



Healthcare jobs you might not know about

As career fields go, healthcare is hot. And there are lots of cool jobs, including some that aren't as well known. Find out about three of them here.

by
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Healthcare careers provide the chance to help people, do interesting technical work, and earn relatively high salaries. But that's not all. The healthcare industry also offers some of the best employment opportunities in the economy.

According to the U.S. Bureau of Labor Statistics (BLS), wage and salary employment in the healthcare industry is projected to grow 22 percent between 2006 and 2016. That translates into about 3 million new jobs—nearly 20 percent of the total number of jobs expected to be added to the economy over the projections decade.

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Of the dozens of different healthcare occupations, however, many people are familiar with only a few, such as nurse, doctor, and physical therapist. This article takes a look at some healthcare careers you might not know about. The first section describes the job duties, wages and employment, and qualifications and training requirements for each of three occupations: biostatisticians, cytotechnologists, and surgical technologists. The second section describes some pros and cons associated with these jobs. Suggestions for finding more information appear at the end.

Healthcare jobs to learn about

Healthcare careers have varying tasks, take-home pay, and training requirements. Some occupations are highly visible and involve di-

rect patient care. Others aren't as well known and require little or no contact with patients. Regardless of how different the occupations are, however, workers in these careers usually share a concern for patient health.

Biostatisticians

If you like working with numbers and want to work in healthcare, you might want to be a biostatistician. Biostatisticians apply statistics to medical and public-health research.

Almost daily, the media report new research findings related to human health. Maybe an experimental treatment for HIV has been found to work better than current therapies. New data might reinforce the link between high blood pressure and heart disease. Or perhaps a report reveals dangers in treatment options, such as the risk in using smoking cessation drugs. Health-related findings such as these, or others concerning

healthcare costs and quality, are usually based on the work of biostatisticians.

Job duties. Biostatisticians design statistical studies, decide how to gather data, and analyze the data. To help a hospital measure the incidence and cause of secondary infections among patients, for example, biostatisticians would first determine the required sample size (the number of patients from which data must be collected for the results to be statistically sound).

Then, biostatisticians must decide how to collect the data—from patients, patient



Biostatisticians often work closely with health policy analysts and other experts.

records, or hospital staff—and they also might help to determine the types of questions to ask and the method to use in asking them. Designed one way, for example, the study might require telephoning patients for followup; designed another way, it might require drawing patients' blood to track a physical effect.

In addition, biostatisticians analyze the data that they or others have collected. They decide which calculations to do and use statistical programming software to turn raw data into usable statistics. Often, biostatisticians work closely with other experts, such as medical professionals or health policy analysts.

Each study that biostatisticians undertake presents unique technical challenges. That variety is what draws many to the career. "I love the opportunity to help people with data problems and to look at a different issue almost daily," says Peter Lachenbruch, a biostatistician with the Department of Public Health at Oregon State University.

Working with data also can be frustrating, however. Difficulties frequently arise in dealing with so much information, so adhering to standard statistical procedures is essential for accurate analysis. "Sometimes, someone brings me a data set that has been collected haphazardly, without attention to measurement issues," says Lachenbruch. "I have to clean and edit that data [set]." That process is usually time consuming, he says, but it's also gratifying to turn less-than-perfect data into useful information.

Employment and earnings. BLS does not collect data on biostatisticians specifically, but it does collect data on statisticians as a whole. According to BLS, statisticians held 20,270 wage and salary jobs in May 2007. Twenty-five percent of these jobs were with colleges, universities, and professional schools; State governments; and insurance carriers. Another 20 percent were in the Federal Government, where statisticians were concentrated in the U.S. Departments of Commerce, Agriculture, and Health and Human Services. Nearly 15 percent more worked in private industry in scientific research and development services.

Median annual wages for statisticians were \$69,900 in May 2007, according to BLS. The middle 50 percent earned between \$50,520 and \$91,840. The highest earning 10 percent made more than \$112,880, and the lowest earning 10 percent made less than \$38,140.

Qualifications and training. Biostatisticians need a strong understanding of, and interest in, science and mathematics; the ability to think logically; and the patience and determination to follow a problem to its conclusion. Effective speaking and writing skills are necessary for communicating research results. The ability to work well on a team is

also important, because biostatisticians often work with healthcare practitioners, managers, scientists, and other statisticians.

Furthermore, biostatisticians must be able to adapt when projects don't turn out as planned or take longer than expected to complete.

High school students can start to explore the occupation by getting a solid background in science, mathematics, statistics, and computer science. Not surprisingly, statistical knowledge is essential for these workers, as is familiarity with common statistical programming software. A bachelor's degree with a major in biostatistics, statistics, or mathematics is usually the minimum requirement for entry-level positions. Most jobs, however, require biostatisticians to have a master's or doctoral degree.

Cytotechnologists

Cytotechnologists are disease detectives, spending much of their time peering through microscopes for clues to disease within cells. Studying cells from nearly every organ of the body, these workers search for patterns and abnormalities that might be evidence of cancer or other medical conditions, such as viral or bacterial infections.

Job duties. Cytotechnologists work closely with pathologists, the medical doctors who diagnose the causes and nature of disease. The information cytotechnologists provide is vital to the specialists responsible for making an accurate diagnosis and for developing an appropriate treatment plan. For example, a cytotechnologist might discover that a cell sample is benign or, if cancerous, the type of cancer.

When a patient's cells need to be studied, a sample is taken and sent to a cytotechnologist for testing. Cytotechnologists working in smaller laboratories might need to prepare slides of the cells for examination; in larger labs, however, assistants do this preparatory work. Cytotechnologists scrutinize the cells through a microscope, looking for subtle distinctions in the color, size, and shape of cell structures. By noting differences, cytotech-

nologists identify which cell variations are normal and which might indicate disease.

A cytotechnologist who discovers evidence of disease marks the slide for the pathologist and then writes up the findings, often taking photos to support conclusions. The report, photos, and, sometimes, slides themselves are given to a pathologist, who makes the final diagnosis of the patient. Cytotechnologists occasionally see rare conditions and interesting specimens, which they then share with the medical community.

Some cytotechnologists teach pathology residents in cytotechnology training programs at hospitals or in universities. Informing others about their work is challenging at times, because of its relative obscurity.

Even those studying to enter the occupation don't always understand what they're getting into, says Joe Walker, a cytotechnology education coordinator at Albany College in New York. "Many of our students didn't know what cytotechnology was and had never even heard of the career," he says. But once in the program, he says, students embrace the variety that the work offers. "It's interesting and new and different every day."

This variety and the possibility for discoveries are part of what cytotechnologists enjoy about their jobs. "People think that you sit down and look at slides all day long," Walker says. "While we do spend a lot of time in front of a microscope, it is exciting to see anywhere from 50,000-plus cells on the slide. And each one is different."

Employment and earnings. BLS does not collect data on cytotechnologists specifically. But cytotechnologists are included under the broader occupational group of medical and clinical laboratory technologists. These workers collectively held 163,270 wage and salary jobs in May 2007, according to BLS. More than half of these jobs were in hospitals. Most of the remaining jobs were in offices of physicians and in medical and diagnostic laboratories. A small proportion of jobs were in colleges, universities, and professional schools and in all other ambulatory healthcare services.

According to BLS, median annual wages of medical and clinical laboratory technologists were \$51,720 in May 2007. The middle 50 percent of workers earned between \$43,200 and \$61,140. The highest earning 10 percent made more than \$72,040, and the lowest earning 10 percent made less than \$35,460.

Qualifications and training. Most cytotechnologists enjoy solving puzzles. They are fascinated by science, and they like working in a laboratory setting.

Cytotechnologists must be able to communicate well, both orally and in writing, to document their findings and to consult with pathologists and other experts. They also must be able to focus on details and be comfortable making decisions and assuming responsibility, because their preliminary interpretations of cell samples can affect the pathologist's diagnosis. Moreover, cytotechnologists should work well under pressure.

High school students interested in a career as a cytotechnologist can prepare by taking courses in mathematics and the sciences.

Entry-level cytotechnologists usually need at least a bachelor's degree in cytotechnology or a related subject. Some States require cytotechnologists to be licensed, but licensure requirements vary by State.

Many employers prefer to hire cytotechnologists who are certified by the American Society of Clinical Pathology, which requires either a bachelor's degree in cytotechnology or a degree in another subject and a certificate in cytotechnology, as well as a passing score on a board-of-registry exam. Certificate programs are offered by universities, colleges, and hospitals and last about 1 to 2 years.

Surgical technologists

Surgical technologists assist in surgical operations. They work under the supervision of surgeons, registered nurses, anesthesiologists, or other surgical personnel. The scope of their work depends on the laws of the State and the policies of the facility in which they work, but most do a variety of tasks before, during, and after an operation.

Using microscopes, cytotechnologists study cells for abnormalities.





Before an operation, surgical technologists gather instruments and prepare equipment.

Job duties. Before an operation, surgical technologists help to prepare the operating room. They gather equipment and check to make sure that everything is working properly. They also help to prepare patients for surgery, transport them to the operating room, position them on the operating table, and cover them with sterile surgical drapes. As the time for surgery approaches, these technologists observe patients' vital signs, check charts, and assist the surgical team with putting on sterile gowns and gloves.

During the operation, surgical technologists pass instruments and other sterile supplies to surgeons and surgical assistants. They might hold retractors, cut sutures, and help count pieces of equipment. Surgical technologists also help to prepare, care for, and send specimens to a laboratory for analysis. They might apply dressings to the incision areas or operate some equipment. Highly trained technologists assist with more specialized tasks, such as controlling blood flow.

After an operation, surgical technologists take patients to the recovery room. They help

to clean and restock the operating room and to prepare it for the next operation.

Surgical technologists are part of a team. The chance to work closely with other medical professionals often draws people to the occupation. And the medical knowledge and experience that these workers gain attract people who are considering other healthcare careers. For example, with additional education, surgical technologists can advance to sales positions with surgical supply companies or perform inventory control management.

Employment and earnings. According to BLS, surgical technologists held 86,000 wage and salary jobs in May 2007. About 70 percent of these jobs were in hospitals, mainly in operating and delivery rooms. Other jobs were in outpatient care centers, including ambulatory surgical centers, and in the offices of physicians or dentists who perform outpatient surgery. A few technologists worked directly for surgeons who had their own surgical teams.

Median annual wages of surgical technologists were \$37,540 in May 2007. The

middle 50 percent of workers earned between \$31,410 and \$45,250. The highest earning 10 percent made more than \$52,550, and the lowest earning 10 percent made less than \$26,650.

Qualifications and training. Surgical technologists must be able to work well with others and accept responsibility. They need to work quickly and efficiently, even under stress, to have instruments ready in the operating room. “This job can be fast paced, complicated, and demanding, both physically and mentally,” says Patricia Eder, a surgical technologist for a healthcare provider in Kenosha, Wisconsin.

Taking high school classes in health and science is a good way to prepare for further study in surgical technology. Summer or volunteer experience in a hospital also provides useful exposure to the work, especially because surgical technologists should be comfortable watching operations and working around blood and other bodily substances.

Most surgical technologists receive formal training in vocational and technical schools, hospitals, or community colleges. These programs, which provide both classroom training and supervised clinical experience, usually take from 9 months to 2 years to complete and lead to a certificate or a degree in surgical technology.

Two organizations, the Liaison Council on Certification for the Surgical Technologist and the National Center for Competency Testing, offer optional certification for these workers. Certification is not required to get a job, but many employers prefer to hire certified surgical technologists.

Worklife pros and cons

Like most careers, these healthcare occupations have both rewards and drawbacks.

The work can sometimes seem draining, but biostatisticians, cytotechnologists, and surgical technologists focus on their main objective: helping people.

Each occupation has positive and negative aspects that are unique to it, as the preceding

profiles have described. But they also have some shared experiences.

Rewards

Many of these healthcare workers say they chose their careers because of a desire to help people. Even when they perform their duties far from patients, these workers help to save lives and improve health. “What we do makes a huge difference in patient care,” says cytotechnology education coordinator Joe Walker. “Our work is essential for the correct diagnosis. And a correct diagnosis leads to the best treatment and outcome. It’s satisfying to know that our work helps so many people.”

Along with the satisfaction they get from helping others, many people in these occupations enjoy being part of a team. And relatively high wages are another draw for those in healthcare careers: Many of these workers’ wages were above the national median of \$31,410 in May 2007.

The variety of job tasks is another bonus. Biostatisticians and cytotechnologists, in particular, can move into different types of specialties. And experience also gives these workers new skills so that they can advance to other healthcare-related careers. For example, they can try out one kind of job before deciding to get additional training to become a nurse, doctor, or other healthcare worker. Some educational programs are designed specifically to help aspiring healthcare professionals pursue more education by allowing them to earn an associate degree while working.

Drawbacks

Working in healthcare jobs is also difficult. In many laboratories, for example, fewer workers do more tasks to process the increasing numbers and kinds of tests being performed. Some labs may have trouble finding qualified workers, which can be detrimental to the workloads and morale of the existing staff.

In addition, some workers might find the responsibility of these occupations stressful. Because there is little room for error, mistakes can result in serious health consequences for

patients. Fortunately, the procedures that are in place make high-risk errors less likely.

Other times, it is the absence of high-level responsibility that creates a challenge. Some well-trained healthcare workers, for example, might find themselves doing routine tasks and underusing their more advanced skills. When this happens, many focus on the fact that even in performing routine work, they are helping people.

Most healthcare workers take precautions to minimize risk and ensure their safety, especially when handling biological material. In a laboratory or operating room, these precautions include the use of protective clothing, masks, gloves, goggles, and hoods, as needed. Repetitive motion injuries in the hands and fingers are also common in workers who spend hours at a microscope, computer, or other machine.

Forty-hour workweeks are common in full-time healthcare jobs, with part-time schedules usually available—just as in other fields. Unlike many workers in other occupations, however, some healthcare workers might be required to help cover 24-hour shifts or to be on call for emergencies. Some workers dislike such schedule variability in their schedules, but to others the flexibility is an added bonus.

For more information

The healthcare occupations described in this article are only a few of the many that are available. You can learn more about career choices by visiting a career counselor or career library at a local school or counseling center. To find a counseling office near you, contact the U.S. Department of Labor toll free, 1 (877) 872-5627, or go online to find a One-Stop Career Center at www.servicelocator.org.

One resource available at many counseling offices and libraries is the 2008-09 *Occupational Outlook Handbook*, also available online at www.bls.gov/oco. The *Handbook* provides projections and detailed career information for surgical technologists, clinical laboratory technologists and technicians, and

more than 25 other healthcare-related occupations.

Other articles in the *Occupational Outlook Quarterly*, including the following, also have information about healthcare workers:

- “Athletic trainers: Providing health-care for athletes of all kinds,” available online at www.bls.gov/opub/ooq/2005/spring/art04.pdf

- “Diagnostic medical sonographers: Seeing with sound,” www.bls.gov/opub/ooq/2001/summer/art04.pdf

- “Health educators: Working for wellness,” www.bls.gov/opub/ooq/2007/summer/art03.pdf

- “Veterinary technicians: Nursing animals to health,” www.bls.gov/opub/ooq/2003/fall/art03.pdf

The *Quarterly* also has profiled other, lesser known healthcare careers in “You’re a *what?*” articles, including the following:

- Cancer registrar, online at www.bls.gov/opub/ooq/2003/fall/yawhat.pdf

- Exercise physiologist, www.bls.gov/opub/ooq/2001/summer/yawhat.pdf

- Massage therapist, www.bls.gov/opub/ooq/2000/summer/yawhat.pdf

- Medical aesthetician, www.bls.gov/opub/ooq/2004/spring/yawhat.pdf

- Perfusionist, www.bls.gov/opub/ooq/2002/winter/yawhat.pdf

In addition, many associations provide information. Each of the following associations offers career advice, and most maintain lists of available jobs and scholarships:

American Association of Bioanalysts,
Board of Registry
906 Olive St., Suite 1200
St. Louis, MO 63101
(314) 241-1445
www.aab.org

American Medical Technologists
10700 Higgins Rd., Suite 150
Rosemont, IL 60018
Toll free: 1 (800) 275-1268
www.amt1.com

American Society for Clinical Laboratory
Science
6701 Democracy Blvd., Suite 300
Bethesda, MD 20817
(301) 657-2768
www.ascls.org

American Society for Clinical Pathology
33 West Monroe St., Suite 1600
Chicago, IL 60603
Toll free: 1 (800) 267-2727
www.ascp.org

American Society for Cytopathology
400 West 9th St., Suite 201
Wilmington, DE 19801
(302) 429-8802
www.cytopathology.org

American Statistical Association
732 North Washington St.
Alexandria, VA 22314
Toll free: 1 (888) 231-3473
www.amstat.org

Association of Surgical Technologists
6 West Dry Creek Circle, Suite 200
Littleton, CO 80120
Toll free: 1 (800) 637-7433
www.ast.org

Clinical Laboratory Management Association
989 Old Eagle School Rd., Suite 815
Wayne, PA 19087
(610) 995-2640
www.clma.org



International Biometric Society
1444 I St., NW, Suite 700
Washington, DC 20005
(202) 712-9049
www.tibs.org

Liaison Council on Certification
for the Surgical Technologist
6 West Dry Creek Circle, Suite 100
Littleton, CO 80120
Toll free: 1 (800) 707-0057
www.lcc-st.org

National Credentialing Agency for Laboratory
Personnel
P.O. Box 15945
Lenexa, KS 66285
(913) 895-4613
www.nca-info.org

National Accrediting Agency for Clinical
Laboratory Sciences
8410 W. Bryn Mawr Ave., Suite 670
Chicago, IL 60631
(773) 714-8880
www.naacls.org

