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# Occupational Health and Safety Specialists and Technicians

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## Significant Points

- About 2 out of 5 specialists and technicians worked in Federal, State, and local government agencies that enforce rules on safety, health, and the environment.
- Some specialist jobs require a bachelor's degree in occupational health, safety, or a related field.
- Projected average employment growth reflects a balance of continuing public demand for a safe and healthy work environment against the desire for smaller government and fewer regulations.

## Nature of the Work

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.

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 mix-



*Occupational health and safety technicians use scientific equipment to measure hazards, such as noise or radiation.*

tures 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.

**Work environment.** 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.

### **Training, Other Qualifications, and Advancement**

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.

**Education and training.** 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.

As of February 2007, the Accreditation Board for Engineering and Technology accredited 45 programs in health physics, industrial hygiene, and safety.

**Certification and other qualifications.** 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.

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.

**Advancement.** 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. One way to keep up with current professional developments is to join a professional society, such as those that offer the certifications mentioned earlier. These organizations offer journals, continuing education courses, and conferences, which offer learning and networking opportunities and can help workers and students to advance.

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.

### **Employment**

**Projections data from the National Employment Matrix**

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-2016	
				Number	Percent
Occupational health and safety specialists and technicians.....	29-9010	56,000	61,000	5,200	9
Occupational health and safety specialists.....	29-9011	45,000	49,000	3,700	8
Occupational health and safety technicians.....	29-9012	10,000	12,000	1,500	15

NOTE: Data in this table are rounded. See the discussion of the employment projections table in the *Handbook* introductory chapter on *Occupational Information Included in the Handbook*.

Occupational health and safety specialists and technicians held about 56,000 jobs in 2006. While the majority of jobs were spread throughout the private sector; about 2 out of 5 specialists worked for government agencies. Local governments employed 15 percent, the Federal Government employed 13 percent, and State governments employed 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 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.

**Job Outlook**

Average employment growth is expected; additional opportunities will arise from the need to replace workers who leave the occupation.

**Employment change.** 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.

**Job prospects.** 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.

**Earnings**

Median annual earnings of occupational health and safety specialists and technicians were \$54,920 in May 2006. The middle 50 percent earned between \$41,800 and \$70,230. The lowest 10 percent earned less than \$32,230, and the highest 10 percent earned more than \$83,720. Median annual earnings in the industries employing the largest numbers of occupational health and safety specialists and technicians in May 2006 were:

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.

**Related Occupations**

Occupational health and safety specialists and technicians help to ensure that laws and regulations are obeyed. Others who enforce laws and regulations include agricultural inspectors, construction and building inspectors, correctional officers, financial examiners, fire inspectors, police and detectives, and transportation inspectors. Occupational health and safety specialists also analyze work environments and processes, topics that industrial engineers also study.

## Sources of Additional Information

Information about jobs in Federal, State, and local governments and in private industry is available from State employment service offices.

For information on a career as an industrial hygienist, including a list of colleges and universities offering industrial hygiene and related degrees, contact:

➤ American Industrial Hygiene Association, 2700 Prosperity Ave., Suite 250, Fairfax, VA 22031.

Internet: <http://www.aiha.org>

For information on the Certified Industrial Hygienist or Certified Associate Industrial Hygienist credential, contact:

➤ American Board of Industrial Hygiene, 6015 West St. Joseph Hwy., Suite 102, Lansing, MI 48917.

Internet: <http://www.abih.org>

For more information on professions in safety, a list of safety and related academic programs, and the Certified Safety Professional credential, contact:

➤ Board of Certified Safety Professionals, 208 Burwash Ave., Savoy, IL 61874. Internet: <http://www.bcsp.org>

For information on the Occupational Health and Safety Technologist, Construction Health and Safety Technician credentials, and Safety Trained Supervisors, contact:

➤ Council on Certification of Health, Environmental, and Safety Technologists, 208 Burwash Ave., Savoy, IL 61874.

Internet: <http://www.cchest.org>

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For information on a career as a health physicist, contact:

➤ Health Physics Society, 1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101. Internet: <http://www.hps.org>

For additional career information, contact:

➤ U.S. Department of Health and Human Services, Center for Disease Control and Prevention, National Institute of Occupational Safety and Health, Hubert H. Humphrey Bldg., 200 Independence Ave. SW., Room 715H, Washington, DC 20201. Internet: <http://www.cdc.gov/niosh>

➤ U.S. Department of Labor, Occupational Safety and Health Administration, Office of Communication, 200 Constitution Ave. NW., Washington, DC 20210. Internet: <http://www.osha.gov>

Information on obtaining positions as occupational health and safety specialists and technicians with the Federal Government is available from the Office of Personnel Management through USAJOBS, the Federal Government's official employment information system. This resource for locating and applying for job opportunities can be accessed through the Internet at <http://www.usajobs.opm.gov> or through an interactive voice response telephone system at (703) 724-1850 or TDD (978) 461-8404. These numbers are not toll free, and charges may result.