Documenting Occupational History: The Value to Patients, Payers, and Researchers

Save to myBoK

By Sara E. Luckhaupt, MD, MPH; Geoffrey M. Calvert, MD, MPH; and Marie H. Sweeney, PhD

Recording patient work history is vital to identifying work-related injuries and illnesses. As electronic health records become widespread, this is an important time to ensure occupational health data elements are included in EHR standards.

The Occupational Safety and Health Act of 1970 was written to protect workers from work-related injuries and illnesses; however, they are still common in the United States. Of the estimated 139 million working Americans:

- 15 die from a work-related injury every day;
- 3.9% will experience a nonfatal injury or illness annually; and
- Approximately 49,000 will die annually from an occupational disease. [1, 2, 3]

Although the relationship of some injuries to occupation may be obvious and some diseases are well known to have occupational causes (e.g., mesothelioma from asbestos exposure), other work-related diseases are underrecognized. Reasons for this include the following :

- The clinical and pathologic expression of most occupationally caused diseases is indistinguishable from that of nonoccupational origin
- Many diseases of occupational origin are multifactorial, with nonoccupational factors playing a contributory role
- The effects of occupational exposures often occur after a long latent interval following exposure
- Healthcare professionals receive scant instruction on how to identify the etiology of diseases caused by occupational and noninfectious environmental exposures[4]

This underestimation affects patients, payers, and researchers. It can lead to missed opportunities for prevention; divert costs that should be paid by workers' compensation insurance to health insurance companies, Medicare, Medicaid, Social Security, or the patient; and hamper research that is based on clinical databases.

Timely recognition of work-related injuries and illnesses requires that work history be captured in every patient's record. Timely recognition can lead to reductions in hazardous exposures to individual patients, improve the likelihood that resulting costs are paid for by the employer responsible for the workplace exposures, and can produce robust databases useful for recognizing, managing, and preventing work-related injuries and illnesses.

The national effort to promote electronic health records makes this an important time to advance the capture of standard occupational data elements that will enhance occupational disease and injury recognition and prevention from three perspectives: prevention and treatment of individual cases of occupational injury or disease; identification of occupational disease outbreaks or clusters; and surveillance, epidemiology, and research of occupational injuries or diseases.

Current Classifications for Industry and Occupation

No formal data standards exist for collecting occupational history data in medical records; however, fields for usual (longest-held) industry and occupation (I&O) of employment are present on death certificates and in cancer registries.[5] Additionally, I&O data are collected in many federal surveys, including the American Community Survey and the National Health Interview Survey.

The Office of Management and Budget and the US Census Bureau employ standard coding systems to classify industry and occupation data collected in narrative format into reasonable numbers of categories. The sidebar on below offers a sample of Census Bureau classifications.

Promoting Treatment and Prevention

Knowing a patient's occupation may help identify the cause of illness. For example, a clinician might be puzzled by a previously healthy, nonsmoking adult with new-onset asthma, until learning that she is employed as a home health aide and recently began using a disinfectant for her job known to cause asthma. Diagnosing an occupational etiology will improve the chances of the patient's recovery if the exposure precipitating the illness can be reduced or eliminated.

Using this example, the clinician may be able to help the patient convince her employer to switch to another disinfectant. Avoiding the asthma-inducing disinfectant will not only improve the patient's condition, but it may also prevent additional cases of asthma among her coworkers and even patients.[6] Furthermore, identifying and stopping the cause of the patient's asthma precludes prescribing medication to control symptoms that would likely persist with continuous exposure.

Recognizing and documenting an occupational cause for a patient's illness can guide the treatment plan and allow the patient to apply for workers' compensation to cover medical costs and some lost wages. Obtaining workers' compensation benefits for occupational diseases can be difficult, and documentation in the medical record that the worker's illness was work-related is vital to winning a workers' compensation case.

In addition to recognizing how current health conditions relate to work, knowing a patient's occupation offers an opportunity for education to prevent common work-related problems such as hearing loss or back pain before they occur.

For example, up to 24 percent of hearing loss cases could be prevented if workers were never exposed to workplace noise levels above recommended levels.[7,8] Many industries, including farming, manufacturing, and construction, expose workers to frequent and excessive noise levels. The proportion of hearing loss cases attributable to occupational noise exposure is especially high in the railroad and mining industries.

Workers in these industries should be counseled on how to avoid excessive noise exposure and the need for consistent use of hearing protection (e.g., earplugs) if avoidance is impossible.[9] Further, they should also undergo periodic audiometry to monitor for hearing loss.

The main barriers preventing healthcare providers from taking occupational histories are the perceptions of a lack of time, lack of awareness, and lack of skills to fully investigate how a disease is related to work. However, including occupational data in the standard medical record may prompt busy clinicians to consider links between patients' jobs and their health and the need for referral to an occupational health specialist.

Identifying Occupational Outbreaks or Clusters

Recognizing an outbreak or cluster of a new or unusual disease among patients with the same or similar occupations is important to identifying emerging occupational diseases. The following example illustrates the process.[10]

In February 1993 a 34-year-old man who worked in a textile plant in Rhode Island suddenly developed a headache, chest pain, and shortness of breath three hours into his work shift. His symptoms disappeared spontaneously, but a few months later he began to experience work-related shortness of breath that resolved shortly after the end of each shift.

After collecting this work history, a pulmonologist suspected an occupational cause, removed the patient from his job, and prescribed prednisone. Two months after leaving work, the patient felt better, but his lung function was still abnormal. He was referred to an academic occupational medical clinic.

In December 1995 a 28-year-old worker from the same plant was referred to the same occupational clinic with similar symptoms. Subsequently, the occupational clinicians learned of an earlier outbreak of seven cases of similar lung disease

among workers at a Canadian plant owned by the same textile company. It appeared that these cases represented a new occupational disease.

An investigation of the Rhode Island facility by the academic occupational medicine program identified a total of eight employees meeting the case definition for a new interstitial lung disease called "flock worker's lung." The investigation also implicated a causative agent: airborne nylon fragments generated during a process called "flocking." In the flocking industry, short fibers (flock) are cut from cables of parallel synthetic monofilaments (tow) and applied to an adhesive-coated fabric to create a material, such as fleece used in many jackets.

If the physicians hadn't learned that the initial two patients in this cluster had the same occupation and worked for the same employer, it is likely that detection of this new occupational disease would have been unnecessarily delayed.

Census and SOC Occupational Classifications

The US Census Bureau employs a coding system to classify industry and occupation data. The census occupation data are adapted from the federal government's Standard Occupational Classification, or SOC. The census industry codes are adapted from the North American Industry Classification System, prepared by the Office of Management and Budget.

The SOC system groups occupations according to the nature of the work performed and relates these occupations to others of a similar nature. There are 23 major groups in SOC and 821 detailed occupations within those groups. The Census Bureau's adapted version features 539 codes.

Shown below is a selection of Census Bureau occupation codes under the heading "Construction and Extraction Occupations," mapped to the 2010 SOC codes. In total, the Census Bureau groups 40 occupations under this heading.

Occupation 2010 Description	**2010 Census Code**	**2010 SOC Code**
Natural Resources, Construction, and Maintenance Occupations	6000–7630	45-0000–49-0000
Construction and Extraction Occupations:	6200-6940	47-0000
First-line supervisors of construction trades and extraction workers	6200	47-1011
Boilermakers	6210	47-2011
Brickmasons, blockmasons, and stonemasons	6220	47-2020
Carpenters	6230	47-2031
Carpet, floor, and tile installers and finishers	6240	47-2040

Cement masons, concrete finishers, and terrazzo workers	6250	47-2050
Construction laborers	6260	47-2061
Paving, surfacing, and tamping equipment operators	6300	47-2071
Pile-driver operators	6310	47-2072
Operating engineers and other construction equipment operators	6320	47-2073
Drywall installers, ceiling tile installers, and tapers	6330	47-2080
Electricians	6355	47-2111

Source: US Census Bureau. "2010 Occupation Code List." www.census.gov/hhes/www/ioindex/ioindex.html.

Advancing Surveillance, Epidemiology, and Research

Documenting patient occupational history in the medical record allows researchers to study associations between jobs and health. Sometimes, associations cannot be recognized until many years of medical data are available for review, as was the case with the association between asbestos exposure and mesothelioma, which was discovered with the aid of good statistics from the British Registrar General in the late eighteenth century.

From the surveillance, epidemiology, and research perspective, it is useful to record both the patient's industry and occupation of employment in the medical record. "Industry" is the kind of activity at a person's place of work. "Occupation" is the kind of work that a person performs at his or her place of work.

For example, an assembler at an automobile manufacturing facility works in the "automobile manufacturing" industry with an occupation of "assembler." Although a patient's employer is often recorded for administrative purposes (e.g., insurance billing), this information is often not enough to indicate what kind of work the patient actually does and thus potential occupational exposures.

It is important to capture the industry and occupation for both the patient's current job and longest-held job whenever possible. Any of these jobs may be associated with exposures that contributed to the patient's medical condition. Acute conditions, such as dermatitis and asthma, are more likely to be associated with the patient's current job. Chronic conditions, such as cancer, hearing loss, or chronic renal failure, are more likely associated with the patient's longest-held job.

As EHRs become the norm and cumulative medical histories follow individuals, it may become feasible to maintain a complete lifetime occupational history in the primary care record, which could be reviewed by specialists seeing patients for conditions often associated with occupational exposures (e.g., oncologists, pulmonologists).

In 1992 the Cancer Registries Amendment Act (Public Law 102-515) required central registries funded by the Centers for Disease Control and Prevention to collect from the medical record the occupation or industry for the job longest-held by each cancer patient.[11] These data have the potential to greatly increase the understanding of the occupational etiology of cancer but are often missing from the medical record. If EHRs include standard industry and occupation data elements, widespread

availability of these data will assist with the investigation of a range of chronic diseases and help determine occupational causation.

The National Institute for Occupational Safety and Health (www.cdc.gov/NIOSH) is working with public and private organizations engaged in developing standards and processes for EHRs to develop efficient methods of recording information on employment status, industry, and occupation in those records.

At the same time, the institute is exploring ways to enhance these data through physician education in occupational history taking and patient education to promote the recording of occupational histories in patient-generated records, such as personal health records.

Acknowledgments

The authors acknowledge the work of the National Institute for Occupational Safety and Health (NIOSH) Surveillance Coordination Group Electronic Health Records Subcommittee and the NIOSH EHR Working Group.

A version of this article first appeared in *Perspectives in Prevention*, January 29, 2010.

Notes

1. Schulte, Paul A. "Characterizing the Burden of Occupational Injury and Disease." *Journal of Occupational and Environmental Medicine* 47, no. 6 (June 2005): 607–22.
2. Bureau of Labor Statistics. "Workplace Injuries and Illnesses-2008." Press release. October 29, 2009. www.bls.gov/news.release/archives/osh_10292009.htm.
3. Steenland, Kyle, et al. "Dying for Work: The Magnitude of US Mortality from Selected Causes of Death Associated with Occupation." *American Journal of Industrial Medicine* 43, no. 5 (May 2003): 461–82.
4. Rosenstock, Linda, and Mark R. Cullen, eds. *Textbook of Clinical Occupational and Environmental Medicine.* Philadelphia, PA: WB Saunders Company, 1994.
5. North American Association of Central Cancer Registries. *Standards for Cancer Registries, Volume II: Data Standards and Data Dictionary.* www.naaccr.org/StandardsandRegistryOperations/VolumeII.aspx.
6. Brooks, Stuart M., Thomas Truncale, and James McClusky. "Occupational and Environmental Asthma." In *Environmental and Occupational Medicine* 4th ed. William Rom and Steven Markowitz, eds. Philadelphia, PA: Lippincott Williams & Wilkins, 2007.
7. Occupational Safety and Health Administration. "Occupational Noise Exposure." Standard 1910.95. In *Regulations; Standards, Code of Federal Regulations (CFR) 29.* Washington, DC: US Occupational Safety and Health Administration (OSHA), 1970.
8. Tak, Sangwoo, and Geoffrey M. Calvert. "Hearing Difficulty Attributable to Employment by Industry and Occupation: An Analysis of the National Health Interview Survey-United States, 1997 to 2003." *Journal of Occupational and Environmental Medicine* 50, no. (Jan. 2008): 46–56.
9. Occupational Safety and Health Administration. "Occupational Noise Exposure."
10. Kern, David G., et al. "Flock Worker's Lung: Chronic Interstitial Lung Disease in the Nylon Flocking Industry." *Annals of Internal Medicine* 129, no. 4 (Aug. 15, 1998): 261–72.
11. Centers for Disease Control and Prevention. "National Program of Cancer Registries (NPCR)." www.cdc.gov/cancer/npcr/amendmentact.htm.

Sara E. Luckhaupt (pks8@cdc.gov) and Geoffrey M. Calvert are medical officers and Marie H. Sweeney is a senior epidemiologist in the Division of Surveillance, Hazard Evaluations and Field Studies, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention.

The findings and conclusions in this article are those of the authors and do not necessarily represent the views of NIOSH.

Article citation:
Luckhaupt, Sara E; Calvert, Geoffrey; Sweeney, Marie H. "Documenting Occupational History:

The Value to Patients, Payers, and Researchers" *Journal of AHIMA* 82, no.7 (July 2011): 34-37.