



## Letters to the Editor

Letters are welcomed and will be published, if found suitable, as space permits. The editors reserve the right to edit and abridge letters, to publish replies, and to solicit responses from authors and others.

Letters should be submitted in duplicate, double-spaced (including references), and generally should not exceed 400 words.

### Comments Received on Occupational Mortality Surveillance

#### I. Sheds Little Light on Risks

Whorton's editorial<sup>1</sup> on the enigmatic problem of occupational illness statistics prompts me to comment on his views of occupational mortality data. He suggests that improvements in the reporting of occupation and industry and of diagnostic data, and the coding of occupation and industry by a number of States will make available a useful body of statistics on occupational mortality.

With regard to the question of usefulness of occupational mortality data, there is ample evidence to show that they do not shed too much light on occupational risks. The principal value of data compiled from death certificates such as the classic series in the decennial supplements of the Registrar General of England and Wales and the 1950 study of death rates by occupation and industry in the United States has been to present mortality differentials by various social classes. These socioeconomic indicators of mortality are extremely useful, but except for certain acute diseases and trauma, it is not possible to make inferences about occupational risks from these data.

The basic problem in ascertaining occupational mortality risks is not a question of improving the reporting of occupation and industry of the decedents, but relating occupational exposure to the death independent of the other forces of mortality that impinge on the population. Many users of mortality statistics seem to forget that

death is a resultant of many factors which need to be kept constant except for the risk factor under study. This cannot be done by coding occupation and industry on the death certificates and tabulating these data. One has to start with the death certificate as in the retrospective case control study, or end up with the death certificate as in the prospective studies. These are the two epidemiologic approaches for testing hypotheses on disease causation.

The consequences of various kinds of industrial exposures have been the subject of many studies. The National Death Index will greatly facilitate investigations of this type so that more such studies may be expected in the future. Incidentally, the value of the National Death Index is to provide information about the death of a specific individual—not to provide a source of mortality statistics as Whorton seems to suggest.

I agree with Whorton that the evaluation studies of the reported occupation and industry items on death certificates, and the proposed study of death rates by occupation and industry are important, but not for the reasons advanced in the editorial. Analytical studies cannot be expected to produce data on risk factors even if occupation and industry were coded on every death certificate filed in the United States. However, such studies may lead to interesting and valuable hypotheses regarding the etiology of disease. Hopefully, the Sentinel Health Events (Occupational) as developed by Rutstein, *et al.*,<sup>2</sup> will make possible fine tuning of data in these studies.

#### REFERENCES

1. Whorton MD: Accurate occupational and injury data in the US: can this enigmatic problem ever be solved? *Am J Public Health* 1983; 73:1031-1032.
2. Rutstein DD, *et al.*: Sentinel health events (occupational): a basis for physician recognition and public health surveillance. *Am J Public Health* 1983; 73:1054-1062.

I. M. Moriyama  
Deputy Executive Director, International Institute  
for Vital Registration & Statistics, 9650 Rockville  
Pike, Rockville, MD 20814

\* \* \* \* \*

#### II. Coding Death Certificate Data

Although we are in basic agreement, we must take exception to one point raised in the article by Rutstein *et al.* (*AJPH* September 1983, pages 1054-1062). The authors speak of coding the industry and/or occupational data which appear on death certificates. This would have been a good suggestion several years ago but now would be inefficient because of improvements in data processing.

The nature of coding information is to reduce the information content in the original data set to the number of categories available in the coding system or fewer if some are not used. Moreover the code must be decided upon prior to the beginning of coding (new categories can be added during the process but this is inefficient). In the case of occupational data, one must code prior to seeing next year's data on industry and occupation. Finally, one does not necessarily know the questions that will be asked of the data set and so the coding algorithm must be created prior to the time in later years that the questions will be asked.

An excellent alternative at this time is to record *all* of the information given in the spaces on the death certificate for occupation and industry. This is a much simpler task since the person recording the information only has to read and input the information without having to make decisions about coding. In our experience it is faster to record the complete information than it is to code the information. Space limitations in computer systems are no longer of any great importance and thus the longer record with more information is preferable. At a later time one can group this information in response to a particular problem and thus the same information can be grouped in different ways by various researchers. Moreover, the computer software which is available to handle alphabetic data can presort this information, count it, and help with the eventual coding system.

We join with Rutstein, *et al.*, in the desire to see more states routinely record the occupation and industry infor-

mation from their death certificates into their computer system. We would recommend that the information be recorded in its entirety rather than using some coding scheme.

*C. Ralph Buncher, ScD*  
Professor of Epidemiology and Biostatistics, University of Cincinnati

*Howard Rockette, PhD*  
Associate Professor of Biostatistics, University of Pittsburgh

## Response from Frazier, et al

Dr. Moriyama's thoughtful letter to the editor raises the important question about the usefulness of death certificates for occupational mortality studies. We agree with the general thesis of Moriyama, that occupation and industry data compiled from death certification do not permit a direct inference about disease and workplace health hazards. This was neither suggested by Whorton,<sup>1</sup> nor is it a basis for the health surveillance program that is evolving at the national level. The principal interest in promoting the use of the 50 rubrics in the Sentinel Health Event (Occupational) (SHE(0)) list is stated in the title of the paper, i.e., a basis for physician recognition and for public health surveillance.<sup>2</sup> In discussing the utility of the SHE(0), a number of uses were identified: routine surveillance; identification of incidents where follow-up may be indicated; increased physician awareness of the possibility of work-related illness; and the heuristic value of the list for occupational health research efforts.

We are aware of the limitations of the SHE(0) approach. In most uses the signal given by a SHE(0) will be a first step in a chain of events that comprise an epidemiologic study. Our view, somewhat at variance with Moriyama, is that this use follows the examples set by Farr in 19th century England,<sup>3,4</sup> more recently in England and Wales by Fox and his colleagues in the Office of the Registrar General,<sup>5</sup> and by Guralnick,<sup>6</sup> Milham,<sup>7</sup> Peterson,<sup>8</sup> Beebe,<sup>9</sup> Rosenberg,<sup>10</sup> and others in the United States.

The quantification and study of socioeconomic indicators of mortality played a significant role in the past 100 years in the identification and control of infectious disease. The decline of infectious disease during this period as a principal cause of mortality had its

parallel in the increases of heart and respiratory diseases and cancer. Today, debate centers on lifestyle and occupational factors, and the extent to which these factors contribute to the development of these disease processes. Through the quantification and study of these factors as measured through vital and other health statistics, it is our hope that surveillance can play a similar role in effecting the identification and prevention of occupational disease.

The second letter—in response to the paper by Rutstein, *et al*—is the concern expressed by Drs. Buncher and Rockette about the coding of decedent industry and occupation (I/O) information by the state vital statistics offices. They recommend routine data processing of the literal entries for the decedent's usual I/O instead of the system described in our paper.

Based on our experience, we believe that it may be misleading to conclude that it is inefficient to code decedent I/O information routinely. Although the US Bureau of the Census has attempted to develop the type of software suggested by Buncher and Rockette, they continue to rely on a well-trained staff to code occupation and industry information for approximately 29,000 occupational and 20,000 industrial titles. The coding methods developed by the US Bureau of the Census were adapted for use by state vital statistics offices.

At this juncture, and based on assessments by those agencies responsible for adapting Census methods (National Institute for Occupational Health, Bureau of the Census, National Center for Health Statistics), we suggest that the decision to code decedent I/O information routinely is sound and cost conscious.

One additional comment needs to be made about the usefulness of death certificate information. Significant effort is expended on the collection, coding, and analysis of death certificate data. The value of the effort, however, is no better than the quality of the data on which it is based. It is important, therefore, that the individual obtaining this information (usually the funeral director) be aware of the need for accurate and complete reporting of the decedent's usual occupation and industry. In this connection NCHS, with NIOSH funding, published a booklet, "Guidelines for Reporting Occupation and Industry on Death Certificates"<sup>11</sup> in June 1983.

## REFERENCES

1. Whorton MD: Accurate occupational and injury data in the U.S.: can this enigmatic problem ever be solved? (editorial) *Am J Public Health* 1983; 73:1031-1032.
2. Rutstein DD, Mullan RJ, Frazier TM, Halperin WE, Melius JM, Sestito JP: Sentinel health events (occupational): a basis for physician recognition and public health surveillance. *Am J Public Health* 1983; 73:1054-1062.
3. Farr W: Letter to the Registrar General. *In*: Supplement to the Twenty-Fifth Annual Report of the Register General of Births, Deaths, and Marriages in England. London: HMSO; pp XXXv-XXXvi and p 440, 1864.
4. Farr W: Letter to the Registrar General. *In*: Supplement to the Thirty-Fifth Annual Report of the Registrar General of Births, Deaths, and Marriages in England. London: HMSO; pp liii-lviii and p 448, 1875.
5. Registrar General: Decennial supplement for England and Wales, 1970-72: occupational mortality. London, England: Her Majesty's Stationery Office, 1978.
6. Guralnick L: Mortality by occupation and industry among men 20-64 years of age: United States, 1950. *Vital Statistic-Special Report* vol 53, No. 2, p 51. Washington, DC: National Office of Vital Statistics, 1962.
7. Milham S: Occupational mortality in Washington State, vol 1. NIOSH Research Report. DHEW [NIOSH] Pub. No. 76-157-A. Washington, DC: National Institute for Occupational Safety and Health, 1976.
8. Petersen GR, Milham S: Occupational mortality in the state of California, 1959-1961. NIOSH Research Report. DHEW [NIOSH] Pub. No. 80-104. Washington, DC: National Institute for Occupational Safety and Health, 1980.
9. Beebe GW: Record linkage and needed improvement in existing data resources. *In*: Peto R, Schneiderman M (eds): *Banbury Report #9: Quantification of Occupational Cancer*. Cold Spring Harbor Laboratory, 1981, 661-673.
10. Rosenberg HM: NCHS data resources for studying occupational mortality. *In*: Peto R, Schneiderman M (eds): *Banbury Report #9: Quantification of Occupational Cancer*. Cold Spring Harbor Laboratory, 1981, 317-331.
11. National Center for Health Statistics: Guidelines for reporting occupation and industry on death certificates. DHHS [NCHS] Contract No. 233-2014. Hyattsville, MD: National Center for Health Statistics, 1983.

*Todd M. Frazier, ScM*  
*John P. Sestito, MS*  
*Robert J. Mullan, MD*  
*M. Donald Whorton, MD, MPH*

## On Maternal Age and Overdue Conceptions

I was puzzled by the article by Gerry E. Hendershot, entitled "Maternal Age and Overdue Conceptions", in the January issue because it is written as though only women were involved in producing children. Nowhere does Henderson mention, much less discuss, the possible relevance of paternal age to delays in conception. Yet, since in the US older women, by and large, have children by older men, I should