |
| 852 | W | Inspectors - construction |
| 510 | W | Inspectors and foremen |
| 917 | B | Inspectors, examiners, gaugers, n.e.s. - metal |
| 918 | B | Inspectors, graders and samplers, n.e.s. |
| 758 | B | Inspectors, graders, scalers, log and lumber |
| 857 | B | Insulation appliciers |
| 331 | B | Insurance salesmen and agents |
| 195 | W | Interior decorators and window dressers |

| | | |
|-----|---|---|
| 454 | B | Janitors and cleaners, building |
| 791 | B | Jewellers and watchmakers |
| 151 | W | Judges and magistrates |
| 736 | B | Knitters |
| 920 | B | Labourers, excluding those engaged in agricultural, fishing, logging or mining operations |
| 657 | B | Labourers, mine |
| 452 | B | Launderers and dry cleaners |
| 153 | W | Lawyers and notaries |
| 721 | B | Leather cutters |
| 861 | B | Lens grinders and polishers; opticians |
| 194 | W | Librarians |
| 838 | B | Linemen and servicemen - telephone, telegraph and power |
| 773 | B | Lithographic and photo-offset occupations |
| 531 | B | Locomotive engineers |
| 532 | B | Locomotive fireman |
| 411 | W | Lodging and boarding house keepers |
| 611 | W | Logging foremen |
| 881 | B | Longshoremen and stevedores |
| 735 | B | Loom fixers and loom preparers |
| 615 | B | Lumbermen, including labourers in logging |
| 802 | B | Machinists and machine tool setters |
| 419 | B | Maids and related service workers, n.e.s. |
| 877 | B | Materials-handling equipment operators |
| 704 | B | Meat canners, curers, packers |
| 102 | W | Mechanical engineers |
| 825 | B | Mechanics and repairmen, railroad equipment |
| 821 | B | Mechanics and repairmen, aircraft |
| 822 | B | Mechanics and repairmen, motor vehicle |
| 829 | B | Mechanics and repairmen, n.e.s. |
| 824 | B | Mechanics and repairmen, office machine |
| 835 | B | Mechanics and repairmen, radio and television receivers |
| 148 | W | Medical and dental technicians |
| 588 | B | Messengers |
| 788 | B | Metal drawers and extruders |
| 789 | B | Metal treating occupations, n.e.s. |
| 808 | B | Metalworking machine operators, n.e.s. |
| 819 | B | Metalworking occupation, n.e.s. |
| 707 | B | Milk processors |

Appendix 3: 1961 Occupations Codes
Sorted alphabetically

| | | |
|-----|---|--|
| 701 | B | Millers of flour and grain |
| 744 | B | Milliners; hat and cap makers |
| 655 | B | Millmen |
| 805 | B | Millwrights |
| 654 | B | Miners, n.e.s. |
| 107 | W | Mining engineers |
| 873 | B | Motormen (vehicle), except railway |
| 786 | B | Moulders |
| 176 | W | Musicians and music teachers |
| 316 | | Newsvendors |
| 163 | | Nuns and brothers, n.o.r. |
| 142 | W | Nurses, graduate |
| 143 | | Nurses-in-training |
| 416 | B | Nursing assistants and aides |
| 980 | | Occupation not stated |
| 203 | B | Office appliance operators |
| 6 | W | Office managers |
| 878 | B | Oilers and greasers - machinery and vehicles (except ships) |
| 876 | B | Operators of earth-moving and other construction machinery, n.e.s. |
| 561 | B | Operators. electric street railway |
| 145 | W | Optometrists |
| 146 | | Osteopaths and chiropractors |
| 609 | B | Other agricultural occupations |
| 708 | B | Other food processing occupations |
| 149 | W | Other health professionals |
| 729 | B | Other leather products makers |
| 778 | B | Other occupations in bookbinding |
| 408 | | Other ranks, armed forces |
| 719 | B | Other rubber workers |
| 339 | B | Other sales occupations |
| 739 | B | Other textile occupations |
| 10 | W | Owners and managers, n.e.s. |
| 841 | B | Painters (construction and maintenance), paperhangers and glaziers |
| 843 | B | Painters, except construction and maintenance |
| 765 | B | Paper makers |
| 766 | B | Paper making occupations, n.e.s. |
| 914 | B | Paper product makers |
| 912 | B | Patternmakers (except paper) |

Appendix 3: 1961 Occupations Codes
Sorted alphabetically

| | | |
|-----|---|---|
| 147 | W | Pharmacists |
| 775 | B | Photoengravers |
| 196 | W | Photographers |
| 915 | B | Photographic processing occupations |
| 144 | W | Physical and occupational therapists |
| 119 | W | Physical scientists, n.e.s. |
| 140 | W | Physicians and surgeons |
| 114 | W | Physicists |
| 856 | B | Plasterers and lathers |
| 810 | B | Plumbers and pipefitters |
| 403 | B | Policemen and detectives |
| 818 | B | Polishers and buffers - metal |
| 417 | B | Porters, baggage and pullman |
| 7 | W | Postmasters |
| 587 | B | Postmen and mail carriers |
| 833 | B | Power station operators |
| 772 | B | Pressmen, printing |
| 779 | B | Printing workers, n.e.s. |
| 919 | B | Production process and related workers, n.e.s. |
| 109 | W | Professional engineers, n.e.s. |
| 199 | | Professional occupations, n.e.s. |
| 131 | W | Professors and college principals |
| 836 | B | Projectionists, motion picture |
| 652 | W | Prospectors |
| 8 | W | Purchasing agents and buyers |
| 659 | B | Quarriers and related workers, n.e.s. |
| 581 | B | Radio and television announcers |
| 582 | W | Radio and television equipment operators |
| 334 | B | Real estate salesmen and agents |
| 169 | W | Religious workers, n.o.r. |
| 875 | B | Riggers and cable splicers, except telephone, telegraph and power |
| 812 | B | Riveters and rivet heaters |
| 762 | B | Roasters, cookers and other heat treaters, chemical |
| 783 | B | Rolling mill operators |
| 325 | B | Sales clerks |
| 4 | W | Sales managers |
| 754 | B | Sawyers |
| 135 | W | School teachers |
| 198 | W | Science and engineering technicians, n.e.s. |

Appendix 3: 1961 Occupations Codes
 Sorted alphabetically

| | | |
|-----|---|---|
| 890 | B | Sectionmen and trackmen |
| 336 | B | Security salesmen and brokers |
| 323 | B | Service station attendants |
| 459 | B | Service workers, n.e.s. |
| 746 | B | Sewers and sewing machine operators, n.e.s. |
| 811 | B | Sheet metal workers |
| 214 | B | Shipping and receiving clerks |
| 722 | B | Shoemakers and repairers-factory, n.e.s. |
| 724 | B | Shoemakers and repairers-not in factory |
| 192 | W | Social welfare workers |
| 732 | B | Spinners and twisters |
| 872 | B | Stationary enginemen |
| 232 | B | Stenographers |
| 212 | B | Stock clerks and storekeepers |
| 864 | B | Stone cutters and dressers |
| 183 | W | Surveyors |
| 537 | B | Switchmen and signalmen |
| 741 | B | Tailors and tailoresses |
| 916 | B | Tanners and tannery operatives |
| 552 | B | Taxi drivers and chauffeurs |
| 139 | W | Teachers and instructors, n.e.s. |
| 563 | B | Teamsters |
| 585 | B | Telegraph operators |
| 584 | B | Telephone operators |
| 223 | B | Ticket, station and express agents, transport |
| 653 | B | Timbermen |
| 711 | B | Tire and tube builders |
| 911 | B | Tobacco preparers and products makers |
| 801 | B | Toolmakers, diemakers |
| 569 | B | Transport occupations, n.e.s. |
| 633 | B | Trappers and hunters |
| 556 | B | Truck drivers |
| 234 | B | Typists and clerk-typists |
| 747 | B | Upholsterers |
| 124 | W | Veterinarians |
| 713 | B | Vulcanizers |
| 415 | B | Waiters |
| 883 | B | Warehousemen and freight handlers, n.e.s. |
| 734 | B | Weavers |
| 817 | B | Welders and flame cutters |

Appendix 3: 1961 Occupations Codes
Sorted alphabetically

| | | |
|-----|---|---------------------------------------|
| 656 | B | Well drillers and related workers |
| 733 | B | Winders, reelers |
| 756 | B | Woodworking machine operators, n.e.s. |
| 759 | B | Woodworking occupations, n.e.s. |

B = Blue-collar socio-economic classification
W = White-collar socio-economic classification
Blank = Not in this study cohort

n.e.s. means not elsewhere specified
n.e.c. means not elsewhere classified
n.o.r. means not otherwise reported

Appendix 4: 1971 Occupations – sorted alphabetically

| | | |
|------|---|---|
| 8373 | B | Abrading and Polishing Occupations: Clay, Glass and Stone, n.e.c. |
| 1171 | W | Accountants, Auditors and Other Financial Officers |
| 3335 | | Actors |
| 4192 | B | Adjusters, Claim |
| 1134 | W | Administrators in Medicine and Health |
| 1133 | W | Administrators in Teaching and Related Fields |
| 3314 | W | Advertising and Illustrating Artists |
| 5174 | B | Advertising Salesmen |
| 2155 | W | Aeronautical Engineers |
| 2131 | W | Agriculturists and Related Scientists |
| 9111 | W | Air Pilots, Navigators and Flight Engineers |
| 9119 | | Air Transport Operating Occupations, n.e.c. |
| 9113 | W | Air Transport Operating Support Occupations |
| 8515 | B | Aircraft Fabricating and Assembling Occupations, n.e.c. |
| 8582 | B | Aircraft Mechanics and Repairmen |
| 6169 | B | Apparel and Furnishings Service Occupations, n.e.c. |
| 2141 | W | Architects |
| 2159 | W | Architects and Engineers, n.e.c. |
| 2165 | W | Architectural and Engineering Technologists and Technicians |
| 3373 | | Athletes |
| 3375 | B | Attendants, Sport and Recreation |
| 6147 | B | Babysitters |
| 8213 | B | Baking, Confectionery Making and Related Occupations |
| 6143 | B | Barbers, Hairdressers and Related Occupations |
| 6123 | B | Bartenders |
| 8227 | B | Beverage Processing Occupations |
| 2133 | W | Biologists and Related Scientists |
| 7715 | | Blasting Occupations |
| 8337 | B | Boilermakers, Platers and Structural Metal Workers |
| 8571 | B | Bonding and Cementing Occupations, Rubber, Plastic and Related Products |
| 9517 | B | Bookbinders and Related Occupations |
| 4131 | B | Bookkeepers and Accounting Clerks |
| 4139 | B | Bookkeeping, Account-recording and Related Occupations, n.e.c. |
| 8782 | B | Brick and Stone Masons and Tile Setters |
| 9171 | B | Bus Drivers |

Appendix 4: 1971 Occupations
Sorted alphabetically

| | | |
|------|---|--|
| 8585 | B | Business and Commercial Machine Mechanics and Repairmen |
| 8525 | B | Business and Commercial Machines Fabricating and Assembling Occupations, n.e.c. |
| 5177 | B | Business Services Salesmen |
| 5191 | W | Buyers, Wholesale and Retail Trade |
| 8541 | B | Cabinet and Wood Furniture Makers |
| 7311 | W | Captains and Other Officers, Fishing Vessels |
| 8781 | B | Carpenters and Related Occupations |
| 8251 | | Cellulose Pulp Preparing Occupations |
| 6133 | B | Chambermaids and Housemen |
| 6121 | B | Chefs and Cooks |
| 2142 | W | Chemical Engineers |
| 8179 | B | Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations, n.e.c. |
| 2111 | W | Chemists |
| 2143 | W | Civil Engineers |
| 8379 | | Clay, Glass and Stone and Related Materials Machining Occupations, n.e.c. |
| 8159 | B | Clay, Glass and Stone Processing, Forming and Related Occupations, n.e.c. |
| 3370 | W | Coaches, Trainers, Instructors and Managers, sport and Recreation |
| 8173 | | Coating and Calendering Occupations, Chemicals and Related Materials |
| 4191 | B | Collectors |
| 5133 | B | Commercial Travellers |
| 6116 | | Commissioned Officers, Armed Forces |
| 2791 | W | Community College and Vocational School Teachers |
| 8783 | B | Concrete Finishing and Related Occupations |
| 9133 | B | Conductors and Brakemen, Railway |
| 8733 | B | Construction Electricians and Repairmen |
| 8171 | | Crushing and Grinding Occupations, Chemicals and Related Materials |
| 8111 | B | Crushing and Grinding Occupations, Mineral Ores |
| 8575 | | Cutting and Finishing Occupations, Rubber, Plastic and Related Products |
| 8371 | | Cutting and Shaping Occupations: Clay, Glass and Stone |
| 3333 | | Dancers and Choreographers |
| 9155 | B | Deck Crew, Ship |
| 9151 | W | Deck Officers |
| 3157 | W | Dental Hygienists, Assistants and Technicians |
| 3113 | W | Dentists |
| 3152 | W | Dietitians and Nutritionists |
| 3154 | W | Dispensing Opticians |
| 8165 | B | Distilling, Subliming and Carbonizing Occupations, Chemicals and Related Materials |

Appendix 4: 1971 Occupations
Sorted alphabetically

| | | |
|------|---|---|
| 2163 | W | Draughtsmen |
| 5193 | B | Driver-salesmen |
| 2311 | W | Economists |
| 2391 | W | Educational and Vocational Counsellors |
| 8533 | B | Electrical and Related Equipment Installing and Repairing Occupations, n.e.c. |
| 2144 | W | Electrical Engineers |
| 8531 | B | Electrical Equipment Fabricating and Assembling Occupations |
| 8731 | B | Electrical Power Linemen and Related Occupations |
| 8739 | B | Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations, n.e.c. |
| 9559 | | Electronic and Related Communications Equipment Operating Occupations, n.e.c. |
| 8535 | W | Electronic and Related Equipment Installing and Repairing Occupations, n.e.c. |
| 4143 | B | Electronic Data-processing Equipment Operators |
| 8534 | B | Electronic Equipment Fabricating and Assembling Occupations |
| 2731 | W | Elementary and Kindergarten Teachers |
| 2739 | W | Elementary and Secondary School Teaching and Related Occupations, n.e.c. |
| 6193 | B | Elevator Operating Occupations |
| 9157 | B | Engine and Boiler-Room Crew, Ship |
| 8511 | B | Engine and Related Equipment Fabricating and Assembling Occupations, n.e.c. |
| 9153 | W | Engineering Officers, Ship |
| 8391 | | Engravers, Etchers and Related Occupations |
| 8711 | B | Excavating, Grading and Related Occupations |
| 8719 | B | Excavating, Grading, Paving and Related Occupations, n.e.c. |
| 8549 | | Fabricating, Assembling and Repairing Occupations, Wood Products, n.e.c. |
| 8579 | | Fabricating, Assembling and Repairing Occupations: Rubber, Plastic and Related Products, n.e.c. |
| 8569 | B | Fabricating, Assembling and Repairing Occupations: Textile, Fur and Leather Products, n.e.c. |
| 8539 | B | Fabricating, Assembling, Installing and Repairing Occupations: Electrical, Electronic and Related Equipment, n.e.c. |
| 7197 | | Farm Machinery Operators and Custom Operators |
| 7131 | W | Farm Management Occupations |
| 7182 | B | Farm Workers |
| 7112 | B | Farmers |
| 8393 | B | Filing, Grinding, Buffing, Cleaning and Polishing Occupations, n.e.c. |
| 8163 | | Filtering, Straining and Separating Occupations, Chemicals and Related Materials |

Appendix 4: 1971 Occupations
Sorted alphabetically

| | | |
|------|---|--|
| 1135 | W | Financial Management Occupations |
| 2792 | W | Fine Arts School Teachers |
| 6111 | B | Fire-fighting Occupations |
| 8217 | B | Fish Canning, Curing and Packing Occupations |
| 7313 | B | Fishermen: Net, Trap and Line |
| 7319 | | Fishing, Hunting, Trapping and Related Occupations, n.e.c. |
| 8211 | B | Flour and Grain Milling Occupations |
| 6129 | B | Food and Beverage Preparation and Related Service Occupations, n.e.c. |
| 8229 | B | Food, Beverage and Related Processing Occupations, n.e.c. |
| 9110 | W | Foremen: Air Transport Operating Occupations |
| 8160 | W | Foremen: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations |
| 8370 | W | Foremen: Clay, Glass and Stone and Related Materials Machining Occupations |
| 8150 | W | Foremen: Clay, Glass and Stone Processing, Forming and Related Occupations |
| 8730 | W | Foremen: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations |
| 9550 | W | Foremen: Electronic and Related Communications Equipment Operating Occupations, n.e.c. |
| 8710 | W | Foremen: Excavating, Grading, Paving and Related Occupations |
| 8510 | W | Foremen: Fabricating and Assembling Occupations, Metal Products, n.e.c. |
| 8550 | W | Foremen: Fabricating, Assembling and Repairing Occupations, Textile, Fur and Leather Products |
| 8570 | W | Foremen: Fabricating, Assembling and Repairing Occupations, Rubber, Plastic and Related Products |
| 8540 | W | Foremen: Fabricating, Assembling and Repairing Occupations, Wood Products |
| 8530 | W | Foremen: Fabricating, Assembling, Installing and Repairing Occupations, Electrical, Electronic and Related Equipment |
| 8210 | W | Foremen: Food, Beverage and Related Processing Occupations |
| 7510 | W | Foremen: Forestry and Logging Occupations |
| 9310 | W | Foremen: Materials Handling and Related Occupations, n.e.c. |
| 8580 | W | Foremen: Mechanics and Repairmen Except Electrical |
| 8310 | W | Foremen: Metal Machining Occupations |
| 8130 | W | Foremen: Metal Processing and Related Occupations |
| 8330 | W | Foremen: Metal Shaping and Forming Occupations, Except Machining |
| 8110 | W | Foremen: Mineral Ore Treating Occupations |
| 7710 | W | Foremen: Mining and Quarrying Including Oil and Gas Field Occupations |
| 9170 | W | Foremen: Motor Transport Operating Occupations |
| 8780 | W | Foremen: Other Construction Trades Occupations |
| 9590 | W | Foremen: Other Crafts and Equipment Operating Occupations, n.e.c. |

Appendix 4: 1971 Occupations
Sorted alphabetically

| | | |
|------|---|--|
| 7180 | W | Foremen: Other Farming, Horticultural and Animal Husbandry Occupations |
| 8390 | W | Foremen: Other Machining and Related Occupations, n.e.c. |
| 8290 | W | Foremen: Other Processing Occupations |
| 9190 | W | Foremen: Other Transport and Related Equipment Operating Occupations |
| 9510 | W | Foremen: Printing and Related Occupations |
| 8590 | W | Foremen: Product Fabricating, Assembling and Repairing Occupations, n.e.c. |
| 8250 | W | Foremen: Pulp and Papermaking and Related Occupations |
| 9130 | W | Foremen: Railway Transport Operating Occupations |
| 9530 | W | Foremen: Stationary Engine and Utilities Equipment Operating and Related Occupations |
| 8260 | W | Foremen: Textile Processing Occupations |
| 8350 | W | Foremen: Wood Machining Occupations |
| 8230 | W | Foremen: Wood Processing Occupations, Except Pulp and Papermaking |
| 7519 | B | Forestry and Logging Occupations, n.e.c. |
| 7511 | B | Forestry Conservation Occupations |
| 8331 | B | Forging Occupations |
| 8155 | B | Forming Occupations: Clay, Glass and Stone |
| 8221 | | Fruit and Vegetable Canning, Preserving and Packing Occupations |
| 6141 | W | Funeral Directors, Embalmers and Related Occupations |
| 8151 | | Furnacemen and Kilnmen: Clay, Glass and Stone |
| 8555 | | Furriers |
| 1130 | W | General Managers and Other Senior Officials |
| 4197 | B | General Office Clerks |
| 2112 | W | Geologists |
| 8795 | B | Glaziers |
| 1113 | W | Government Administrators |
| 6115 | B | Guards and Watchmen |
| 6144 | | Guides |
| 3119 | | Health Diagnosing and Treating Occupations, n.e.c. |
| 8295 | | Hide and Pelt Processing Occupations |
| 9311 | B | Hoisting Occupations, n.e.c. |
| 6145 | B | Hostesses and stewards, Except Food and Beverage |
| 4194 | B | Hotel Clerks |
| 7315 | | Hunting, Trapping and Related Occupations |
| 2145 | W | Industrial Engineers |
| 8584 | B | Industrial, Farm and Construction Machinery Mechanics and Repairmen |
| 8523 | B | Industrial, Farm, Construction and Other Mechanized Equipment and Machinery Fabricating and Assembling Occupations, n.e.c. |
| 8796 | W | Inspecting, Testing, Grading and Sampling Occupations, Construction, Except Electrical |

| | | |
|------|---|--|
| 8586 | B | Inspecting, Testing, Grading and Sampling Occupations, Equipment Repair Except Electrical |
| 8526 | W | Inspecting, Testing, Grading and Sampling Occupations, Fabricating and Assembling Metal Products, n.e.c. |
| 8396 | | Inspecting, Testing, Grading and Sampling Occupations, Machining, n.e.c. |
| 8316 | | Inspecting, Testing, Grading and Sampling Occupations, Metal Machining |
| 8146 | W | Inspecting, Testing, Grading and Sampling Occupations, Metal Processing |
| 8116 | | Inspecting, Testing, Grading and Sampling Occupations, Mineral Ore Treating |
| 9916 | B | Inspecting, Testing, Grading and Sampling Occupations, n.e.c. |
| 8296 | | Inspecting, Testing, Grading and Sampling Occupations, Processing, n.e.c. |
| 8256 | B | Inspecting, Testing, Grading and Sampling Occupations, Pulp and Papermaking |
| 8276 | B | Inspecting, Testing, Grading and Sampling Occupations, Textile Processing |
| 8356 | | Inspecting, Testing, Grading and Sampling Occupations, Wood Machining |
| 8176 | W | Inspecting, Testing, Grading and Sampling Occupations: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing |
| 8376 | | Inspecting, Testing, Grading and Sampling Occupations: Clay, Glass and Stone Machining |
| 8377 | | |
| 8156 | B | Inspecting, Testing, Grading and Sampling Occupations: Clay, Glass and Stone Processing and Forming |
| 8736 | W | Inspecting, Testing, Grading and Sampling Occupations: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing |
| 8576 | | Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing, Rubber, Plastic and Related Products |
| 8577 | | |
| 8566 | B | Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing, Textile, Fur and Leather Products |
| 8546 | | Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing, Wood Products |
| 8547 | | |
| 8536 | B | Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment |
| 8226 | B | Inspecting, Testing, Grading and Sampling Occupations: Food, Beverage and Related Processing |
| 8336 | W | Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining |
| 8596 | | Inspecting, Testing, Grading and Sampling Occupations: Product Fabricating, Assembling and Repairing, n.e.c. |
| 8236 | | Inspecting, Testing, Grading and Sampling Occupations: Wood Processing, Except Pulp and Papermaking |

| | | |
|------|---|--|
| 1116 | W | Inspectors and Regulatory Officers, Government |
| 1176 | W | Inspectors and Regulatory Officers, Non-Government |
| 2797 | W | Instructors and Training Officers, n.e.c. |
| 8786 | B | Insulating Occupations, Construction |
| 5171 | W | Insurance Salesmen and Agents |
| 5171 | B | Insurance Salesmen and Agents |
| 4135 | B | Insurance, Bank and Other Finance Clerks |
| 6191 | B | Janitors, Charworkers and Cleaners |
| 8591 | B | Jewellery and Silverware Fabricating, Assembling and Repairing Occupations |
| 2341 | W | Judges and Magistrates |
| 8271 | B | Knitting Occupations |
| 6162 | B | Laundering and Dry Cleaning Occupations |
| 2343 | W | Lawyers and Notaries |
| 2351 | W | Librarians and Archivists |
| 4161 | B | Library and File Clerks |
| 4169 | B | Library, File and Correspondence Clerks and Related Occupations, n.e.c. |
| 2135 | W | Life Sciences Technologists and Technicians |
| 9131 | B | Locomotive Engineers and Firemen |
| 7517 | B | Log Hoisting, Sorting, Moving and Related Occupations |
| 7516 | B | Log Inspecting, Grading, Scaling and Related Occupations |
| 9313 | B | Longshoremen, Stevedores and Freight Handlers |
| 8315 | B | Machine Tool Operating Occupations |
| 8313 | B | Machinist and Machine Tool Setting-Up Occupations |
| 4173 | B | Mail and Postal Clerks |
| 4172 | B | Mail Carriers |
| 1145 | W | Management Occupations, Construction Operations |
| 1131 | W | Management Occupations, Natural Sciences and Engineering |
| 1132 | W | Management Occupations, Social Sciences and Related Fields |
| 1147 | W | Management Occupations, Transport and Communications Operations |
| 6131 | W | Managers: Hotel, Motel and Other Accommodation |
| 8592 | | Marine Craft Fabricating, Assembling and Repairing Occupations |
| 4159 | B | Material Recording, Scheduling and Distributing Occupations, n.e.c. |
| 9319 | B | Materials Handling and Related Occupations, n.e.c. |
| 9315 | B | Materials Handling Equipment Operators, n.e.c. |
| 2181 | W | Mathematicians, Statisticians and Actuaries |
| 2147 | W | Mechanical Engineers |
| 8589 | B | Mechanics and Repairmen Except Electrical, n.e.c. |
| 3156 | W | Medical Laboratory Technologists and Technicians |
| 8115 | | Melting and Roasting Occupations, Mineral Ores |
| 1111 | W | Members of Legislative Bodies |
| 4177 | B | Messengers |
| 8141 | | Metal Extruding and Drawing Occupations |

| | | |
|------|---|--|
| 8133 | | Metal Heat Treating Occupations |
| 8319 | | Metal Machining Occupations, n.e.c. |
| 8149 | B | Metal Processing and Related Occupations, n.e.c. |
| 8135 | B | Metal Rolling Occupations |
| 8339 | | Metal Shaping and Forming Occupations, Except Machining, n.e.c. |
| 8131 | B | Metal Smelting, Converting and Refining Furnacemen |
| | | |
| 2151 | W | Metallurgical Engineers |
| 8334 | B | Metalworking-machine Operators, n.e.c. |
| 2114 | W | Meteorologists |
| 8223 | B | Milk Processing Occupations |
| 8557 | | Milliners, Hat and Cap Makers |
| 8119 | | Mineral Ore Treating Occupations, n.e.c. |
| | | |
| 7719 | B | Mining and Quarrying Including Oil and Gas Field Occupations, n.e.c. |
| 7717 | B | Mining and Quarrying: Cutting, Handling and Loading Occupations |
| 2153 | W | Mining Engineers |
| 2511 | W | Ministers of Religion |
| 8161 | B | Mixing and Blending Occupations . Chemicals and Related Materials |
| 8113 | B | Mixing, Separating, Filtering and Related Occupations, Mineral Ores |
| | | |
| 9557 | B | Motion Picture Projectionists |
| 9179 | B | Motor Transport Operating Occupations, n.e.c. |
| 8513 | B | Motor Vehicle Fabricating and Assembling Occupations, n.e.c. |
| 8581 | B | Motor Vehicle Mechanics and Repairmen |
| 9193 | | Motormen and Dinkeymen, Except Rail Transport |
| 8573 | B | Moulding Occupations, Rubber, Plastic and Related Products |
| | | |
| 8137 | B | Moulding, Coremaking and Metal Casting Occupations |
| 3332 | W | Musicians |
| 5143 | | Newsboys |
| 2157 | W | Nuclear Engineers |
| 2513 | W | Nuns and Brothers, n.o.r. |
| 7195 | B | Nursery and Related Workers |
| 3131 | W | Nurses, Graduate, Except Supervisors |
| 3133 | | Nurses-in-Training |
| 3135 | B | Nursing Aides and Orderlies |
| 3134 | B | Nursing Assistants |
| 3139 | B | Nursing, Therapy and Related Assisting Occupations, n.e.c. |
| 3319 | | Occupations in Fine and Commercial Art, Photography and Related Fields, n.e.c. |
| | | |
| 8528 | B | Occupations in Labouring and Other Elemental Work, Fabricating and Assembling Metal Products, n.e.c. |
| 9318 | B | Occupations in Labouring and Other Elemental Work, Materials Handling |
| 8148 | B | Occupations in Labouring and Other Elemental Work, Metal Processing |
| 8118 | B | Occupations in Labouring and Other Elemental Work, Mineral Ore Treating |

| | | |
|------|---|--|
| 7718 | B | Occupations in Labouring and Other Elemental Work, Mining and Quarrying Including Oil and Gas Fields |
| 9918 | B | Occupations in Labouring and Other Elemental Work, n.e.c. |
| 8798 | B | Occupations in Labouring and Other Elemental Work, Other Construction Trades |
| 8298 | B | Occupations in Labouring and Other Elemental Work, Other Processing |
| 9518 | B | Occupations in Labouring and Other Elemental Work, Printing and Related, n.e.c. |
| 8258 | B | Occupations in Labouring and Other Elemental Work, Pulp and Papermaking |
| 6198 | B | Occupations in Labouring and Other Elemental Work, Services |
| 8278 | B | Occupations in Labouring and Other Elemental Work, Textile Processing |
| 7518 | B | Occupations in Labouring and Other Elemental Work, Forestry and Logging |
| 8178 | B | Occupations in Labouring and Other Elemental Work: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing |
| 8158 | B | Occupations in Labouring and Other Elemental Work: Clay, Glass and Stone Processing and Forming |
| 8738 | B | Occupations in Labouring and Other Elemental Work: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing |
| 8718 | B | Occupations in Labouring and Other Elemental Work: Excavating, Grading, and Paving |
| 8578 | B | Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Rubber, Plastic and Related Products |
| 8568 | B | Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Textile, Fur and Leather Products |
| 8548 | B | Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Wood Products |
| 8538 | B | Occupations in Labouring and Other Elemental Work: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment |
| 8228 | B | Occupations in Labouring and Other Elemental Work: Food, Beverage and Related Processing |
| 8598 | B | Occupations in Labouring and Other Elemental Work: Product Fabricating, Assembling and Repairing, n.e.c. |
| 8238 | B | Occupations in Labouring and Other Elemental Work: Wood Processing, Except Pulp and Papermaking |
| 2349 | W | Occupations in Law and Jurisprudence, n.e.c. |
| 2359 | B | Occupations in Library, Museum and Archival Sciences, n.e.c. |
| 2139 | W | Occupations in Life Sciences, n.e.c. |
| 6139 | B | Occupations in Lodging and Other Accommodation, n.e.c. |
| 2189 | | Occupations in Mathematics, Statistics, Systems Analysis and Related Fields. n.e.c. |

| | | |
|------|---|--|
| 3339 | B | Occupations in Performing and Audio-visual Arts, n.e.c. |
| 2119 | W | Occupations in Physical Sciences, n.e.c. |
| 2519 | W | Occupations in Religion, n.e.c. |
| 2319 | W | Occupations in Social Sciences, n.e.c. |
| 2339 | | Occupations in Social Work and Related Fields, n.e.c. |
| 3379 | B | Occupations in Sport and Recreation, n.e.c. |
| 2333 | W | Occupations in Welfare and Community Services |
| 3359 | | Occupations in Writing, n.e.c. |
| 1179 | W | Occupations Related to Management and Administration, n.e.c. |
| 4141 | B | Office Machine Operators |
| 1119 | W | Officials and Administrators Unique to Government, n.e.c. |
| 3153 | W | Optometrists |
| 3117 | | Osteopaths and Chiropractors |
| 4199 | B | Other Clerical and Related Occupations, n.e.c. |
| 8799 | B | Other Construction Trades Occupations, n.e.c. |
| 9599 | | Other Crafts and Equipment Operating Occupations, n.e.c. |
| 8529 | B | Other Fabricating and Assembling Occupations, Metal Products, n.e.c. |
| 7199 | B | Other Farming, Horticultural and Animal Husbandry Occupations, n.e.c. |
| 8399 | | Other Machining and Related Occupations, n.e.c. |
| 1149 | W | Other Managers and Administrators, n.e.c. |
| 2169 | W | Other Occupations in Architecture and Engineering, n.e.c. |
| 3159 | B | Other Occupations in Medicine and Health, n.e.c. |
| 2399 | W | Other Occupations in Social Sciences and Related Fields, n.e.c. |
| 9919 | B | Other Occupations, n.e.c. |
| 8299 | B | Other Processing Occupations, n.e.c. |
| 8599 | B | Other Product Fabricating, Assembling and Repairing Occupations, n.e.c. |
| 6117 | | Other Ranks, Armed Forces |
| 7713 | B | Other Rock and Soil Drilling Occupations |
| 5199 | B | Other Sales Occupations, n.e.c. |
| 6199 | B | Other Service Occupations, n.e.c. |
| 2799 | W | Other Teaching and Related Occupations, n.e.c. |
| 9199 | B | Other Transport and Related Equipment Operating Occupations, n.e.c. |
| 9317 | B | Packaging Occupations, n.e.c. |
| 8785 | B | Painters, Paperhangers and Related Occupations |
| 3311 | W | Painters, Sculptors and Related Artists |
| 8595 | B | Painting and Decorating Occupations, Except Construction |
| 8593 | B | Paper Product Fabricating and Assembling Occupations |
| 8253 | | Papermaking and Finishing Occupations |
| 8395 | B | Patternmakers and Mouldmakers, n.e.c. |
| 8551 | B | Patternmaking, Marking and Cutting Occupations: Textile, Fur and Leather Products |

| | | |
|------|---|--|
| 8713 | | Paving, Surfacing and Related Occupations |
| 6149 | B | Personal Service Occupations, n.e.c. |
| 1136 | W | Personnel and Industrial Relations Management Occupations |
| 1174 | W | Personnel and Related Officers |
| 4195 | B | Personnel Clerks |
| 2154 | W | Petroleum Engineers |
| 3151 | W | Pharmacists |
| 9515 | | Photoengravers and Related Occupations |
| 3315 | W | Photographers and Cameramen |
| 9591 | B | Photographic Processing Occupations |
| 2117 | W | Physical Sciences Technologists and Technicians |
| 3111 | W | Physicians and Surgeons |
| 2113 | | Physicists |
| 3137 | | Physiotherapists, Occupational and Other Therapists |
| 8791 | B | Pipefitting, Plumbing and Related Occupations |
| 8355 | | Planing, Turning, Shaping and Related Wood Machining Occupations |
| 8784 | B | Plasterers and Related Occupations |
| 8143 | B | Plating, Metal Spraying and Related Occupations |
| 8233 | | Plywood Making and Related Occupations |
| 6112 | B | Policemen and Detectives, Government |
| 6113 | B | Policemen and Investigators, Private |
| 1115 | W | Postmasters |
| 2793 | W | Post-Secondary School Teachers, n.e.c. |
| 9531 | B | Power Station Operators |
| 8588 | B | Precision Instrument Mechanics and Repairmen |
| 8527 | | Precision Instruments and Related Equipment Fabricating and Assembling Occupations, n.e.c. |
| 6165 | | Pressing Occupations |
| 9519 | B | Printing and Related Occupations, n.e.c. |
| 9514 | B | Printing Engravers, Except Photoengravers |
| 9512 | B | Printing Press Occupations |
| 3330 | W | Producers and Directors, Performing and Audio-visual Arts |
| 3313 | W | Product and Interior Designers |
| 4151 | B | Production Clerks |
| 1143 | W | Production Management Occupations |
| 6119 | B | Protective Service Occupations, n.e.c. |
| 2315 | W | Psychologists |
| 8259 | B | Pulp and Papermaking and Related Occupations, n.e.c. |
| 1141 | W | Purchasing Management Occupations |
| 1175 | W | Purchasing Officers and Buyers, Except Wholesale and Retail Trade |
| 3337 | B | Radio and Television Announcers |
| 9551 | B | Radio and Television Broadcasting Equipment Operators |

Appendix 4: 1971 Occupations
Sorted alphabetically

| | | |
|------|---|---|
| 8537 | B | Radio and Television Service Repairmen |
| 3155 | W | Radiological Technologists and Technicians |
| 8583 | B | Rail Transport Equipment Mechanics and Repairmen |
| 8715 | B | Railway Sectionmen and Trackmen |
| 9139 | | Railway Transport Operating Occupations, n.e.c. |
| 9135 | B | Railway Transport Operating Support Occupations |
| 5172 | B | Real Estate Salesmen |
| 4179 | B | Reception, Information, Mail and Message Distribution Occupations, n.e.c. |
| 4171 | B | Receptionists and Information Clerks |
| 3371 | | Referees and Related Officials |
| 8167 | B | Roasting, Cooking and Drying Occupations, Chemicals and Related Materials |
| 8787 | B | Roofing, Waterproofing and Related Occupations |
| 7711 | B | Rotary Well-drilling and Related Occupations |
| 1137 | W | Sales and Advertising Management Occupations |
| 5137 | B | Sales Clerks, Commodities |
| 5149 | B | Sales Occupations: Commodities, n.e.c. |
| 5179 | B | Sales Occupations: Services, n.e.c. |
| 5135 | B | Salesmen and Salespersons, Commodities, n.e.c. |
| 5173 | B | Salesmen and Traders, Securities |
| 8231 | B | Sawmill Sawyers and Related Occupations |
| 2733 | W | Secondary School Teachers |
| 4111 | B | Secretaries and Stenographers |
| 8153 | B | Separating, Grinding, Crushing and Mixing Occupations: Clay, Glass and Stone |
| 5145 | B | Service Station Attendants |
| 1142 | W | Services Management Occupations |
| 8563 | B | Sewing Machine Operators, Textile and Similar Materials |
| 8333 | B | Sheet Metal Workers |
| 4153 | B | Shipping and Receiving Clerks |
| 8561 | B | Shoemaking and Repairing Occupations |
| 8215 | B | Slaughtering and Meat Cutting, Canning, Curing and Packing Occupations |
| 6135 | B | Sleeping-Car and Baggage Porters, and Bellmen |
| 2331 | W | Social Workers |
| 2313 | | Sociologists, Anthropologists and Related Social Scientists |
| 9555 | | Sound Recording and Reproduction Equipment Operators |
| 9539 | B | Stationary Engine and Utilities Equipment Operating and Related Occupations, n.e.c. |
| 4137 | B | Statistical Clerks |
| 9513 | | Stereotypers and Electrotypers |

| | | |
|------|---|--|
| 4155 | B | Stock Clerks and Related Occupations |
| 5141 | B | Street Vendors and Door-to Door Salesmen |
| 8793 | B | Structural Metal Erectors |
| 9191 | | Subway and Street Railway Operating Occupations |
| 8225 | B | Sugar Processing and Related Occupations |
| 9910 | W | Supervisors and Foremen, n.e.c. |
| 6160 | W | Supervisors: Apparel and Furnishings Service Occupations |
| 4130 | W | Supervisors: Bookkeeping, Account-recording and Related Occupations |
| 6120 | W | Supervisors: Food and Beverage Preparation and Related Service Occupations |
| 4160 | W | Supervisors: Library, File and Correspondence Clerks and Related Occupations |
| 4150 | W | Supervisors: Material Recording, Scheduling and Distributing Occupations |
| 3130 | W | Supervisors: Nursing Occupations |
| 2350 | W | Supervisors: Occupations in Library, Museum and Archival Sciences |
| 6130 | W | Supervisors: Occupations in Lodging and Other Accommodation |
| 4140 | W | Supervisors: Office Machine and Electronic Data-processing Equipment Operators |
| 4190 | W | Supervisors: Other Clerical and Related Occupations, n.e.c. |
| 2160 | W | Supervisors: Other Occupations in Architecture and Engineering |
| 5190 | W | Supervisors: Other Sales Occupations |
| 6190 | W | Supervisors: Other Service Occupations |
| 4170 | W | Supervisors: Reception, Information, Mail and Message Distribution Occupations |
| 5130 | W | Supervisors: Sales Occupations, Commodities |
| 5170 | W | Supervisors: Sales Occupations, Services |
| 4110 | | Supervisors: Stenographic and Typing Occupations |
| 2161 | W | Surveyors |
| 2183 | W | Systems Analysts, Computer Programmers and Related Occupations |
| 8553 | B | Tailors and Dressmakers |
| 9173 | B | Taxi Drivers and Chauffeurs |
| 2795 | W | Teachers of Exceptional Students, n.e.c. |
| 5131 | B | Technical Salesmen and Related Advisers |
| 2353 | W | Technicians in Library, Museum and Archival Sciences |
| 9553 | B | Telegraph Operators |
| 4175 | B | Telephone Operators |
| 4133 | B | Tellers and Cashiers |
| 8273 | B | Textile Bleaching and Dyeing Occupations |
| 8261 | B | Textile Fibre Preparing Occupations |
| 8275 | B | Textile Finishing and Calendering Occupations |
| 8279 | B | Textile Processing Occupations, n.e.c. |

Appendix 4: 1971 Occupations
Sorted alphabetically

| | | |
|------|---|--|
| 8263 | | Textile Spinning and Twisting Occupations |
| 8267 | B | Textile Weaving Occupations |
| 8265 | | Textile Winding and Reeling Occupations |
| 7513 | B | Timber Cutting and Related Occupations |
| 8293 | B | Tobacco Processing Occupations |
| 8311 | B | Tool and Die Making Occupations |
| 3355 | W | Translators and Interpreters |
| 4193 | B | Travel Clerks, Ticket, Station and Freight Agents |
| 9175 | B | Truck Drivers |
| 9511 | B | Typesetters and Compositors |
| 4113 | B | Typists and Clerk-Typists |
| 2711 | W | University Teachers |
| 2719 | W | University Teaching and Related Occupations, n.e.c. |
| 8562 | B | Upholsterers |
| 3115 | W | Veterinarians |
| 6125 | B | Waiters, Hostesses and Stewards, Food and Beverage |
| 8587 | | Watch and Clock Repairmen |
| 9159 | B | Water Transport Operating Occupations, n.e.c. |
| 4157 | B | Weighers |
| 8335 | B | Welding and Flame Cutting Occupations |
| 8735 | B | Wire Communications and Related Equipment Installing and Repairing Occupations |
| 8359 | B | Wood Machining Occupations, n.e.c. |
| 8351 | | Wood Patternmaking Occupations |
| 8239 | B | Wood Processing Occupations, Except Pulp and Papermaking, n.e.c. |
| 8357 | | Wood Sanding Occupations |
| 8353 | B | Wood Sawing and Related Occupations, Except Sawmill |
| 8235 | | Wood Treating Occupations |
| 3352 | W | Writers and Editors |

B = Blue-collar socio-economic classification
W = White-collar socio-economic classification
Blank = Not in this study cohort

n.e.s. means not elsewhere specified
n.e.c. means not elsewhere classified
n.o.r. means not otherwise reported

Appendix 5: Cause of Death Codes – sorted by code group number

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|-------------------|---|--------------------------------|---------------------|-------------------------|-------------------------|
| 1 | All causes (Code groups 2-70 excluding 5,31) | All causes | 001-999 | 001-999 | 001-999 |
| 2 | Infectious and parasitic diseases, excluding tuberculosis (Code Groups 3,4) | Infectious (excl. TB) | 001-009, 020-136 | 001-009, 020-136 | 020-138 |
| 3 | Tuberculosis, pulmonary and other respiratory | TB (respiratory) | 011, 012 | 011, 012 | 001-008 |
| 4 | Tuberculosis, excluding pulmonary and other respiratory (Code Group 3) | TB (excl. respiratory) | 010, 013-018 | 010, 013-018 | 010-019 |
| 5 | Neoplasms (Code Groups 6-46) | All cancers | 140-239 | 140-239 | 140-239 |
| 6 | Malignant neoplasm, lip | Cancer (lip) | 149 | 140 | 140 |
| 7 | Malignant neoplasm, other and unspecified parts of mouth | Cancer (buccal) | 145 | 145 | 144 |
| 8 | Malignant neoplasm, oesophagus | Cancer (oesophagus) | 150 | 150 | 150 |
| 9 | Malignant neoplasm, stomach | Cancer (stomach) | 151 | 151 | 151 |
| 10 | Malignant neoplasm, small intestine including duodenum | Cancer (small intestine) | 152 | 152 | 152 |
| 11 | Malignant neoplasm, colon | Cancer (colon) | 153 | 153 | 153 |
| 12 | Malignant neoplasm, rectum, rectosigmoid junction and anus | Cancer (rectum) | 154 | 154 | 154 |
| 13 | Malignant neoplasm, liver and intrahepatic bile ducts | Cancer (liver) | 155 | 155 | 155.0 |
| 14 | Malignant neoplasm, gallbladder and extrahepatic bile ducts | Cancer (gallbladder) | 156 | 156 | 155.1 |

Appendix 5: Cause of Death Codes
Sorted by code group number

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|-------------------|--|--------------------------------|---------------------|-------------------------|---------------------------|
| 15 | Malignant neoplasm, pancreas | Cancer (pancreas) | 157 | 157 | 157 |
| 16 | Malignant neoplasm, larynx | Cancer (larynx) | 161 | 161 | 161 |
| 17 | Malignant neoplasm, trachea, bronchus and lung | Cancer (lung) | 162 | 162.1 | 162.1 |
| 18 | Malignant neoplasm, bone and articular cartilage | Cancer (bone) | 170 | 170 | 196 |
| 19 | Malignant melanoma and other malignant neoplasm, skin | Cancer (skin) | 172, 173 | 172, 173 | 190, 191 |
| 20 | Malignant neoplasm, breast | Cancer (breast) | 174, 175 | 174 | 170 |
| 21 | Malignant neoplasm, cervix uteri | Cancer (cervix) | 180 | 180 | 171 |
| 22 | Malignant neoplasm, body of uterus | Cancer (uterus) | 182 | 182 | 172 |
| 23 | Malignant neoplasm, ovary and other uterine adnexa | Cancer (ovary) | 183 | 183 | 175.0 |
| 24 | Malignant neoplasm, prostate | Cancer (prostate) | 185 | 185 | 177 |
| 25 | Malignant neoplasm, bladder | Cancer (bladder) | 188 | 188 | 181.0 |
| 26 | Malignant neoplasm, kidney | Cancer (kidney) | 189.0, .2 | 189.0 | 180 |
| 27 | Malignant neoplasm, other and unspecified urinary organs, excluding kidney (Code Group 26) | Cancer (urinary excl. Code 26) | 189.3-189.9 | 189.1, .2, .3 | 181.7, 181.8 |
| 28 | Malignant neoplasm, brain | Cancer (brain) | 191 | 191 | 193.0 |
| 29 | Malignant neoplasm, other and unspecified parts of nervous system, excluding brain (Code Group 28) | Cancer (cns excl. Code 28) | 192, 237 | 192 | 193.1, .2, .3, .4, .8, .9 |

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|-------------------|--|----------------------------------|--|--|---|
| 30 | Malignant neoplasm, other than Code Groups 6-29 | Cancer (other, excl. Codes 6-29) | 141-144, 146-149, 158-160, 163-165, 171, 179, 181, 184, 186, 187, 190, 193-199 | 141-144, 146-149, 158-160, 162.0, 163, 171, 181, 184, 186, 187, 190, 193-199 | 141-143, 145-148, 158-160, 162.0, .2, .8, 163-165, 173, 174, 175.1, .8, .9, 176-179, 192, 194, 195, 197-199 |
| 31 | Malignant neoplasm of lymphatic and haematopoietic tissue (Code Groups 32-44) | Haematological cancers | 200-208 | 200-209 | 200-207 |
| 32 | Lymphosarcoma, reticulosarcoma and other malignant neoplasm of lymphoid and histiocytic tissue | Non-Hodgkin's lymphoma | 200, 202 | 200, 202 | 200, 202, 205 |
| 33 | Hodgkin's disease | Hodgkin's Disease | 201 | 201 | 201 |
| 34 | Multiple myeloma and immunoproliferative neoplasms | Myeloma | 203 | 203 | 203 |
| 35 | Leukaemia, lymphoid, acute | Leukaemia (lymphatic acute) | 204.0 | 204.0 | 204.3 |
| 36 | Leukaemia, lymphoid, chronic | Leukaemia (lymphatic chronic) | 204.1 | 204.1 | 204.0 |
| 37 | Leukaemia, lymphoid, subacute, other and unspecified | Leukaemia (lymphatic other) | 204.2-204.9 | 204.9 | |
| 38 | Leukaemia, myeloid, acute | Leukaemia (myeloid acute) | 205.0 | 205.0 | |
| 39 | Leukaemia, myeloid, chronic | Leukaemia (myeloid chronic) | 205.1 | 205.1 | 204.1 |
| 40 | Leukaemia, myeloid, subacute, other and unspecified | Leukaemia (myeloid other) | 205.2-205.9 | 205.9 | |
| 41 | Leukaemia, monocytic, acute | Leukaemia (monocytic acute) | 206.0 | 206.0 | |
| 42 | Leukaemia, monocytic chronic | Leukaemia (monocytic chronic) | 206.1 | 206.1 | 204.2 |

Appendix 5: Cause of Death Codes
Sorted by code group number

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|-------------------|---|-------------------------------------|----------------------|-------------------------|-------------------------|
| 43 | Leukaemia, monocytic subacute, other and unspecified | Leukaemia (monocytic other) | 206.2-206.9 | 206.9 | |
| 44 | Leukaemia, other specified and unspecified cell type, other than Code Groups 35-43 | Leukaemia (other excl. Codes 35-43) | 207, 208 | 207 | 204.4 |
| 45 | Neoplasms (benign) | Neoplasms (benign) | 210-229 | 210-228 | 210-229 |
| 46 | Carcinoma-in-situ, neoplasms of uncertain behavior, and neoplasms of unspecified nature | Neoplasms (in-situ, unspecified) | 230-236, 238-239 | 230-239 | 230-239 |
| 47 | Diabetes mellitus | Diabetes | 250 | 250 | 260 |
| 48 | Anaemia | Anaemia | 280-285 | 280-285 | 290-299 |
| 49 | Alcohol-related mental disorders | Alcohol-related mental disorders | 291, 303, 305.0 | 291, 303 | 581.1, 307 |
| 50 | Chronic rheumatic heart disease | Heart (chronic rheumatic) | 393-398 | 393-398 | 410-416 |
| 51 | Hypertensive disease | Hypertension | 401-405 | 400-404 | 440-443 |
| 52 | Ischaemic heart disease | Heart (ischaemic) | 410-414, 429.2 | 410-414 | |
| 53 | Heart disease other than chronic rheumatic and ischaemic (Code Groups 50, 52) | Heart (excl. Codes 50, 52) | 420-429 | 420-429 | 420-434, 444-447 |
| 54 | Cerebrovascular disease | Cerebrovascular | 430-438 | 430-438 | 330-334 |
| 55 | Influenza | Influenza | 487 | 470-474 | 480-483 |
| 56 | Pneumonia | Pneumonia | 480-486 | 480-486 | 490-493, 763 |
| 57 | Bronchitis | Bronchitis | 490, 491, 466, 506.0 | 490, 491, 466 | 500, 501 |
| 58 | Emphysema | Emphysema | 492 | 492 | 502 |
| 59 | Asthma | Asthma | 493 | 493 | 241 |
| 60 | Cirrhosis of liver without mention of alcohol | Cirrhosis (non-alcoholic) | 571.5 | 571.8, .9 | 581.0 |

Appendix 5: Cause of Death Codes
Sorted by code group number

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|-------------------|---|-----------------------------------|---------------------------|---------------------------|-------------------------|
| 61 | Nephritis | Nephritis | 580-585,587 | 580-584 | 590-594 |
| 62 | Hyperplasia of prostate | Prostatic hyperplasia | 600 | 600 | 610-612 |
| 63 | Complications mainly related to pregnancy | Pregnancy complications | 640-648 | 630-634 | 640-649 |
| 64 | Congenital anomalies | Congenital anomalies | 740-759 | 740-759 | 750-759 |
| 65 | Motor vehicle accidents | Accidents (motor vehicle) | 810-825 | 810-823 | 810-835 |
| 66 | Accidents, excluding motor vehicle accidents (Code Group 65) | Accidents (excl. Code 65) | 800-807, 826-869, 880-929 | 800-807, 825-929, 940-949 | 800-802, 840-936 |
| 67 | Suicide | Suicide | 950-959 | 950-959 | 970-979 |
| 68 | Homicide | Homicide | 960-969 | 960-969 | 980-985 |
| 69 | External causes, excluding motor vehicle accidents, other accidents, suicide and homicide (Code Groups 65-68) | External (excl. Codes 65-68) | 970-999 | 970-999 | 990-999 |
| 70 | Causes other than those specified in Code Groups 2-69 | Causes (other, not in Codes 2-69) | | | |

Appendix 6: Causes of Death – sorted alphabetically by short title

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|------------|--|----------------------------------|---------------------------|---------------------------|---------------------------|
| 65 | Motor vehicle accidents | Accidents (motor vehicle) | 810-825 | 810-823 | 810-835 |
| 66 | Accidents, excluding motor vehicle accidents (Code Group 65) | Accidents (excl. code 65) | 800-807, 826-869, 880-929 | 800-807, 825-929, 940-949 | 800-802, 840-936 |
| 49 | Alcohol-related mental disorders | Alcohol-related mental disorders | 291, 303, 305.0 | 291, 303 | 581.1, 307 |
| 5 | Neoplasms (Code Groups 6-46) | All cancers | 140-239 | 140-239 | 140-239 |
| 1 | All causes (Code Groups 2-70, excluding 5,31) | All causes | 001-999 | 001-999 | 001-999 |
| 48 | Anaemia | Anaemia | 280-285 | 280-285 | 290-299 |
| 59 | Asthma | Asthma | 493 | 493 | 241 |
| 57 | Bronchitis | Bronchitis | 490, 491, 466, 506.0 | 490, 491, 466 | 500, 501 |
| 25 | Malignant neoplasm, bladder | Cancer (bladder) | 188 | 188 | 181.0 |
| 18 | Malignant neoplasm, bone and articular cartilage | Cancer (bone) | 170 | 170 | 196 |
| 28 | Malignant neoplasm, brain | Cancer (brain) | 191 | 191 | 193.0 |
| 20 | Malignant neoplasm, breast | Cancer (breast) | 174, 175 | 174 | 170 |
| 7 | Malignant neoplasm, other and unspecified parts of mouth | Cancer (buccal) | 145 | 145 | 144 |
| 21 | Malignant neoplasm, cervix uteri | Cancer (cervix) | 180 | 180 | 171 |
| 29 | Malignant neoplasm, other and unspecified parts of nervous system, excluding brain (Code Group 28) | Cancer (cns excl. code 28) | 192, 237 | 192 | 193.1, .2, .3, .4, .8, .9 |
| 11 | Malignant neoplasm, colon | Cancer (colon) | 153 | 153 | 153 |
| 8 | Malignant neoplasm, oesophagus | Cancer (oesophagus) | 150 | 150 | 150 |

Appendix 6: Cause of Death Codes
Sorted alphabetically by short title

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|------------|--|---------------------------------|--|--|---|
| 14 | Malignant neoplasm, gallbladder and extrahepatic bile ducts | Cancer (gallbladder) | 156 | 156 | 155.1 |
| 26 | Malignant neoplasm, kidney | Cancer (kidney) | 189.0, .2 | 189.0 | 180 |
| 16 | Malignant neoplasm, larynx | Cancer (larynx) | 161 | 161 | 161 |
| 6 | Malignant neoplasm, lip | Cancer (lip) | 149 | 140 | 140 |
| 13 | Malignant neoplasm, liver and intrahepatic bile ducts | Cancer (liver) | 155 | 155 | 155.0 |
| 17 | Malignant neoplasm, trachea, bronchus and lung | Cancer (lung) | 162 | 162.1 | 162.1 |
| 30 | Malignant neoplasm, other than Code Groups 6-29 | Cancer (other, excl.codes 6-29) | 141-144, 146-149, 158-160, 163-165, 171, 179, 181, 184, 186, 187, 190, 193-199 | 141-144, 146-149, 158-160, 162.0, 163, 171, 181, 184, 186, 187, 190, 193-199 | 141-143, 145-148, 158-160, 162.0, .2, .8, 163-165, 173, 174, 175.1, .8, .9, 176-179, 192, 194, 195, 197-199 |
| 27 | Malignant neoplasm, other and unspecified urinary organs, excluding kidney (Code Group 26) | Cancer (urinary excl. code 26) | 189.3-189.9 | 189.1, .2, .3 | 181.7, 181.8 |
| 23 | Malignant neoplasm, ovary and other uterine adnexa | Cancer (ovary) | 183 | 183 | 175.0 |
| 15 | Malignant neoplasm, pancreas | Cancer (pancreas) | 157 | 157 | 157 |
| 24 | Malignant neoplasm, prostate | Cancer (prostate) | 185 | 185 | 177 |
| 12 | Malignant neoplasm, rectum, rectosigmoid junction and anus | Cancer (rectum) | 154 | 154 | 154 |

Appendix 6: Cause of Death Codes
Sorted alphabetically by short title

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|------------|---|-----------------------------------|----------------|------------------|------------------|
| 19 | Malignant melanoma and other malignant neoplasm, skin | Cancer (skin) | 172, 173 | 172, 173 | 190, 191 |
| 10 | Malignant neoplasm, small intestine including duodenum | Cancer (small intestine) | 152 | 152 | 152 |
| 9 | Malignant neoplasm, stomach | Cancer (stomach) | 151 | 151 | 151 |
| 22 | Malignant neoplasm, body of uterus | Cancer (uterus) | 182 | 182 | 172 |
| 70 | Causes other than those specified in Code Groups 2-69 | Causes, other (not in codes 2-69) | | | |
| 54 | Cerebrovascular disease | Cerebrovascular | 430-438 | 430-438 | 330-334 |
| 60 | Cirrhosis of liver without mention of alcohol | Cirrhosis (non-alcoholic) | 571.5 | 571.8, .9 | 581.0 |
| 64 | Congenital anomalies | Congenital anomalies | 740-759 | 740-759 | 750-759 |
| 47 | Diabetes mellitus | Diabetes | 250 | 250 | 260 |
| 58 | Emphysema | Emphysema | 492 | 492 | 502 |
| 69 | External causes, excluding motor vehicle accidents, other accidents, suicide and homicide (Code Groups 65-68) | External (excl.codes 65-68) | 970-999 | 970-999 | 990-999 |
| 31 | Malignant neoplasm of lymphatic and haematopoietic tissue (Code Groups 32-44) | Haematological cancers | 200-208 | 200-209 | 200-207 |
| 50 | Chronic rheumatic heart disease | Heart (chronic rheumatic) | 393-398 | 393-398 | 410-416 |
| 52 | Ischaemic heart disease | Heart (ischaemic) | 410-414, 429.2 | 410-414 | |
| 53 | Heart disease other than chronic rheumatic and ischaemic (Code Groups 50, 52) | Heart (excl. codes 50, 52) | 420-429 | 420-429 | 420-434, 444-447 |
| 33 | Hodgkin's disease | Hodgkin's Disease | 201 | 201 | 201 |
| 68 | Homicide | Homicide | 960-969 | 960-969 | 980-985 |
| 51 | Hypertensive disease | Hypertension | 401-405 | 400-404 | 440-443 |

Appendix 6: Cause of Death Codes
Sorted alphabetically by short title

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|------------|---|-------------------------------------|------------------|------------------|------------------|
| 2 | Infectious and parasitic diseases, excluding tuberculosis (Code Groups 2, 3) | Infectious (excl. TB) | 001-009, 020-136 | 001-009, 020-136 | 020-138 |
| 55 | Influenza | Influenza | 487 | 470-474 | 480-483 |
| 35 | Leukaemia, lymphoid, acute | Leukaemia (lymphatic acute) | 204.0 | 204.0 | 204.3 |
| 36 | Leukaemia, lymphoid, chronic | Leukaemia (lymphatic chronic) | 204.1 | 204.1 | 204.0 |
| 37 | Leukaemia, lymphoid, subacute, other and unspecified | Leukaemia (lymphatic other) | 204.2-204.9 | 204.9 | |
| 41 | Leukaemia, monocytic, acute | Leukaemia (monocytic acute) | 206.0 | 206.0 | |
| 42 | Leukaemia, monocytic chronic | Leukaemia (monocytic chronic) | 206.1 | 206.1 | 204.2 |
| 43 | Leukaemia, monocytic subacute, other and unspecified | Leukaemia (monocytic other) | 206.2-206.9 | 206.9 | |
| 38 | Leukaemia, myeloid, acute | Leukaemia (myeloid acute) | 205.0 | 205.0 | |
| 39 | Leukaemia, myeloid, chronic | Leukaemia (myeloid chronic) | 205.1 | 205.1 | 204.1 |
| 40 | Leukaemia, myeloid, subacute, other and unspecified | Leukaemia (myeloid other) | 205.2-205.9 | 205.9 | |
| 44 | Leukaemia, other specified and unspecified cell type, other than Code Groups 35-43) | Leukaemia (other excl. codes 35-43) | 207, 208 | 207 | 204.4 |
| 34 | Multiple myeloma and immunoproliferative neoplasms | Myeloma | 203 | 203 | 203 |
| 45 | Neoplasms (benign) | Neoplasms (benign) | 210-229 | 210-228 | 210-229 |
| 46 | Carcinoma-in-situ, neoplasms of uncertain behavior, and neoplasms of unspecified nature | Neoplasms (in situ, unspecified) | 230-236, 238-239 | 230-239 | 230-239 |
| 61 | Nephritis | Nephritis | 580-585,587 | 580-584 | 590-594 |

Appendix 6: Cause of Death Codes
Sorted alphabetically by short title

| CODE GROUP | DEATH CAUSE FULL TITLE | DEATH CAUSE SHORT TITLE | ICD9 (1979+) | ICD8 (1969-1978) | ICD7 (1965-1968) |
|-------------------|--|--------------------------------|---------------------|-------------------------|-------------------------|
| 32 | Lymphosarcoma, reticulosarcoma and other malignant neoplasm of lymphoid and histiocytic tissue | Non-Hodgkin's lymphoma | 200, 202 | 200, 202 | 200, 202, 205 |
| 56 | Pneumonia | Pneumonia | 480-486 | 480-486 | 490-493, 763 |
| 63 | Complications mainly related to pregnancy | Pregnancy complications | 640-648 | 630-634 | 640-649 |
| 62 | Hyperplasia of prostate | Prostatic hyperplasia | 600 | 600 | 610-612 |
| 67 | Suicide | Suicide | 950-959 | 950-959 | 970-979 |
| 4 | Tuberculosis, excluding pulmonary and other respiratory (Code Group 3) | TB (excl. respiratory) | 010, 013-018 | 010, 013-018 | 010-019 |
| 3 | Tuberculosis, pulmonary and other respiratory | TB (respiratory) | 011, 012 | 011, 012 | 001-008 |

Appendix 7: Record Layout and Data Dictionary for ASCII File

| OCCUPATIONAL SURVEILLANCE IN CANADA: Cause Specific Mortality Among Workers, 1965-91 RECORD LAYOUT OF ASCII DATA FILE | | | | | |
|--|------------------|---------------|--------------------|-----------------------------|--|
| FIELD # | POSITION* | LENGTH | DATA TYPE** | FIELD REFERENCE NAME | INFORMATION CONTAINED IN FIELD |
| 1 | 1 – 2 | 2 | N | DEATHCODE | Cause of Death Code group number (70) |
| 2 | 4 – 6 | 3 | CH | AGEGROUP | Age Group (All ages 15+ or 15 to 64) (2) |
| 3 | 8 – 12 | 5 | N | OBS.DEATHS BYCAUSE | Number of deaths for this specific cause (by occupation, PINEO, sex, age group) |
| 4 | 14 – 20 | 7 | F | REL-RISK | Relative Risk |
| 5 | 22 – 28 | 7 | F | LOWER-CI | Relative risk lower 95% Confidence Interval limit |
| 6 | 30 – 38 | 9 | F | UPPER-CI | Relative risk upper 95% Confidence Interval limit |
| 7 | 40 – 45 | 6 | F | P-VALUE | Log Likelihood ratio statistic p-value |
| 8 | 47 | 1 | N | SEX | Gender of individual (2) |
| 9 | 49 | 1 | CH | PINEO | Pineo Socio-economic Classification for occupation (2) |
| 10 | 51 – 54 | 4 | N | OCC-CODE | Job/Occupation code (670) |
| 11 | 56 – 58 | 3 | N | OCC-INDICATOR | Occupation Record Indicator (670) |
| 12 | 60 – 64 | 5 | N | NUM-WORKERS | Number of people in this occupation, Pineo code and sex |
| 13 | 66 – 72 | 7 | N | PERSON-YEARS | Person-years contributed by workers in this occupation, Pineo-code, sex and age group |
| 14 | 74 – 78 | 5 | N | DEATHSBYOCCUPAT | Total number of deaths (all causes) of people for a particular occupation, Pineo code, sex and age group |

***Please Note:** One space has been placed between each field in order to enhance visual clarity when viewing the file.

****Data Types:**

N = Numeric

CH = Character

F = Floating Point (Decimal numbers)

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 1

**DATA DICTIONARY
ASCII DATA FILE**

REFERENCE NAME: DEATHCODE
FIELD CONTENTS: CAUSE OF DEATH CODE GROUP NUMBER

FORMAT ON ASCII FILE

POSITION: 1-2

LENGTH: 2

TYPE: NUMERIC

FIELD DESCRIPTION

This is a code group, from 1-70 describing the cause of death for subjects in this study who have died. The cause is a combined description of the International Classification of Diseases (ICD), for ICD-7, ICDA-8 and ICD-9 Codes. The versions of ICD codes originally assigned were those in effect at the date of death.

CODE DEFINITION

Codes: 1-70

See Death Cause List in Appendices 5 & 6

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 2

**DATA DICTIONARY
ASCII DATA FILE**

**REFERENCE NAME: AGEGROUP
FIELD CONTENTS: AGE GROUP**

FORMAT ON ASCII FILE

POSITION: 4-6

LENGTH: 3

TYPE: CHARACTER

FIELD DESCRIPTION

**Two age groups: - all ages 15+
 - ages 15-64**

CODE DEFINITION

**ALL = All ages from 15+
64 = Ages from 15 to 64 years old**

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 3

**DATA DICTIONARY
ASCII DATA FILE**

**REFERENCE NAME: OBS.DEATHSBYCAUSE
FIELD CONTENTS: NUMBER OF DEATHS BY SPECIFIC CAUSE**

FORMAT ON ASCII FILE

POSITION: 8-12

LENGTH: 5

TYPE: NUMERIC

FIELD DESCRIPTION

Total number of deaths of individuals in this study for this specific cause, in this occupation, Pineo code (socio-economic classification: white collar, blue collar), sex and age group.

CODE DEFINITION

Numbers > 0

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

| | | |
|--|---|------------------|
| DATA DICTIONARY ASCII DATA FILE | | FIELD # 4 |
| REFERENCE NAME: | REL-RISK | |
| FIELD CONTENTS: | RELATIVE RISK | |
| FORMAT ON ASCII FILE | | |
| POSITION: | 14-20 | |
| LENGTH: | 7 | |
| TYPE: | FLOATING POINT (DECIMAL NUMBERS) | |
| FIELD DESCRIPTION | | |
| <p>The risk of dying from this specific cause of death associated with those employed in this occupation, i.e. with this occupational code compared to that in all occupations in the same sex and occupational classification code (Pineo), i.e. white collar or blue collar workers.</p> | | |
| CODE DEFINITION | | |
| Range: | 0.00 – 7766.00 | |

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

| | | |
|---|--|------------------|
| DATA DICTIONARY ASCII DATA FILE | | FIELD # 5 |
| REFERENCE NAME: | LOWER-CI | |
| FIELD CONTENTS: | REL. RISK LOWER 95% CONFIDENCE LEVEL INTERVAL LIMIT | |
| FORMAT ON ASCII FILE | | |
| POSITION: | 22-28 | |
| LENGTH: | 7 | |
| TYPE: | FLOATING POINT (DECIMAL NUMBERS) | |
| FIELD DESCRIPTION | | |
| <p>The lower boundary of the 95% Confidence Interval for this Relative Risk.</p> <p>The lower level of a range of possible values for the Relative Risk associated with this cause of death and this occupational code.</p> | | |
| CODE DEFINITION | | |
| <p>Floating point decimal number</p> <p>Maximum Field Size: 9999.99</p> | | |

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 6

**DATA DICTIONARY
ASCII DATA FILE**

REFERENCE NAME: UPPER-CI
**FIELD CONTENTS: REL. RISK UPPER 95% CONFIDENCE LEVEL
LIMIT**

FORMAT ON ASCII FILE

POSITION: 30-38
LENGTH: 9
TYPE: FLOATING POINT (DECIMAL NUMBERS)

FIELD DESCRIPTION

The upper boundary of the 95% Confidence Interval for the Relative Risk.

The upper level of a range of possible values for the Relative Risk associated with this cause of death and this occupational code.

CODE DEFINITION

Floating point decimal number

Maximum Field Size: 999999.99

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 7

**DATA DICTIONARY
ASCII DATA FILE**

REFERENCE NAME: P-VALUE
FIELD CONTENTS: LOG LIKELIHOOD RATIO STATISTIC P-VALUE

FORMAT ON ASCII FILE

POSITION: 40-45

LENGTH: 6

TYPE: FLOATING POINT (DECIMAL NUMBERS)

FIELD DESCRIPTION

The probability that the difference observed could have occurred by chance if the groups compared were really alike i.e. under the null hypothesis. In most epidemiologic work if this value is less than 0.05 (5%), the study result is considered sufficiently unlikely to have occurred by chance and will be designated as "statistically significant".

CODE DEFINITION

Floating point decimal number

Range: 0.0000-0.9999

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 8

**DATA DICTIONARY
ASCII DATA FILE**

REFERENCE NAME: SEX
FIELD CONTENTS: SEX

FORMAT ON ASCII FILE

POSITION: 47

LENGTH: 1

TYPE: NUMERIC

FIELD DESCRIPTION

Gender of individual.

CODE DEFINITION

1 = Male

2 = Female

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 9

**DATA DICTIONARY
ASCII DATA FILE**

REFERENCE NAME: PINEO
**FIELD CONTENTS: SOCIO-ECONOMIC CLASSIFICATION FOR
OCCUPATION**

FORMAT ON ASCII FILE

POSITION: 49

LENGTH: 1

TYPE: CHARACTER

FIELD DESCRIPTION

Adapted from the code devised by P.C. Pineo to define different socio-economic levels by occupation. See References and Glossary.

The Pineo socio-economic classification of occupations groups the Standard Occupational Classification Codes (SOC) for Canada into 16 levels of socio-economic status. These 16 levels have been collapsed into two levels to use for this study. The two levels are specified as “white collar” occupations and “blue collar” occupations.

CODE DEFINITION

B = Blue Collar Occupations
W = White Collar Occupations

See Occupation Code with occupational classification in Appendices 1-4.

Identified as Occupational Classification in the FULL and SELECTED TABLES

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

**DATA DICTIONARY
ASCII DATA FILE**

FIELD # 10

REFERENCE NAME: OCC-CODE
FIELD CONTENTS: JOB/OCCUPATION CODE

FORMAT ON ASCII FILE

POSITION: 51-54

LENGTH: 4

TYPE: NUMERIC

FIELD DESCRIPTION

Occupation of the individual.

There are 670 distinct occupation codes for this cohort. The occupations are coded using the Statistics Canada Census of Canada Standard Occupational Classification (SOC) – see Appendices 1-4. The data for 1965-1969 are coded according to the 1961 3-digit codes; the 1971 codes are 4-digit codes (no 1970 data were available).

CODE DEFINITION

Code Values: 1-9919

1961 Codes: For 1965-1969: Codes 001-980 for Unit Groups, (261 codes) within 13 Major Divisions

1971 Codes: For 1971: Codes 1111-9919 for Unit Groups, (409 codes), grouped within 22 Major Groups

See codes and occupation titles in Appendices 1-4

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 11

**DATA DICTIONARY
ASCII DATA FILE**

REFERENCE NAME: OCC-INDICATOR
FIELD CONTENTS: OCCUPATION RECORD INDICATOR

FORMAT ON ASCII FILE

POSITION: 56-58

LENGTH: 3

TYPE: NUMERIC

FIELD DESCRIPTION

A number allocated in order, from 1, to each record by occupation code within the file.

The same number identifies all the records within a specific occupation, changing with each occupation code.

It is useful for locating a record or group of records.

CODE DEFINITION

Number >0

Range of Numbers from 1-740 (There are 670 distinct occupation - some numbers are not used).

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 12

**DATA DICTIONARY
ASCII DATA FILE**

REFERENCE NAME: NUM-WORKERS
**FIELD CONTENTS: NUMBER OF PEOPLE IN THIS OCCUPATION,
PINEO CODE AND SEX**

FORMAT ON ASCII FILE

POSITION: 60-64

LENGTH: 5

TYPE: NUMERIC

FIELD DESCRIPTION

Total number of people in this study in this specific occupation, socio-economic classification (Pineo), and sex.

CODE DEFINITION

Number > 0

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

| | |
|--|--|
| FIELD # 13 | |
| DATA DICTIONARY ASCII DATA FILE | |
| REFERENCE NAME: | PERSON-YEARS |
| FIELD CONTENTS: | PERSON YEARS CONTRIBUTED BY PEOPLE IN THIS OCCUPATION, PINEO CODE, SEX AND AGE GROUP. |
| FORMAT ON ASCII FILE | |
| POSITION: | 66-72 |
| LENGTH: | 7 |
| TYPE: | NUMERIC |
| FIELD DESCRIPTION | |
| Total years contributed from 1965, or date of hire, to 31st December 1991, or date of their death, by all individuals in this study in this particular occupation, socio-economic classification (PINEO), sex and age group. | |
| CODE DEFINITION | |
| Number > 0 | |

**OCCUPATIONAL SURVEILLANCE IN CANADA:
Cause Specific Mortality Among Workers 1965-1991**

FIELD # 14

**DATA DICTIONARY
ASCII DATA FILE**

REFERENCE NAME: DEATHSBYOCCUPAT
**FIELD CONTENTS: TOTAL NUMBER OF DEATHS OF PEOPLE IN THIS
OCCUPATION, PINEO CODE, SEX AND AGE
GROUP.**

FORMAT ON ASCII FILE

POSITION: 74-78

LENGTH: 5

TYPE: NUMERIC

FIELD DESCRIPTION

Total number of deaths of individuals in this study who worked in this particular occupation, socio-economic classification (PINEO), sex and age group. (For number of deaths for the specific cause, see OBS.DEATHSBYCAUSE.)

CODE DEFINITION

Number > 0

Appendix 8: Glossary of Terms

| | |
|--------------------------------|--|
| Age Group | In this study the analysis included 5-year age groups using the age of the person (in completed years) at the time of death. The results are presented for two age groups: these are ages 15-64 and ages 15+, referred to as “all” ages. |
| Cause of Death | This is based on the concept of the underlying cause, i.e. the disease or injury that initiated the sequence of events that led to death, or the circumstances of the accident or violence which produced the fatal injury. This is stated by the certifying physician on the death registration. Information is provided to Statistics Canada by vital statistics registrars in each province/territory. All deaths included in this report are based on the underlying cause of death, coded to the International Classification of Disease code in effect at the time of death (see International Classification of Diseases and Cause of Death Codes). |
| Cause of Death Codes | Cause of death codes for this study have been grouped into 70 categories, each relating to a specified group of causes of death coded under the International Classification of Diseases (see International Classification of Diseases (ICD)). For the period of this study the 7 th , 8 th , and 9 th Revisions of the ICD have been used. See Appendices 5 & 6 for the complete list of the 70 code groups with the equivalent ICD’s. |
| Cohort | Any designated group of persons which is followed or traced over a period of time. |
| Confidence Interval | <p>A computed interval with a given probability, e.g. 95%, that the true value of a variable such as a mean, in this case the relative risk, is contained within the interval (Last, 1995) (see Relative Risk).</p> <p>Lower Confidence Interval Limit: the lower boundary of the Confidence Interval for the relative risk.</p> <p>Upper Confidence Interval Limit: the upper boundary of the Confidence Interval for the relative risk.</p> |
| Control Group, Internal | The comparison group of persons who are not in the particular occupation being studied but are still within this same working cohort. In this study this includes all occupations within the same sex and occupational classification (white or blue collar), e.g. miners (male, blue-collar workers) have been compared with all male blue-collar workers. |

| | |
|---|--|
| Follow-up | Observation over a period of time of an individual, group or population whose characteristics have been assessed in order to observe changes in health status or health-related variables. |
| GRLS | The Generalized Record Linkage System is a probabilistic record linkage software system available at Statistics Canada. The main-frame version (GRLS.V1) was used in this study. |
| International Classification of Diseases (ICD) | The classification of specific conditions and groups of conditions determined by an internationally representative group of experts who advise the World Health Organization. Various revisions have occurred over the years. Those used in this study are ICD-7 (1958-68), ICDA-8 (1969-78) and ICD-9 (1979-1991) (see Cause of Death Codes). |
| Log Likelihood Ratio Statistic p-value | The p-value for the log likelihood ratio statistic indicates the probability that the test statistic, i.e. the relative risk in this case, would be equal to or more extreme than observed if the null hypothesis were true. The p-value, with a decimal notation between 0 and 1 (e.g. 0.55), is a statement of the probability that the difference observed could have occurred by chance if the groups compared were really alike i.e. under the null hypothesis. Conventionally, in most epidemiologic work, if this probability value is less than 0.05 (5%), or 0.01 (1%) the study result is considered sufficiently unlikely to have occurred by chance and will usually be designated as “statistically significant”. (Last 1995) However, many comparisons are made in this study and the p-value here should be treated as only one piece of evidence |
| Mortality | Death from a particular cause (see Cause of Death). |
| Occupational Cohort | This cohort includes all persons 15 years of age and over, who were employed in the labour force during any of the years 1965-71 (excluding 1970), who had been allocated Social Insurance Numbers, who were covered by unemployment insurance and who were surveyed for this study. |
| Occupation Codes | These codes are taken from: i) <i>Occupational Classification Manual Census of Canada, 1961</i> , Dominion Bureau of Statistics, 1961. This provides occupational classification revised to take account of changes in the occupational composition of the labour force resulting from industrial and technological developments in the previous decade. |

ii) *Occupational Classification Manual Census of Canada, 1971 based on the Canadian Classification and Dictionary of Occupations*, Dominion Bureau of Statistics, 1971. This was designed for use in the Census of Canada, 1971, as well as for multipurpose use or as a "standard" classification.

The occupation is described in terms of the "kind of work performed" as determined by analysis of the duties and tasks of the constituent occupations.

The 1961 standard occupation codes (SOC) have a 3-digit coding system. The 1971 standard occupation codes have a 4-digit coding system (see Appendices 1-4 for the complete numerical and alphabetical occupation code lists). The 1961 and 1971 occupation census codes are not readily reconcilable.

Occupational Surveillance Detailed examination and/or analysis of health outcomes of "exposure" to specific occupations to detect the health status of workers in order to initiate investigative or control measures to extend survival and improve quality of life.

Person-Years A unit of measurement combining persons and time. Each subject contributes years to the population at risk during the follow-up period (1965-91) or until the year of their death.

Pineo Code A classification code devised by P.C. Pineo to define different socio-economic classifications of occupations in Canada. (Reference: Pineo PC, *Revisions of the Pineo-Porter-McRoberts socio-economic classification of occupations for the 1981 census*, QSEP (Quantitative Studies in Economics and Population) Research Report No. 125, McMaster University, Hamilton, Ontario, 1985). The Pineo code classifies the Standard Occupational Classification Codes (SOC) into 16 levels of socio-economic status. These 16 codes have been collapsed into a two-level classification for this study, specified as "white-collar"(W) and "blue-collar"(B) occupations (see Appendices 1-4 for the Pineo socio-economic classification code related to each of the occupation codes used in this study).

P-Value The p (probability) value, ranging from zero to 1, is a statement of the probability that the difference observed could have occurred by chance if the groups compared were really alike i.e. under the null hypothesis. (Last, 1995) (see Log Likelihood Ratio Statistic p-value).

| | |
|--------------------------------------|---|
| Record Linkage | A method for assembling the information contained in two or more records relating to the same individual, family, or entity. |
| Relative Risk | The ratio of the risk of death among those in the occupation being considered to that in all occupations in the same sex and occupational classification (white- or blue-collar). |
| SAS | Statistical Analysis System, computer software. SAS Institute Inc., SAS Campus Drive, Cary, NC 27513. |
| SOC | Standard Occupation Codes (see Occupation Codes). |
| Underlying Cause of Death | See Cause of Death. |
| Socio-economic Classification | Arrangement of persons into groups according to such characteristics as prior education, occupation and income. This usually reveals a strong correlation with health-related characteristics such as average length of life and risk of dying from certain specific causes. The classification system used here is based on a Canadian occupational classification system, see Pineo Code. |