California Department of Public Health – Occupational Health Branch

Occupational Health Indicator Data Sources

Adapted from

***Putting Data to Work: Occupational Health Indicators From Thirteen Pilot States for 2000* (October 2005)**

The following sources are used to obtain data for 20 occupational health indicators (OHIs) and the employment demographic profiles for the states and nation. The last five sources are used to quantify the appropriate population at risk (i.e., denominators) for the calculation of rates.

Death Certificates

National
[http://www.cdc.gov/nchs/deaths.htm]
California
[https://www.cdph.ca.gov/Programs/CHSI/Pages/Vital-Statistics-Data-.aspx]

Funeral directors, attending physicians, and medical examiners or coroners are usually responsible for the personal and medical information recorded on death certificates. Local registrars assure that all deaths in their jurisdictions are registered and that required information is documented before sending certificates to the state registrar. State registrars number and file the death certificates and forward certificates of nonresidents to the appropriate state. All states send death certificate data to the National Vital Statistics System, managed by the CDC's National Center for Health Statistics.

The cause-of-death section on the certificate, which is similar in all states, contains the immediate, contributing and underlying causes of death. Since 1999, these causes have been coded according to the International Classification of Diseases, tenth revision (ICD-10)[1] format. For injury deaths, all state death certificates include a query about whether the incident occurred at work.

Cancer Registries

National
[http://seer.cancer.gov/]
California
[https://www.cdph.ca.gov/Programs/CCDPHP/DCDIC/CDSRB/Pages/California-Cancer-Registry.aspx]

Data on cancer incidence are centralized in registries in all but five states in the United States. The sources of these data include hospitals, physician offices, surgery centers, laboratories, and death certificates. Legislation usually requires the reporting of all *in situ* or malignant neoplasms, but there is some slight variation in reportable cases by

state. Standards for the operation of registries (e.g., data definitions, data transmission methodologies, and quality assurance) have been developed by the North American Association of Central Cancer Registries (NAACCR) (some state cancer registries do not yet meet all NAACR standards for data competencies and quality). Diagnoses are coded according to the International Classification of Diseases for Oncology (ICD-O).[2]

State Hospital Discharge Data

California

[http://www.oshpd.ca.gov/HID/DataFlow/index.html]

Patient demographics, diagnoses, procedures, and billing information are contained within hospital medical records. Upon patient discharge from a hospital, these data are computerized using standard formats and submitted to the California Office of Statewide Health Planning and Development as Patient Discharge Data. This data contains personal identifiers and is not available to the public. Diagnoses are coded according to the International Classification of Diseases system, currently ICD-9-CM.[3] Reporting of patient discharge data is required of all licensed inpatient hospitals in California.

While there is no specific indicator of work-relatedness of any illnesses or injuries, a useful proxy for work-related injury is workers' compensation insurance as the expected payer. Pneumoconioses are considered, by definition, work-related diseases.

Hospital discharge data have several limitations for providing information on occupational health. Personal identifiers are not available in most states' data sets, thus repeat hospitalizations of the same individual cannot readily be identified in those states. The ICD classification system by itself can be used to identify only one class of work-related illnesses, pneumoconiosis. Workers' compensation as the payer source is more sensitive in identifying injuries than illnesses. Illnesses are much harder to associate with a work condition due to the non-specificity of many occupational diseases or the long latency between exposure and onset of overt disease. Hospital discharge data generally do not include hospitalizations of their residents who have been hospitalized in another state. Federal hospitals (military and veterans hospitals) are not included in most state hospital discharge data sets.

State Workers' Compensation Systems

California

[http://www.dir.ca.gov/dwc/wcis.htm]

Workers' compensation is a no-fault insurance system designed to provide compensation to workers who sustain work-related injuries or illnesses while limiting the legal liability of employers. All states and the District of Columbia have workers' compensation systems, and all employers, except those in Texas, are required to have this form of insurance for their employees. Several federal workers' compensation systems exist for the protection of select groups of workers, such as federal workers, and longshore and harbor workers, and are outside of state governance.

State workers' compensation systems are the result of individual state legislation and regulation.[4] States may allow employers to self-insure, group self-insure, insure through private carriers, or insure through a state fund. Coverage exemptions differ between states. Marked state-to-state differences exist in the statute of limitations for filing a work-related injury or illness claim, the procedures for filing a claim, and the requirements governing claim adjudication. State laws governing benefits for disability, waiting periods for wage replacement, wage replacement amounts, medical payments, and vocational rehabilitation make comparisons of benefits across states difficult. In addition, there may be considerable variability in the types of data collected, the data coding systems used, and the availability of data for research purposes. The variability in workers' compensation laws across states represents a significant limitation of using these data to make state-to-state comparisons.

Occupational Safety and Health Professionals

Members of occupational safety and health professional associations, including the American College of Occupational and Environmental Medicine (ACOEM), the American Association of Occupational Health Nurses (AAOHN), the American Industrial Hygiene Association (AIHA), and the American Society of Safety Engineers (ASSE), serve as resources to promote primary, secondary, and tertiary prevention of occupational injury and illness. Certain educational and/or work experiences are required for membership and typically a fee is charged.

Certification in an occupational health specialty demonstrates satisfactory completion of accepted criteria developed by a specialty board (e.g., American Board of Occupational Health Nursing). To be board-certified, the occupational safety and health professional must pass a certification exam, have practiced in his or her specialty area for a certain period of time, and have completed certain educational requirements.

Using professional association data to assess the availability of occupational health professionals has a number of limitations. Members often provide a preferred address that does not necessarily represent their work location. Membership rolls may include retired occupational health professionals. Organizations generally do not archive their membership information that would allow them to provide data on their membership rolls for previous years. The information obtained from organizations reflects current membership status. Some occupational health professionals may not be members of these organizations.

Survey of Occupational Injuries and Illnesses

National
[http://www.bls.gov/iif/]
California
[http://www.dir.ca.gov/dlsr/statistics_research.html]

The Survey of Occupational Injuries and Illnesses (Annual Survey), conducted by the Bureau of Labor Statistics (BLS) in the U.S. Department of Labor, provides annual estimates of the numbers and incidence rates of work-related injuries and illnesses among private sector and, more recently, some public sector workers nationwide. Information is collected through an Annual Survey mailed to a stratified random sample of establishments. Employers are asked to provide information on all work-related injuries and illnesses recorded as required under the Occupational Safety and Health Administration (OSHA) record-keeping standard 29 CFR 1904. Recordable injuries and illnesses include those that result in loss of consciousness, one or more days away from work to recuperate, restricted work activity, transfer to another job, or medical treatment beyond simple first aid. More detailed information on worker demographics and the nature and circumstances of the injuries and illnesses is collected for cases resulting in days away from work. The Annual Survey also collects data on the average number of workers employed and the total hours worked at each establishment, information that allows BLS to calculate rates. Since 1996, the Survey sample has included approximately 180,000 private sector establishments nationwide.

Many states choose to participate in the federal-state survey program, which involves allocation of state resources. For these states, the survey data are used to generate state as well as national estimates. An independent sample is selected for each state. Annual Survey estimates are not produced for states not electing to participate (eight as of 2006). In 26 states and U.S. territories – including all those where the public sector is covered by a state OSHA plan – the Annual Survey includes public sector workers. Because the Annual Survey is based on a sample – and not a census – of all establishments, the Survey findings are estimates with corresponding sampling errors. In some participating states, the sample sizes are insufficient to generate statistically reliable state-specific results for all the detailed categories BLS publishes for the nation. BLS adheres to strict publication guidelines based on the reliability of the estimates; numbers and rates are not published or released by BLS if the estimates do not meet these guidelines.

The self-employed, farms with fewer than 11 employees, private households, federal agencies, and the military are not covered in the Survey.[5] In states that do not participate or choose not to collect public sector data, the Survey also does not cover state and municipal employees. In addition, it is well recognized that the Survey undercounts work-related illnesses, especially long-latency illnesses that may not appear until years after individuals have left their place of employment. There is also some evidence that work-related injuries are under-reported.[6,7]

Census of Fatal Occupational Injuries

National
[http://www.bls.gov/iif/]
California
[http://www.dir.ca.gov/dlsr/statistics_research.html]

The Census of Fatal Occupational Injuries (CFOI), conducted by the Bureau of Labor Statistics (BLS) in the U.S. Department of Labor, is a federal-state cooperative program that compiles an annual census of fatal occupational injuries at both the state and national levels. For a death to be counted, the decedent must have been working for pay, compensation or profit at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of his or her job. The census includes unintentional injuries (e.g., falls, electrocutions, motor vehicle crashes) and intentional injuries (homicide and suicide). Deaths due to occupational illnesses are excluded.

CFOI uses multiple data sources to identify and document work-related injury deaths. These sources include, among others, death certificates, workers' compensation records, reports to regulatory agencies, and medical examiner and police reports, as well as reports in the news media. Multiple sources are used because studies have found that no single source captures all deaths. In addition, two or more sources are required to ensure an accurate count by independently substantiating that incidents were work-related. Due to this methodology, CFOI counts are considered a complete or nearly complete ascertainment of work-related injury deaths.

Poison Control Centers

National
[http://www.aapcc.org/dnn/NPDSPoisonData.aspx]
California
[http://www.calpoison.org/]

Poison control centers (PCCs) are available nationwide to provide assistance 24 hours a day to callers with concerns about actual or potential exposure to substances. Most PCCs track calls and manage case information electronically using ToxiCall® or another type of online software (California uses Visual Dotlab). Centers submit data on a real-time basis to the American Association of Poison Control Centers (AAPCC) for inclusion in their Toxic Exposure Surveillance System (TESS). In 2002, 64 PCCs representing 99.8% of the nation's population submitted data to the AAPCC.[8]

PCCs categorize inquiries as human or animal exposures, or non-exposures and information-only. For nearly half of human exposure calls, PCCs follow up to provide further guidance, confirm compliance with recommendations, and gather outcome data.[8] The types of information gathered by PCCs include demographics, type of substance(s) involved, symptoms, intentionality of exposure, whether the exposure was work-related, location of exposure (e.g., workplace), and medical outcome. PCCs do

not systematically collect information on industry and occupation. Centers that use online software can generate nearly 100 standard reports or create ad hoc reports to meet more specific needs.

A significant limitation of PCC data for occupational surveillance is that it is a passive system; that is, it relies on cases to be reported. To report a case, the poisoned individual or a health care worker has to know about the existence of a PCC, consider it a source of assistance for addressing a work-related illness, and know how to contact the PCC. Because of the passive surveillance system design, it is likely that PCC data underestimate the true extent of work-related chemical exposures. Furthermore, health care workers with more experience in managing work-related poisoning may be less likely to use PCCs. Thus, under-reporting may vary by state to some degree according to the experience and expertise of health care workers.

Adult Blood Lead Epidemiology and Surveillance

National
[http://www.cdc.gov/niosh/topics/ABLES/ables.html]
California
[https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/OLPPP/Pages/SurveillanceAndCases.aspx]

The Adult Blood Lead Epidemiology and Surveillance (ABLES) system, a state-based program funded by CDC's National Institute for Occupational Safety and Health (NIOSH), commenced in 1987 in four states. By 2004, 37 states were participating in the system. Surveillance of elevated blood lead levels (BLLs) provides a method for identifying industries and occupations where workers are at high risk for exposure to lead.

States participating in ABLES require that clinical laboratories report BLL results to a state agency. The lowest BLL to be reported varies from state to state. Laboratory reports include basic demographic information. States use unique identifiers to differentiate between new and existing cases and to account for multiple reports for the same person. In some ABLES states, physicians also are required to report adults with elevated BLLs. Most states follow up reports of elevated BLLs to determine the sources of lead exposure, including the name of the employer, and additional information about the exposed individual.

The Occupational Safety and Health Administration (OSHA) requires that lead be measured clinically in workers exposed to airborne lead exceeding a certain level. Because of this requirement and because laboratories generally comply with the reporting requirement, ABLES programs are believed to identify a substantial portion of lead-exposed workers. However, they do not capture lead-exposed individuals whose employers are not in compliance with the biological monitoring requirements, or individuals tested by laboratories that are not compliant with the reporting requirement.

Data from ABLES states are submitted to NIOSH, where they are aggregated. Analyses based on the aggregate data are published in CDC's Morbidity and Mortality Weekly Report (MMWR). The aggregated data from ABLES are not necessarily representative of the nation as there is less than 100% participation; states that participate were not selected based on representativeness.

OSHA Integrated Management Information System

National

[http://www.osha.gov/oshstats/index.html]

The mission of the Occupational Safety and Health Administration (OSHA) is to prevent work-related injuries, illnesses, and deaths. To address this mission, OSHA develops standards, enforces compliance with these standards, and provides compliance assistance. OSHA conducts both referral and non-referral inspections to address compliance issues. Enforcement inspections are performed in the following conditions: the worksite was selected randomly; the worksite belongs to an industry with an excessive injury rate; there was an injury fatality or other catastrophe; a worker filed a complaint; or an outside source made a referral to OSHA.

Information on enforcement inspections is maintained in the Integrated Management Information System (IMIS). IMIS is utilized by OSHA as an electronic management tool and information resource to help direct its resources. It is used also by state agencies that carry out federally-approved OSHA programs. A wide variety of data are contained within IMIS, including the type of inspection conducted, reason for inspection, inspection date, state in which the worksite is located, worksite type, and number of employees at each inspected worksite. The source of information in IMIS is the local, state, or federal office in the geographical area where the activity occurred. Information is entered in an ongoing manner in the course of agency activities.

It is difficult to quantify the number of unique establishments inspected (and thus unique workers impacted) because IMIS has entries listed by inspections rather than establishment. Because IMIS is an administrative database, the data are not static, but can change over time.

Census

National

[http://www.census.gov/quickfacts/fact/table/US/PST045219]

The U.S. Census Bureau takes the census of the entire nation in years ending in zero. The first census of the U.S. was taken in 1790 as mandated by the Constitution for the purpose of apportionment of representatives for the seats in the House of Representatives. Census data also are used to distribute government funding, draw state legislative districts, identify populations in need of services, determine business locations, and for many other purposes.

In Census 2000, a short form was sent to every household, and a long form with more detailed questions was sent to a sample of about one in six households. The short form ascertained basic demographics, while the long form sought information on social, economic, and financial characteristics of individuals, and physical characteristics of housing. The economic characteristics included labor force status, place of work, occupation, industry, work status, and income. Following Census 2000, there was debate about undercounting the population. Subsequently, the Census Bureau performed a coverage measurement survey. Based on survey results, the Bureau decided that no adjustments would be made.

County Business Patterns

National

[http://www.census.gov/programs-surveys/cbp.html]

The U.S. Census Bureau annually produces County Business Patterns (CBP), which provides national economic data by industry. CBP data represent the number of employees working in the primary industry of an establishment, regardless of the individuals' occupations within that establishment. CBP data include the total number of establishments, mid-March employment, first quarter and annual payroll, and number of establishments by nine employment-size classes for all counties in the United States and the District of Columbia.

CBP data are extracted from the Business Register, the U.S. Census Bureau's file of all known single and multi-establishment companies. The Annual Company Organization Survey and Economic Censuses, which are conducted every five years, provide individual establishment data for multi-location firms. Data for single-location firms are obtained from various programs conducted by the Census Bureau, such as the Economic Censuses, the Annual Survey of Manufacturers, and Current Business Surveys, as well as from administrative records of the Internal Revenue Service (IRS), the Social Security Administration (SSA), and the Bureau of Labor Statistics (BLS).

Data are obtained for all employees excluding self-employed individuals, employees of private households, railroad employees, agricultural production employees, and most government employees. CBP quantifies full- and part-time employees who are on the payroll in the pay period including March 12. Beginning in 1998, data are tabulated by industry as defined in the *North American Industry Classification System: United States, 1997 (NAICS).* Data for 1997 and earlier years are based on the Standard Industrial Classification (SIC) System.

Current Population Survey

National

[http://www.bls.gov/cps/]

The Current Population Survey (CPS) is a monthly survey of about 60,000 households representing the civilian non-institutionalized population of the United States. It is

conducted by the U.S. Census Bureau for the Bureau of Labor Statistics. The CPS ascertains demographics, employment status, weekly hours worked, and industry and occupation of each household member aged 15 years and older. The inquiry relates to activity or status during the calendar week that includes the 12th day of the month. Among the ways BLS makes the survey data available are an annual report titled "Geographic Profile of Employment and Unemployment" and a data analysis program, "DataFerrett," that users can download from the Internet.

The occupational and industrial classifications of CPS data for 1992 through 2002 were based on the coding systems used in the 1990 Census. Since then, the CPS has changed its coding systems for occupation and industry. More information can be found at **www.census.gov**.

The CPS undercounts certain racial/ethnic workers who have no permanent address or are migratory in nature. Because CPS estimates are based on a survey rather than a complete census of the population, they are subject to sampling error.

National Academy of Social Insurance

National

[http://www.nasi.org/]

The National Academy of Social Insurance (NASI) is a non-profit, non-partisan organization dedicated to the study of social insurance programs such as workers' compensation, Medicare, and unemployment insurance. NASI produces an annual research report estimating the annual benefits, coverage, and costs associated with workers' compensation systems at the state level.

NASI estimates the number of workers covered by workers' compensation insurance by utilizing state unemployment insurance data. These data are then adjusted for differences in workers' compensation coverage laws with unemployment insurance coverage laws within a state. NASI estimates the cost of workers' compensation benefits by soliciting information from federal and state agencies, and by utilizing data from private organizations such as A.M. Best and the National Council on Compensation Insurance.

Workers' compensation award payments are frequently made over time, thus the annual awards measured by NASI may not reflect the full cost of injuries and illnesses for a given year. There is significant variation in workers' compensation systems from state to state. Therefore, comparisons across states for measures such as level of coverage and benefits paid per covered worker are problematic.

Quarterly Census of Employment and Wages

National

[http://www.bls.gov/cew/]

The Quarterly Census of Employment and Wages (QCEW) — previously known as the Covered Employment and Wages or the ES-202 program — is a near-census of monthly employment and quarterly wage information. Employment data represent the number of workers covered by state unemployment insurance laws who worked during, or received pay for, the pay period including the 12th of the month. Excluded from the QCEW are those in the military, the self-employed, proprietors, domestic workers, unpaid family workers, and railroad workers. QCEW data provide figures that represent where individuals work, not where they live.

At the national level, QCEW publishes employment and wage data for nearly every North American Industry Classification System (NAICS) industry. At the state, county, and metropolitan levels, it publishes these data down to the 6-digit NAICS industry level, assuming that confidentiality can be maintained. QCEW publishes a subset of its quarterly data through an online data query system and full quarterly industry detail data in ASCII format at all geographic levels.

References

Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000 (October 2005), found at https://cdn.ymaws.com/www.cste.org/resource/resmgr/OccupationalHealth/CSTEOHIndicators.pdf.

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