



Occupational Health and Safety Specialist and Technician Overview

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The Field

Occupational health and safety specialists and technicians, also known as safety and health professionals or occupational health and safety inspectors, help prevent harm to workers, property, the environment, and the general public. For example, they might design safe work spaces, inspect machines, or test air quality. In addition to making workers safer, specialists and technicians aim to increase worker productivity by reducing absenteeism and equipment downtime -- and to save money by lowering insurance premiums and workers' compensation payments, and preventing government fines. Some specialists and technicians work for governments, conducting safety inspections and imposing fines.



Occupational health and safety specialists analyze work environments and design programs to control, eliminate, and prevent disease or injury. They look for chemical, physical, radiological, and biological hazards, and they work to make more equipment ergonomic--designed to promote proper body positioning, increase worker comfort, and decrease fatigue. Specialists may conduct inspections and inform an organization's management of areas not in compliance with State and Federal laws or employer policies. They also advise management on the cost and effectiveness of safety and health programs. Some provide training on new regulations and policies or on how to recognize hazards.

Sometimes, specialists develop methods to predict hazards from historical data and other information sources. They use these methods and their own knowledge and experience to evaluate current equipment, products, facilities, or processes and those planned for use in the future. For example, they might uncover patterns in injury data that show that many injuries are caused by a specific type of system failure, human error, or weakness in procedures. They evaluate the probability and severity of accidents and identify where controls need to be implemented to reduce or eliminate risk. If a new program or practice is required, they propose it to management and monitor results if it is implemented. Specialists also might conduct safety training for management, supervisors, and workers. Training sessions might show how to recognize hazards, for example, or explain new regulations and production processes.



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Some specialists, often called loss prevention specialists, work for insurance companies, inspecting the facilities that they insure and suggesting and helping to implement improvements.

Occupational health and safety technicians often focus on testing air, water, machines, and other elements of the work environment. They collect data that occupational health and safety specialists then analyze. Usually working under the supervision of specialists, they also help to implement and evaluate safety programs. To measure hazards, such as noise or radiation, occupational health and safety technicians prepare and calibrate scientific equipment. They must properly collect and handle samples of dust, gases, vapors, and other potentially toxic materials to ensure personal safety and accurate test results. Occupational health and safety specialists also may perform this work, especially if it is complex.

To ensure that machinery and equipment complies with appropriate safety regulations, occupational health and safety specialists and technicians both may examine and test machinery and equipment, such as lifting devices, machine guards, or scaffolding. They may check that personal protective equipment, such as masks, respirators, protective eyewear, or hardhats, is being used according to regulations. They also check that hazardous materials are stored correctly. They test and identify work areas for potential accident and health hazards, such as toxic vapors, mold, mildew, and explosive gas-air mixtures and help implement appropriate control measures, such as adjustments to ventilation systems. Their inspection of the workplace might involve talking with workers and observing their work, as well as inspecting elements in their work environment, such as lighting, tools, and equipment. If an injury or illness occurs, occupational health and safety specialists and technicians help investigate, studying its causes and recommending remedial action. Some occupational health and safety specialists and technicians help workers to return to work after accidents and injuries.

Occupational health and safety specialists and technicians frequently communicate with management about the status of health and safety programs. They also might consult with engineers or physicians. Specialists and technicians write reports, including accident reports, and enter information on Occupational Safety and Health Administration recordkeeping forms. They may prepare documents used in legal proceedings and give testimony in court. Those who develop expertise in specific areas may develop occupational health and safety systems, including policies, procedures, and manuals. The responsibilities of occupational health and safety specialists and technicians vary by industry, workplace, and types of hazards affecting employees. Mine examiners, for example, are technicians who inspect mines for proper air flow and health hazards such as the buildup of methane or other noxious gases. Environmental protection officers evaluate and coordinate the storage and handling of hazardous waste, the cleanup of contaminated soil or water, or other activities that affect the environment. Ergonomists consider the design of industrial, office, and other equipment to maximize worker comfort, safety, and productivity. Health physicists work in places that use radiation and radioactive material, helping to protect people and the environment from hazardous radiation exposure. And industrial hygienists examine the workplace for health hazards, such as exposure to lead, asbestos, pesticides, or communicable diseases.



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Preparation

All occupational health and safety specialists and technicians are trained in the applicable laws or inspection procedures through some combination of classroom and on-the-job training. In general, people who want to enter this occupation should be responsible and like detailed work. Occupational health and safety specialists and technicians also should be able to communicate well. Recommended high school courses include English, mathematics, chemistry, biology, and physics.



Experience as an occupational health and safety professional is also a prerequisite for many positions. Some employers require occupational health and safety specialists to have a bachelor's degree in occupational health, safety, or a related field, such as engineering, biology, or chemistry. For some positions, a master's degree in industrial hygiene or a related subject is required. There also are associate degree and 1-year certificate programs, which primarily are intended for technicians. The Accreditation Board for Engineering and Technology currently accredits 46 programs in health physics (7), industrial hygiene (29), and safety (10) under their Applied Science Category.

Health Physics

- Bloomsburg University of Pennsylvania
- Clemson University
- Colorado State University
- Idaho State University
- Oregon State University
- Uniformed Services University for the Health Sciences
- University of Nevada-Las Vegas

Safety

- Fairmont State University
- Indiana University of Pennsylvania
- Marshall University
- Murray State University
- Oakland University
- Pennsylvania State University
- Rochester Institute of Technology
- Trinidad State Junior College
- University of Central Missouri
- West Virginia University

Industrial Hygiene

- California State University, Northridge
- Colorado State University
- Harvard School of Public Health
- Hunter College of the City University of New York
- Montana Tech of the University of Montana
- Ohio University
- Purdue University at West Lafayette
- San Diego State University
- The Johns Hopkins University
- The University of Oklahoma Health Sciences Center
- Tulane University
- Uniformed Services University for the Health Sciences
- University of California, Los Angeles
- University of Central Missouri
- University of Cincinnati
- University of Illinois at Chicago
- University of Iowa
- University of Massachusetts Lowell
- University of Michigan
- University of Minnesota-Twin Cities
- University of North Alabama
- University of South Carolina
- University of South Florida
- University of Texas at Houston
- University of Toledo
- University of Utah
- Utah State University
- Wayne State University
- West Virginia University

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Although voluntary, many employers encourage certification. Certification is available through several organizations. The Board of Certified Safety Professionals offers the Certified Safety Professional (CSP) credential. The American Board of Industrial Hygiene offers the Certified Industrial Hygienist (CIH) credential. Also, the Council on Certification of Health, Environmental, and Safety Technologists certifies people as Occupational Health and Safety Technologists (OHST), who may be called Certified Loss Control Specialists (CLCS), Construction Health and Safety Technicians (CHST), and Safety Trained Supervisors (STS). The Indoor Air Quality Association awards the Certified Indoor Environmentalist (CIE) credential. The Board of Certification in Professional Ergonomics offers the Certified Professional Ergonomist (CPE) and the Certified Ergonomics Associate (CEA) credentials. The American Board of Health Physicists awards the Certified Health Physicist (CHP) credential. Requirements for these credentials differ. Usually, they include specific education and experience, passing an examination, and completing periodic continuing education for recertification.



Occupational health and safety specialists and technicians who work for the Federal Government advance through their career ladder to a specified full-performance level if their work is satisfactory. For positions above this level, usually supervisory positions, advancement is competitive and based on agency needs and individual merit. Advancement opportunities in State and local governments and the private sector are often similar to those in the Federal Government. Specialists and technicians with broad education and experience and those who are well versed in numerous business functions usually have the best advancement opportunities. With an advanced degree, professionals can become professors or do research. Promotion to senior specialist positions is likely to require an advanced degree and substantial experience in several areas of practice.



Day in the Life

Occupational health and safety specialists and technicians work in a variety of settings from offices and factories to mines. Their jobs often involve considerable fieldwork, and some require frequent travel.

Occupational health and safety specialists and technicians may be exposed to many of the same strenuous, dangerous, or stressful conditions faced by industrial employees. They may find themselves in an adversarial role if an organization disagrees with their recommendations. Many occupational health and safety specialists and technicians work long, and often irregular, hours.



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Earnings

According to the U.S. Department of Labor, Bureau of Labor Statistics, median annual earnings of occupational health and safety specialists and technicians is about \$54,920. The middle 50 percent earn between \$41,800 and \$70,230. The lowest 10 percent earn less than \$32,230, and the highest 10 percent earn more than \$83,720. Median annual earnings in the industries employing the largest numbers of occupational health and safety specialists and technicians are:

Federal Government	\$68,890
Management, scientific, and technical consulting services	\$63,130
General medical and surgical hospitals	\$59,200
Local government	\$52,110
State government	\$49,690

Most occupational health and safety specialists and technicians work in large private firms or for Federal, State, and local governments, most of which generally offer benefits more generous than those offered by smaller firms.

Employment

Occupational health and safety specialists and technicians hold about 56,000 jobs in the United States. While the majority of jobs were spread throughout the private sector; about 2 out of 5 specialists work for government agencies. Local governments employ 15 percent, the Federal Government employs 13 percent, and State governments employ 12 percent.

Within the Federal Government, most jobs are as Occupational Safety and Health Administration inspectors, who enforce U.S. Department of Labor regulations and impose fines. Within the U.S. Department of Health and Human Services, the National Institute of Occupational Safety and Health hires occupational health and safety specialists to offer companies help in evaluating safety without the risk of fines. Most large government agencies also employ occupational health and safety specialists and technicians who work to protect agency employees.

Most private companies either employ their own occupational health and safety workers or contract with them. Most contract work is done through consulting companies, but some specialists and technicians are self-employed.

In addition to working for governments, occupational health and safety specialists and technicians were employed in manufacturing firms; private general medical and surgical hospitals; private colleges, universities, and professional



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schools; scientific and technical consulting services; research and development in the physical, engineering, and life sciences; and electric power generation, transmission, and distribution. Insurance companies and technical consulting services also often employed specialists, whereas employment services and testing laboratories often employed technicians.

Career Path Forecast

Employment of occupational health and safety specialists and technicians is expected to increase 9 percent during the 2006-16 decade, about as fast as the average for all occupations, reflecting a balance of continuing public demand for a safe and healthy work environment against the desire for smaller government and fewer regulations. Emergency preparedness will continue to increase in importance, creating demand for these workers. More specialists will be needed to cope with technological advances in safety equipment and threats, changing regulations, and increasing public expectations. In private industry, employment growth will reflect overall business growth and continuing self-enforcement of government and company regulations and policies.



Over the past two decades, insurance and worker's compensation costs have risen and have become a financial concern for many employers and insurance companies. As a result, job growth should be good for those specializing in loss prevention, especially in construction safety and in ergonomics.

In addition to job openings from growth, job openings will arise from the need to replace workers who transfer to other occupations, retire, or leave for other reasons. An aging population paired with a decline in the number of postsecondary students studying the sciences, especially health physics, will create opportunities for those with technical skill. Employment of occupational health and safety specialists and technicians in the private sector is somewhat affected by general economic fluctuations. Federal, State, and local governments, which employ about 2 out of 5 of all specialists and technicians, provide considerable job security; workers are less likely to be affected by changes in the economy. .

Professional Organizations

Professional societies provide an excellent means of keeping current and in touch with other professionals in the field. These groups can play a key role in your development and keep you abreast of what is happening in your field. Associations promote the interests of their members and provide a network of contacts that can help you find jobs and move your career forward. They can offer a variety of services including job referral services, continuing education courses, insurance, travel benefits, periodicals, and meeting and conference opportunities. The following is a partial list of professional associations serving occupational health and safety specialists and technicians.

- ▶ **American Industrial Hygiene Association (www.aiha.org)**
- ▶ **Health Physics Society (www.hps.org)**
- ▶ **Board of Certified Safety Professionals (www.bcsp.org)**

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