

## REFERENCES

1. Steenland K, Beaumont J: The accuracy of occupation and industry data on death certificates. *J Occup Med* 1984; 26(4):288-296.
2. Gute DM, Fulton JP: Agreement of occupation and industry data on Rhode Island death certificates with two alternative sources of information. *Public Health Reports* 1985; 100(1):65-72.
3. Schumacher MC: Comparison of occupation and industry information from death certificates and interviews. *Am J Public Health* 1986; 76(6):635-637.
4. Rosenberg HM, Burnham D, Spirtas R, Valdisera V: Occupation and industry information from the death certificate: assessment of the completeness of reporting. In: *Statistical Uses of Administrative Records With Emphasis on Mortality and Disability Research*. Washington, DC: Government Printing Office, 1979.
5. North Carolina Funeral Director's Training Course - videotape available from NIOSH. Contact Lois Schuster, Illness Effects Section, NIOSH, 4676 Columbia Parkway, Mail Stop R18, Cincinnati, Ohio 45226. (513) 841-4332.
6. National Center for Health Statistics: *Guidelines for Reporting Occupation and Industry on Death Certificates*. DHHS Pub. No. (PHS) 88-1149. Hyattsville, MD: NCHS, March 1988.
7. National Center for Health Statistics: *Funeral Directors' Handbook on Death Registration and Fetal Death Reporting*. DHEW Pub. No. (PHS)78-1109. Washington, DC: Government Printing Office, 1978.
8. U.S. Bureau of the Census: *1980 Census of Population: Alphabetical Index of Industries and Occupations*. Washington, DC: Government Printing Office, 1982.
9. U. S. Bureau of the Census: *1970 Census of Population: Alphabetical Index of Industries and Occupations*. Washington, DC: Government Printing Office, 1971.
10. Office of Management and Budget: *Standard Industrial Classification Manual*. Washington, DC: Government Printing Office, 1972.
11. U.S. Department of Labor: *Dictionary of Occupational Titles, 4th Ed*. Washington, DC: Government Printing Office, 1977.

12. U.S. Bureau of the Census: Industry and Occupation Coding for Death Certificates. Instruction Manual, Part 19. Hyattsville, MD: National Center for Health Statistics, 1984.
13. I/O coding training, basic and advanced courses. NIOSH contact is Lois Schuster, Illness Effects Section, NIOSH, 4676 Columbia Parkway, Mail Stop R18, Cincinnati, Ohio 45226. (513) 841-4332. NCHS contact is LaCola Washington, NCHS, P.O. Box 12214, Research Triangle Park, North Carolina 27709. (919) 541-0988.
14. I/O quality control assistance. NIOSH contact is Lois Schuster, Illness Effects Section, NIOSH, 4676 Columbia Parkway, Mail Stop R18, Cincinnati, Ohio 45226. (513) 841-4332. NCHS contact is LaCola Washington, NCHS, P.O. Box 12214, Research Triangle Park, North Carolina 27709. (919) 541-0988.
15. NIOSH quality control computer program, written in SAS. Contact Lois Schuster, Illness Effects Section, NIOSH, 4676 Columbia Parkway, Mail Stop R18, Cincinnati, Ohio 45226. (513) 841-4332.
16. National Center for Health Statistics: Vital Statistics of the United States, 1985, Vol. II, Mortality, Part A. DHHS Pub. No. (PHS) 88-1101. Public Health Service, Washington DC. US Government Printing Office, 1988.
17. NIOSH I/O Edit program, written in COBOL. Contact Carol Burnett, Illness Effects Section, NIOSH, 4676 Columbia Parkway, Mail Stop R18, Cincinnati, Ohio 45226. (513) 841-4332.
18. Riedmiller K, Doebbert G, Lashuay N, Rudolph L, Glazer E: California Occupational Mortality 1979-81. Sacramento, CA: California Department of Health Services, March 1987.
19. Ford W: An Analysis of Industrial and Occupational Mortality among White Males in Kentucky 1983-1985. Frankfort, KY: Kentucky Department for Health Services, June 1987.
20. Naor E, Lemieux D: Death Certificates: A Starting Point for Surveillance. Augusta, ME: Maine Department of Human Services, April 1987.

21. MacCubbin P, Herzfeld P, Therriault G: Mortality in New York State, 1980-1982: A Report by Occupation and Industry. New York State Department of Health Monograph No. 21. Albany, NY: New York State Department of Health, April 1986.
22. Pennsylvania State Health Data Center: Mortality Experience of Pennsylvania Workers 1983-1985. Harrisburg, PA: Pennsylvania Department of Health, November 1987.
23. Kelley B, Gute D: Surveillance Cooperative Agreement between NIOSH and States (SCANS) Program: Rhode Island 1980-82. DHHS (NIOSH) Pub. No. 86-107. Cincinnati, OH: National Institute for Occupational Safety and Health, February 1986.
24. Mace M: Leading Causes of Death by Industry Groups, South Carolina 1983-1985. Columbia, SC: South Carolina Department of Health and Environmental Control, September 1986.
25. Utah Bureau of Health Statistics: Utah's Occupational Health Surveillance System 1980-1982. Salt Lake City, UT: Utah Department of Health, February 1985.
26. Milham S: Occupational Mortality in Washington State 1950-1979. DHHS (NIOSH) Pub. No. 83-116. Cincinnati, OH: National Institute for Occupational Safety and Health, 1983.
27. Dubrow R, Wegman D: Occupational Characteristics of Cancer Victims in Massachusetts. DHHS (NIOSH) Pub No 84-109. Cincinnati, OH: National Institute for Occupational Safety and Health, September 1984.
28. Surles K, Johnson P, Buescher P, Kaufman K: Occupational mortality among North Carolina males 1984-1986: A death rate analysis. Raleigh, NC: North Carolina Department of Human Resources, December 1988.
29. Morton W: Limits of accuracy of death certificate identification of occupation (letter to the editor). JOM 1984; 26(8):553.
30. Medical Research Council: Job Exposure Matrices: Proceedings of a Conference held in April 1982 at the University of Southampton. Southampton: Southampton General Hospital, 1983.

31. Hsieh C, Walker A, Hoar S: Grouping occupations according to carcinogenic potential: occupation clusters from an exposure linkage system. *Am J Epid* 1983; 117(5):575-589.
32. Vaughan T, Strader C, Davis S, Daling J: Formaldehyde and cancers of the pharynx, sinus and nasal cavity: I. Occupational exposures. *Int J Cancer* 1986; 38:677-683.
33. Linet M, Stewart W, Van Natta M, McCaffrey L, Szklo M: Comparison of methods for determining occupational exposure in a case-control interview study of chronic lymphocytic leukemia. *JOM* 1987; 29(2):136-141.
34. Magnani C, Pannett B, Winter P, Coggon D: Application of a job exposure matrix to national mortality statistics for lung cancer. *Brit J Ind Med* 1988; 45:70-72.
35. Sieber W, Sundin D, Young R: Development of a job exposure matrix. Presented at Third Joint U.S.-Finnish Science Symposium, October 22-24, 1986, Frankfort, KY. For additional information, contact W. Karl Sieber, Hazard Section, NIOSH, 4676 Columbia Parkway, Mail Stop R19, Cincinnati, Ohio 45226, (513) 841-4491.
36. Brackbill R, Frazier T, Shilling S: Smoking characteristics of U.S. workers, 1978-1980. *Am J Ind Med* 1988; 13:5-41.
37. Axelson O, Steenland K: Indirect methods of assessing the effects of tobacco use in occupational studies. *Am J Ind Med* 1988; 13:105-118.
38. Gail M, Wacholder S, Lubin J: Indirect corrections for confounding under multiplicative and additive risk models. *Am J Ind Med* 1988; 13:119-130.
39. Decoufle P, Thomas T, Pickle L: Comparison of the proportionate mortality ratio and standardized mortality ratio risk measures. *Am J Epid* 1980; 111:263-269.
40. Registrar General: Occupational Mortality, Decennial Supplement for England and Wales, 1979-80, 1982-83. Part I Commentary. Series DS no. 6. London: Her Majesty's Stationery Office, 1986.
41. Miettinen O, Wang J: An alternative to the proportionate mortality ratio. *Am J Epid* 1981; 114(1):144-148.
42. Wong O, Decoufle P: Methodological issues involving the standardized mortality ratio and proportionate mortality ratio in occupational studies. *JOM* 1982; 24:299-304.

43. Roman E, Beral V, Inskip H. A comparison of standardized and proportional mortality ratios. Stat in Med 1984; 3:7-14.
44. Kupper L, McMichael A, Symons M, Most B: On the utility of proportional mortality analysis. J Chron Dis 1978; 31:15-22.
45. Burnett C, Crouse W, Lalich N: Confounding factors in an SMR analysis. CDC Symposium on Statistics in Surveillance, Atlanta, GA, May 5, 1988.
46. Guralnick L: Mortality by Occupation/Industry and Cause of Death among Men 20-64 Years of Age: United States, 1950. Vital Statistics Special Reports 53, Nos 3, 4. Washington, DC: Public Health Service, 1963.
47. McDowall M: Adjusting proportional mortality ratios for the influence of extraneous causes of death. Stat in Med 1983; 2:467-475.
48. Dubrow R, Spaeth S. Proportionate Mortality Ratio Analysis System - Version IV. Draft documentation, 1986. To obtain a copy, contact Carol Burnett, Illness Effects Section, NIOSH, 4676 Columbia Parkway, Mail Stop R-18, Cincinnati, Ohio 45226, (513) 841-4332.
49. Greenland S: Interpretation and estimation of summary ratios under heterogeneity. Stat in Med 1982; 1:217-227.
50. Wang J, Wegman D, Smith T: Cancer risks in the optical manufacturing industry. Brit J Ind Med 1983; 40:177-181.
51. Mantel N, Haenszel W: Statistical aspects of the analysis of data from retrospective studies of disease. JNCI 1959; 22:719-748.
52. Bailer J, Ederer F: Significance factors for the ratio of a Poisson variable to its expectation. Biometrics 1964; 20:639-643.
53. Hauck W: The large-sample variance of the Mantel-Haenszel estimator of the common odds ratio. Biometrics 1979; 35:817-819.
54. Breslow N: Odds ratio estimators when data are sparse. Biometrika 1981; 68:73-84.
55. Breslow N, Liang K: The variance of the Mantel-Haenszel estimator. Biometrics 1982; 38:1094-1095.

56. Robins R, Greenland S, Breslow N: A general estimator for the variance of the Mantel-Haenszel odds ratio. *Am J Epid* 1986; 124:719-723.
57. Miettinen OS: Estimability and estimation in case-referrent studies. *Am J Epid* 1976; 103:226-235.
58. Armitage P: Statistical methods in medical research. New York, NY: Wiley, 1971.
59. Mantel N, Fleiss J: Minimum expected cell size requirements for the Mantel-Haenszel one-degree of freedom chi-square test and related rapid procedure. *Am J Epid* 1980; 112(1):129-134.
60. Hill A: Principles of Medical Statistics. New York: Oxford University Press, 1971.
61. Burnett C: Research leads from occupational mortality data. Presented at Fourth NCI/NIOSH/EPA Conference, April 22, 1986.
62. Robinson C, Burnett C, Lalich N, Brackbill R: Selected leads from the 1984 occupational mortality surveillance data. NTIS Document No. PB-90155912, July 1989.
63. NIOSHTIC: For additional information, contact Bill Bennett, DSDTT, NIOSH, 4676 Columbia Parkway, Mail Stop C-28, Cincinnati, Ohio 45226. (513) 533-8317.
64. National Institute for Occupational Safety and Health: Registry of Toxic Effects of Chemical Substances, 1981-82 Edition, Volumes I-III. DHHS (NIOSH) Pub. No. 83-107. Cincinnati, OH: National Institute for Occupational Safety and Health, June 1983.
65. National Institute for Occupational Safety and Health: Registry of Toxic Effects of Chemical Substances, 1983-84 Supplement, Volumes I-II. DHHS (NIOSH) Pub. No. 86-103. Cincinnati, OH: National Institute for Occupational Safety and Health, November 1985.
66. NIOSH computer-based result retrieval system: Contact Nina Lalich, Illness Effects Section, NIOSH, 4676 Columbia Parkway, Mail Stop R18, Cincinnati, Ohio 45226, (513) 841-4332.
67. Dubrow R: Suicide among social workers. *JOM* 1988; 30:211-213.

68. Dubrow R, Gute D: Cause-specific mortality among male textile workers in Rhode Island. Am J Ind Med 1987; 12:579-593.
69. Dubrow R, Gute D: Cause-specific mortality among Rhode Island jewelry workers. Am J Ind Med 1987; 12:579-593.
70. Milham S: Mortality in workers exposed to electromagnetic fields. Environ Health Perspec 1985; 62:297-300.
71. Dubrow R: Malignant Melanoma in the Printing Industry. Am J Ind Med 1986; 10:119-126.
72. Dubrow R, Paulson J, Indian R: Farming and malignant lymphoma in Hancock County, Ohio. Brit J Ind Med 1988; 45:25-28.
73. Dubrow R, Naor E: Case-control study of cancer of the kidney in Knox County, Maine. Internal Technical Report, NIOSH, 1987.
74. Dubrow R, Clapp R: Case-control study of cancer of the pancreas in Massachusetts Health Service Area VI. Internal Technical Report, NIOSH, 1987.
75. Dubrow R, Burnett C, Gute D, Brockert J: Ischemic heart disease and acute myocardial infarction among police officers. JOM 1988; 30(8):650-654.
76. National Center for Health Statistics: Health, United States, 1988. DHHS Pub. No. (PHS) 89-1232. Public Health Service, Washington, DC: U.S. Government Printing Office, March, 1989, pp. 23-29, 75.
77. Mallin K, Heanszel W: A review of cancer mortality in Chicago and Chicago community areas, 1968-1982. Chicago, IL: Illinois Department of Public Health, May, 1986.
78. Daymond J, Gunderson P: An analysis of suicides among those who resided on farms in five central states, 1980-1985. Minneapolis, MN: Minnesota Department of Health, March, 1987.
79. Rutstein D, Mullan R, Frazier, T, Halperin W, Melius J, Sestito J: Sentinel health events (occupational): a basis for physician recognition and public health surveillance. Am J Pub Hlth 1983; 73(9):1054-1062.

80. National Institute for Occupational Safety and Health: Surveillance of Occupational Illness and Injury in the United States - Current Perspectives and Future Directions. Atlanta, GA: NIOSH, July, 1987.
81. Lalich N, Schuster L: An application of the sentinel health event (occupational) concept to death certificates. Am J Pub Hlth 1987; 77(10):1310-1314.
82. Naor E, Lemieux D: The use of death certificates to identify occupational sentinel health events. Augusta, ME: Maine Department of Human Services, December, 1986.
83. Sentinel Health Events (Occupational) (SHE(O)) computer program: contact Nina Lalich, Illness Effects Section, NIOSH, 4676 Columbia Parkway, Mail Stop R-18, Cincinnati, Ohio 45226, (513) 841-4332.



Table 1.  
 Percent of Incomplete Entries for I/O\*, by State, 1984.

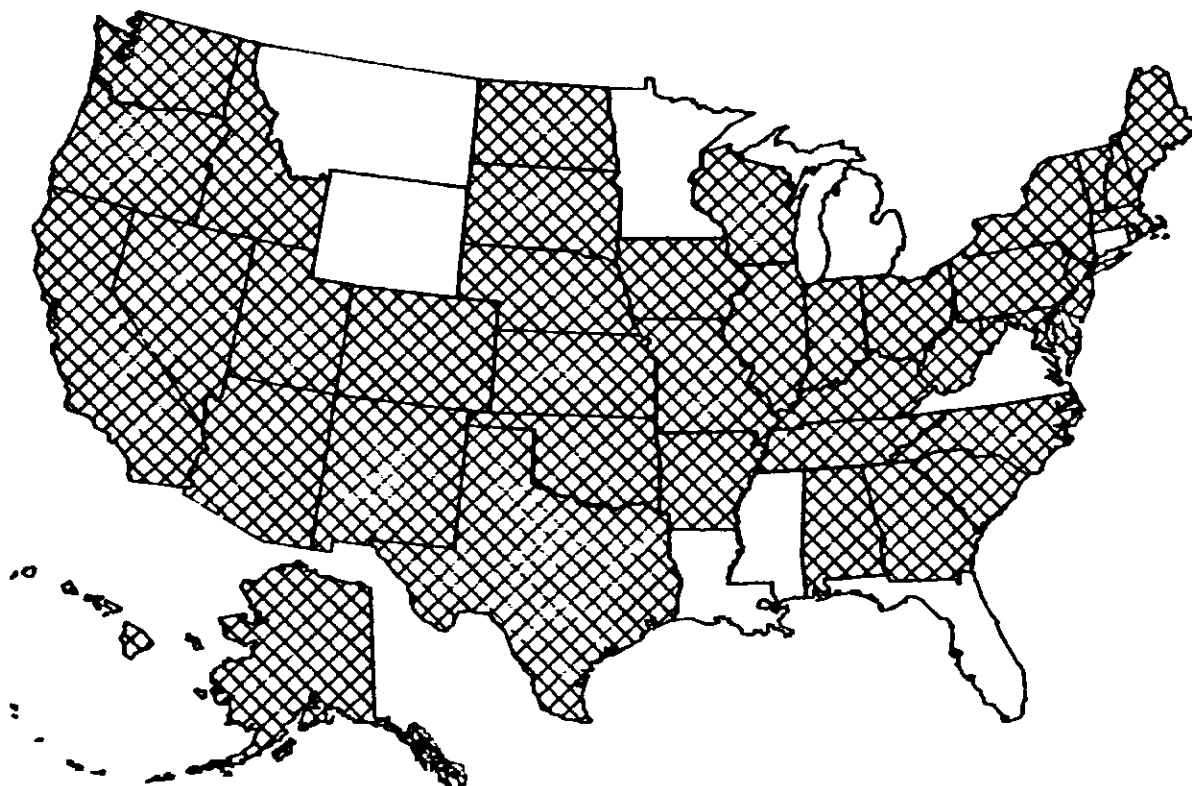
<u>State</u>	Percent of Incomplete Entries	
	<u>Industry</u>	<u>Occupation</u>
Colorado	3.6	3.5
Georgia	0.6	0.8
Kansas	0.9	1.7
Kentucky	7.3	8.1
Maine	2.1	1.4
Missouri	1.7	1.3
Nebraska	0.6	0.4
Nevada	3.9	2.3
New Hampshire	1.2	1.4
New York	1.9	1.5
North Carolina	4.5	5.8
Oklahoma	10.0	8.6
Pennsylvania	5.9	5.0
Rhode Island	2.4	2.3
South Carolina	0.3	0.3
Wisconsin	1.0	0.9
Average	2.4	2.8

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\* Coded as Unknown or Retired

**STATES TRAINED IN I/O CODING**

**MAY 1989**



**Also Trained: Washington, D.C., New York City, and Puerto Rico**

**FIGURE 1**

Figure 2 - Methods for Estimating Risk

For the  $i$ th stratum:

	Occupation or Industry of Interest	All Others	Total
Cause of Death of Interest	$a_i$	$b_i$	$M_{1i}$
All Other Deaths	$c_i$	$d_i$	$M_{0i}$
All Deaths	$N_{1i}$	$N_{0i}$	$T_i$
Population at Risk	$P_{1i}$	$P_{0i}$	$P_i$

$$SMR = \frac{\sum a_i}{\sum P_{1i} \left( \frac{M_{1i}}{P_i} \right)} \times 100$$

$$PMR = \frac{\sum a_i}{\sum N_{1i} \left( \frac{M_{1i}}{T_i} \right)} \times 100$$

$$SMOR = \frac{\sum a_i}{\sum \frac{b_i c_i}{d_i}} \times 100$$

**Appendix A - State Resource People for Occupational Mortality Surveillance**

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## Appendix B - Examples of Query Forms



47 TRINITY AVENUE, S.W. / ATLANTA, GEORGIA 30334-1202

Date Sent \_\_\_\_\_

**DEATH CERTIFICATE INDUSTRY AND OCCUPATION QUERY LETTER**

**DEAR REGISTRAR:**

The \_\_\_\_\_ on this certificate is incomplete. The industry is the kind of activity at a person's place of work, such as, Shoe Stores, Hotels, Banks, Hospitals, Construction Company, Furniture Manufacturing, Farming, Restaurants, Army, Navy, etc.

The occupation refers to the kind of work a person did at his or her place of work for most of his or her working life. Some of these are Bakers, Carpenters, Bank Tellers, Civil Engineers, Secretaries, Farmers, Machine Operators, Doctors, Army Sergeant, etc.

Please return the attached certificate with the correct information as soon as possible to enable us to process and file the certificate.

Thanking you in advance, for your full cooperation.

VITAL RECORDS SERVICE

Mrs. Annette Anderson  
Registration Unit

**AN EQUAL OPPORTUNITY EMPLOYER**



# STATE OF NEBRASKA

## DEPARTMENT OF HEALTH

**KAY A. ORR**  
GOVERNOR

**GREGG F. WRIGHT, M.D., M.Ed.**  
DIRECTOR

Please complete/verify the items checked in red or state "unknown".

DECEDENT - name		FIRST	MIDDLE	LAST	SEX	DATE OF DEATH (mo., Day, Yr.)	
RACE - to g., White, Black, American Indian, etc. (Specify)		ORIGIN/DESCENT to g., Italian, Mexican, German, etc. (Specify)		AGE - last birthday (Yr.)	UNDER 1 YEAR	UNDER 1 DAY	DATE OF BIRTH (mo., Day, Yr.)
CITY AND STATE OF BIRTH (if not in U.S.A., name country)		CITIZEN OF WHAT COUNTRY		MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (Specify)	NAME OF SPOUSE (if under give maiden name)		
SOCIAL SECURITY NUMBER		USUAL OCCUPATION (Give exact or most done during year of reporting life, unless if retired)		BRANCH OF BUSINESS OR INDUSTRY		COUNTY OF DEATH	
CITY, TOWN OR LOCATION OF DEATH		INSIDE CITY LIMITS (Specify Yes or No)		HOSPITAL OR OTHER INSTITUTION - name (if not in either give street and number)		IF HOSP OR INST. indicate BGA, Outpatient, etc. (Specify)	
RESIDENCE - STATE		COUNTY		CITY, TOWN OR LOCATION		STREET AND NUMBER	
FATHER - name		FIRST	MIDDLE	LAST	MOTHER - MAIDEN NAME		
WAS DECEASED EVER IN U.S. ARMED FORCES? (Yes, no or until 1945, give year and name of service)		IMPORTANT - name - RELATIONSHIP - MAILING ADDRESS		STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP			
BURIAL, Cremation, Burial DATE		CEMETERY OR CREMATORY - name		LOCATION		CITY OR TOWN STATE	
EMBALMER - SIGNATURE & LICENSE NO.		FUNERAL HOME - name AND ADDRESS		STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP			

The item above is queried since the occupation and industry could not be adequately matched with our guide on industry and occupation. Coding of the occupation and industry in Nebraska and nationally provides statistics which have been instrumental to Health agencies in focusing on health care needs. Past and ongoing research using this information resulted in decreased death rates. Your assistance is appreciated.

BVS-2C  
REV 4/83  
020-81-007

Please direct reply to \_\_\_\_\_

(Signature)

**DEPARTMENT OF HEALTH, BUREAU OF VITAL STATISTICS,  
301 CENTENNIAL MALL SOUTH, BOX 95007, LINCOLN, NEBRASKA 68509-5007, PHONE (402) 471-2871  
AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER**



NC DEPARTMENT OF HUMAN RESOURCES  
 DIVISION OF HEALTH SERVICES  
 VITAL RECORDS BRANCH  
 RALEIGH, N.C.

Occupation & Industry Query

County \_\_\_\_\_

Date \_\_\_\_\_

Dear Deputy Registrar:

The occupation and/or industry entries on the death certificates for the persons listed below are not acceptable because the information provided is not specific. The following error codes indicate why the entries are not acceptable:

- 1 = An Unspecific Industry
- 2 = An Unspecific Occupation
- 3 = Company's Name
- 4 = Industry Blank
- 5 = Occupation Blank

Please enter the corrected information beside each name, and return as soon as possible in the provided envelope.

Certificate Number	Name	Date of Death	Error Code	Corrected Entries
_____	_____	_____	_____	O: _____ I: _____
_____	_____	_____	_____	O: _____ I: _____
_____	_____	_____	_____	O: _____ I: _____
_____	_____	_____	_____	O: _____ I: _____
_____	_____	_____	_____	O: _____ I: _____
_____	_____	_____	_____	O: _____ I: _____

DHS 3273 (11/84)  
 Vital Records

Signature \_\_\_\_\_

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL  
OFFICE OF VITAL RECORDS AND PUBLIC HEALTH STATISTICS  
INQUIRY FOR DEATH INFORMATION

CO&CM-3

06/01/87  
PAGE 1

COUNTY:  
CITY:

NAME OF DECEDENT:  
STATE FILE NUMBER:  
DATE OF DEATH:

OR MESSAGE(S)

USUAL OCCUPATION AS REPORTED: ~~913~~ *Retired*

PROBLEM: INVALID OCCUPATION - RETIRED OR NO INFORMATION

CORRECT INFORMATION: \_\_\_\_\_

*See attached #5*

IND OF BUSINESS OR INDUSTRY AS REPORTED: ~~951~~ *Retired*

PROBLEM: INVALID INDUSTRY - RETIRED OR NO INFORMATION

CORRECT INFORMATION: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

⊕ PLEASE REPLY WITHIN 10 DAYS OF RECEIPT

The paragraph(s) checked below will clarify or explain the information needed to complete the item(s) in question on the attached query form.

PLEASE ENTER INFORMATION ON THE QUERY FORM

1.  Place of death should be same as information in items 28f and 28g unless the fact of death was not determined prior to removal to the hospital.
2.  Place of death, county, city and address and the residence information must be the same if death occurred at home.
3.  Patient status should be omitted if death occurred at a residence, on the highway, at a physician's office, etc.
4.  Patient status must be completed if death occurred in a hospital, institution or nursing home.
5.  Retired is not an acceptable entry. Enter usual occupation while employed.
6.  Laborer is not an acceptable entry. Enter usual type of labor done and place employed.
7.  None is not an acceptable entry for occupation and/or industry. Enter usual occupation and industry, while employed. If never employed enter "Never Employed" in occupation.
8.  Unemployed is not an acceptable entry. Enter usual occupation when employed and usual type of industry.
9.  Rather than providing name of business or company, enter type of business or company.
10.  Disabled entire life, yes/no? If disabled entire life, enter never employed. If not disabled entire life, enter occupation and industry when employed.
11.  Occupation is not reported for type of industry given. Please give occupation or type of work.
12.  Industry or type of business not reported for occupation given. Please give type of industry.
13.  Residence information must be same as nursing home or institution where death occurred if it is a long term care facility or institution where persons normally stay for long periods of time. Length of stay does not matter.
14.  Residence information must be actual location of residence and is not necessarily the same as mailing address.
15.  Do not give a post office box number or general delivery in this item. Name of street or highway or state road is acceptable with rural route and box number. Name of community is also acceptable.
16.  Our information indicates address is (inside/outside) city.
17.  Is residence address inside or outside city limits?
18.  Inside the city limits of \_\_\_\_\_ cannot be in \_\_\_\_\_ County.

## Appendix C - Common Coding Errors

1. Occupation entry of machine operator, not specified, is coded to 779 (machine operator, not specified) instead of 777 (misc. machine operator, not elsewhere classified) when industry is a manufacturing code.
2. Occupation entry of laborer is coded to 889 (laborers, except construction) instead of 869 (construction laborers) when industry is coded to construction.
3. Occupation entry is one which has a center industry in parentheses and industry entry is retired and is coded to 951 (retired) instead of the industry suggested in parentheses.
4. Industry entry is school and is coded L (elementary and secondary schools) instead of 961 (homemaker, student, etc.) and occupation is student and is coded to N (elementary teachers) or P (secondary teachers) instead of 915 (student).
5. Industry entry is wholesale, not specified, and is coded to 990 (not reported) instead of 571 (not specified wholesale trade).
6. Industry entry is retail, not specified, and is coded to 990 (not reported) instead of 691 (not specified retail trade).
7. Industry and occupation entries are none and are coded to 990 (not reported) and 999 (not reported), respectively, instead of 961 (homemaker, etc.) and 917 (unemployed).
8. Industry does not indicate whether it is manufacturing, wholesale, or retail and is coded to manufacturing instead of wholesale or retail, even though the occupation indicates sales.
9. Industry entry is a specific branch of the armed forces, and the occupation entry is a possible civilian occupation coded to 942 (military) and 905 (military), respectively, instead of 932 (national security and international affairs) and the applicable civilian occupation code.

## Appendix D - Inconsistent Occupation and Industry Codes

The following occupation and industry code combinations are inconsistent.

Occupation	Industry
029.....	551
033.....	500-691
277.....	171
356.....	412
376.....	711
433-444,468,748.....	761
759.....	060
777,779.....	040-050
799.....	010-020
889.....	060

If the following occupation codes do not fall within the indicated industry codes, the codes are inconsistent.

Occupation	Industry
003.....	900-932
004.....	900-932
005.....	60,400,412,870,871,840,900-932
006.....	412,900-932
014.....	832-932
015.....	812-932
017.....	412
018.....	781
024.....	710,711
028.....	010-031,100-130,550,551,601-611,641,762,932
029.....	500-550,552-691
034.....	440,721-742,800-802,892
035.....	060,700-712,900-932
043.....	021,060,580-691,712,742,842-860,882,900-932
044.....	352,362,371,421,882,891,900-932
045.....	040,192,200,270-301,392,400,730,882,891
046.....	040-050,882,891
047.....	042,200,422,552,882,891
048.....	042,100-392,400,760,882,891
053.....	040-050,060,400-472,840,882,891,900-932
058.....	031,360,420,432,882,891,900-932
063.....	040-050,400,882,900-932
075.....	040-060,200,460-472,552,721-742,882,891,892,900-932

Occupation	Industry
077.....	010-031,100-130,160-162,730,850-860,891,900-932
079.....	010-031,160-162,230-241,891,900-932
084.....	812-932
085.....	820-840
086.....	010-031,900-932
087.....	682,812-840
088.....	812-840
089.....	812-840
095.....	731,761,812-932
096.....	181,541,642,812-840
097.....	100-122,641,831-840,842-932
114-154.....	850-851
155.....	842,862
156.....	842
157.....	842
158.....	842-870
163.....	842-932
164.....	440,831-852
174.....	831-932
176.....	831,880
177.....	830,871-881
179.....	841,900-932
183.....	171-172,352,362,400-440,800-802,892
187.....	400-441,721,800-802
195.....	171-172,440,721,742,800-932
199.....	011,551,742,801-802,842,850,881
203.....	812-840
204.....	820
205.....	812-840
206.....	812-840
207.....	731,761,812-860
218.....	040-060,400-460,712,742,882,900-932
227.....	421,931,932
234.....	700-712,841,900-932
253.....	700-712
254.....	700-712,900-932
255.....	700-710
256.....	171,172,440-442,721,732,890
257.....	020,021,060,171-172,400-472,722-760,762,770,771,800,841,882-932
259.....	010,011,030-050,100-162,180-392,500-571,900-932
263.....	500-691,750-752,760,790,900-932
264.....	530,541,580-691,750-752,760,790,900-932
265,266.....	580-691,750-752,760,790,900-932

Occupation	Industry
267.....	460,580-691,750-752,760,790,900-932
268.....	580-691,750-752,760,790,900-932
269.....	500-691,750-752
274.....	432,442,552,580-691,712,731,742,761,771-782791,801-840,842,881,900-932
275.....	500-691,750-802
278.....	171,671
317.....	712,762,770
318.....	400-432,614,762,831,881,900-932
325.....	171,441
329.....	171,172,842-852
349.....	400-442,700-742
354.....	412
355.....	412
366.....	460-472
375.....	401-432,711-751
383.....	432,700-702,800-802
387.....	842-870,922
403.....	761
404.....	761
405.....	761
406.....	761
407.....	761
413.....	030,230,910
414.....	900-932
416.....	030,100-392,711,910
417.....	030,360,421,910,932
418.....	412,900-921
423.....	412,900-932
424.....	901,910,932
425.....	400,401,910
434.....	400,641,762,800-802,881
435.....	400-401,591-642,762,800-802,831-892
438.....	400,420,601,641,642,762,831,842
439.....	601,641-642,762,770,831-840
445.....	820
455.....	020,060,191,471,722
457.....	772,780,831,851
458.....	440,591,682,772,780,791,800,851
459.....	401,420,762,770,800-802
464.....	800-872
465.....	400-411,420-432
467.....	812-932
468.....	770-880
473.....	010-020
474.....	010-020
475.....	010-020

**Occupation**

**Industry**

476.....	010-020
477.....	010-020
479.....	010-020
483.....	010-031
484.....	010-021,561,681
488.....	010-020,551,561,681
489.....	010-031,550
494.....	030,230-232
495.....	030
496.....	010-050,100-392,460-462,580
497.....	031,802
498.....	031,802,872,910
508.....	352,362,421,900-932
514.....	351,401,500,590,612-622,750,751
515.....	352,362,421,900-932
517.....	311,530-582,760
527.....	400-401,441-462
529.....	341,400-401,441,442,741
553.....	060,250-262
555.....	060,100-392,400,460-462
556.....	060,360,721
557.....	042,060,360
563-564.....	040-060,251-301,682
565.....	060,580,632,760
566.....	060,591,632,760,771
573.....	060,231-232
577.....	060,400-472
583.....	060,721
584.....	060,251
588.....	060,251,360,632
593.....	060,200,262,340-361,500-581
594.....	060
595.....	060
597.....	040-042,060,270-370,392,400-432, 651,760
598.....	040-060,460-462
613.....	040-050
614.....	040-050
615.....	040-392
616.....	040-060
617.....	040-050
634.....	100-392,400,760
635.....	100-392,400,760
644.....	100-392,400,760
646.....	210-392,400,760
647.....	320-392,511,532,561,562,591,660, 760
649.....	132-390
653.....	010-571,750-760
654.....	010-571,750-760



Occupation	Industry
656.....	100-392
658.....	060,231-242,591-640,760
659.....	241-391
667.....	132-151,542,591,630,661,691,771, 791
669.....	220-222,542,631,760,782
673.....	132-221
674.....	100-391,440,630,662,771,800
675.....	050,100-392,400,651-682,760
676.....	161-432
678.....	372,820,840
683.....	340-391
686.....	100-122,411,500-691
687.....	111,121-122,601,610,831
688.....	100-122
693.....	100-392
694.....	132,392,461-471,901
695.....	060-391,401,460-462,831-850
703.....	100-392,400,760
704.....	100-392,400,590,612-622,750,751, 760
705.....	100-392,400,760
706.....	020,100-532,760,771
707.....	210-392,400,760
708.....	100-392
713.....	242-392,400,760
715.....	100-392,400,760
719.....	100-392,400,760
723.....	100-392,400,760
724.....	100-392,400,760
725.....	100-392,400,511,531,752,760
726.....	100-392
727.....	020-050,100-392,400,760
728.....	160,231-242
729.....	060,100-392,400-422
735.....	171,172,380,742,781,791,800
736.....	171,172
738.....	132-161,180,210-220,331
739.....	132-152,180,372
743.....	100-392,760
744.....	100-400,580-691,760-771,831-881
745.....	211,212
747.....	132-152,221,771
748.....	151,762-791,831-850
749.....	100-392,580-691
753.....	100-392
756.....	060-392,400,611,760
757.....	010-392,400,561,760
758.....	020-039
763.....	011,100-392

**Occupation**

**Industry**

764.....	100-392
765.....	100-392
768.....	.040-392,400,530,551,561,600,672, 682,760,822
773.....	800
823.....	.040-050,100-401,500
824.....	.040-050,100-401,500, 760
825.....	.040-050,270,400-401
826.....	400-401
828-829.....	.060,420-432,761,762,802
845.....	420
865.....	.060,152,270-370,460,682
867.....	.040-050
869.....	.060,400-472
875.....	.410,471,901
876.....	420
878.....	100-392

Appendix E - I/O Codes which can be imputed and method for imputing  
 If the industry codes are not reported for the following occupation  
 codes, the industry codes may be imputed as indicated.

Occupation Code	Imputed Industry Code
003	900
004	900
006	910
015	831
016	712
017	412
018	781
028	551
029	691
043	882
044	352
047	042
054	311
058	360
066	711
075	042
079	030
084	812
085	820
086	020
087	822
088	830
095	831
096	642
097	831
113, 114, 115, 116,	850
117, 118, 119, 123,	
124, 125, 126, 127,	
128, 129, 133, 134,	
135, 136, 137, 138,	
139, 143, 144, 145,	
146, 147, 148, 149,	
153, 154	
155	862
156	842
157	842
163	842
164	852
165	872

Occupation Code

Imputed Industry Code

174	.....	871
176	.....	880
177	.....	880
178	.....	841
179	.....	910
187	.....	800
189	.....	791
193	.....	800
195	.....	171
198	.....	440
199	.....	802
204	.....	820
205	.....	831
206	.....	831
207	.....	831
226	.....	421
227	.....	931
228	.....	440
234	.....	841
253	.....	711
254	.....	712
255	.....	710
256	.....	721
263	.....	612
265	.....	631
277	.....	671
278	.....	171
284	.....	742
317	.....	762
318	.....	421
325	.....	171
329	.....	852
348	.....	441
349	.....	442
355	.....	412
366	.....	460
375	.....	711
383	.....	700
403	.....	761
413	.....	910
414	.....	910
417	.....	910
418	.....	910
423	.....	910
424	.....	910
444	.....	641
445	.....	820
446	.....	831

## Occupation Code

## Imputed Industry Code

447	.....	831
449	.....	762
455	.....	722
457	.....	780
458	.....	772
459	.....	802
464	.....	800
465	.....	421
466	.....	762
467	.....	871
484	.....	010
486	.....	021
488	.....	010
495	.....	030
496	.....	230
497	.....	031
498	.....	031
505	.....	751
506	.....	751
508	.....	421
514	.....	751
517	.....	530
527	.....	441
529	.....	441
534	.....	060
535	.....	760
536	.....	760
543	.....	312
553	.....	060
554	.....	060
556	.....	060
557	.....	060
558	.....	060
563	.....	060
564	.....	060
565, 566	.....	060
567	.....	060
569	.....	060
573	.....	060
575	.....	060
576	.....	060
577	.....	460
579	.....	460
579	.....	060
583	.....	060
584	.....	060
585	.....	060
587	.....	060

Occupation Code

Imputed Industry Code

588	.....	060
594	.....	060
595	.....	060
597	.....	060
598	.....	060
599	.....	060
614	.....	042
615	.....	041
658	.....	242
666	.....	790
667	.....	151
668	.....	760
669	.....	782
673	.....	151
677	.....	372
678	.....	840
679	.....	172
683	.....	342
688	.....	111
694	.....	471
695	.....	460
726	.....	241
729	.....	241
733	.....	241
734	.....	171
735	.....	172
736	.....	171
738	.....	142
739	.....	132
743	.....	151
744	.....	151
745	.....	221
747	.....	771
748	.....	771
763	.....	111
766	.....	270
773	.....	800
774	.....	742
793	.....	742
808	.....	401
809	.....	402
813	.....	750
823	.....	400
824	.....	400
825	.....	400
826	.....	400
828	.....	420
829	.....	420

Occupation Code	Imputed Industry Code
833 .....	420
834 .....	432
844 .....	060
845 .....	420
853 .....	060
855 .....	060
865 .....	060
866 .....	882
867 .....	041
869 .....	060
876 .....	420
885 .....	621

If the occupation codes are not reported for the following industry codes, the occupation codes may be imputed as indicated.

Industry Code	Imputed Occupation Code
030 .....	495
230 .....	496
401 .....	808
402 .....	809
410 .....	804
772 .....	458
780 .....	457
790 .....	666

Most of the entries on the list are for situations where a missing industry code can be imputed based on the occupation code. There are only a few situations where a missing occupation code can be imputed based on the industry code. For the sake of simplicity, the remaining discussion on imputing will be in terms of having a known occupation and imputing the industry, although it should be understood that the opposite can also occur.

Since the Census imputation list was developed for use with the 1980 U.S. Census, the suggested imputations may not always be appropriate for I/O data gathered from state death certificates. We have developed a method at NIOSH for adapting the Census list for use with death certificate data. In order to impute missing industry codes based on the corresponding occupation code, we developed the following procedure: (1) using the death certificates with non-missing I/O data, compute the percent distribution of industry codes within each occupation code on the Census list; (2) if at least 80% of the certificates for a particular occupation have the same industry code as the one recommended by the Census Bureau, then assign that industry code to those certificates which had the same occupation but a missing

or retired industry code; (3) if fewer than 80% had the recommended industry code, then let the missing or retired industry codes remain missing for that occupation. Two examples are given below:

Example 1 - The Census list recommends assigning an industry code of 781 (funeral service and crematories) when the occupation code is 018 (funeral director) and the industry is unknown. In a dataset containing death certificates from 16 states, among all funeral directors with a known industry, 99% had a code of 781. One funeral director had a missing industry code, so we imputed it to 781.

Example 2 - The Census list recommends assigning an industry code of 421 (air transportation) when the occupation code is 318 (transportation ticket and reservation agents) and the industry is unknown. In the 16 state dataset, among all ticket agents with a known industry, only 17% had an industry code of 421, while 63% had industry code of 400 (Railroads). Therefore we let industry remain missing for the 2 ticket agents who had a missing industry code.