Oncologist

Snapshot

Career Cluster(s): Education & Training; Health Science; Human Services
Earnings (2018 Median): This wage is equal to or greater than $208,000 per year or $100.00 per hour
Employment and Outlook: Faster than average growth

OVERVIEW

Scope of Work

An oncologist is a physician trained in the study, management, or treatment of neoplastic diseases (cancers). Most oncologists are further trained in subspecialties of the profession, which can include surgical oncologists, trained in the removal of solid tumors; radiation oncologists, trained in the use of radiotherapy for treatment of cancers; and oncologists who specialize in the treatment of cancers with chemotherapeutic agents.

Not all neoplastic disease involves solid tumors, and some oncologists often specialize in certain types of cancers. For example, leukemia and lymphomas represent cancers of blood forming cells; oncologists specializing in these areas are generally trained as hematologists. Some oncologists

may specialize in brain tumors, referring patients with other forms of cancers to a different oncologist.

Oncologists may also specialize in the type of patient with which they deal, such as pediatric oncologists, who treat cancer in children or young adults.

EDUCATION AND COURSEWORK

Since an oncologist is trained as a physician, education in the medical field is a requirement. Students begin by earning a bachelor's degree. The undergraduate program should include courses in general biology as well as in both inorganic and organic chemistry, mathematics, and physics. Courses in biochemistry, microbiology, and immunology (while not required) will prove particularly helpful in any future medical school program.

Grades are important for admittance to any professional school, but are not the only determining factor for acceptance. Work experience in the field, as well as faculty or instructor recommendations, play significant roles in acceptance to a medical school. Students should develop as much work experience as possible; this may include serving as a volunteer or carrying out an internship while working with physicians or in medical facilities such as hospitals. As undergraduates, students should also take advantage of any opportunity to work directly with science faculty, including carrying out undergraduate research where available.

A master's degree is unnecessary for acceptance to medical school. Some schools have an MD/PhD program for students who wish to emphasize research rather than a general medical practice, but for the student interested primarily in diagnosis or treatment of cancer—an oncologist—the standard medical program is sufficient. Medical school training usually involves a four-year program, culminating with an internship and residency, preferably providing experience in dealing with cancer patients.

The specialty in oncology requires several years further training beyond medical school, providing practical experience in the field of oncology. In order to be certified as an oncologist by the American Board of Internal Medicine—one of several such boards that oversee the practice of medicine—the physician must pass both written and oral examinations on the subject.

Most oncologists will train in specific areas of oncology, with emphasis in surgery being among the most rigorous of such programs. Surgical oncology requires up to five years of a residency program followed by several years of a fellowship. The field of surgical oncology is overseen by the Society of Surgical Oncology. Other programs include medical oncology, with emphasis on chemotherapeutic treatments, and radiation oncology.

CAREER ENHANCEMENT AND TRAINING

A physician planning on specializing in oncology must first become certified in internal medicine, a process overseen by the American Board of Internal Medicine (ABIM). ABIM certification requires a three-year residency program terminating with an examination. Once the physician is certified in internal medicine an additional fellowship program is required: a two-year training program in oncology followed by an examination. Periodic reexamination is required to maintain certification.

If the physician wishes to specialize in specific areas of oncology—such as radiation or pediatric oncology—additional certification is necessary. Specialization in radiation oncology requires a four-year residency following an internship in internal medicine. Certification is contingent upon passing an examination administered through the American Board of Radiology.

Several professional societies exist, the largest being the American College of Physicians, an umbrella organization that oversees most major medical specialties. The American Society of Clinical Oncology (ASCO) provides updates of relevant information as well as access to

clinical tools. ASCO places a particular emphasis on the physician-patient dynamic, and many of its publications address this area. The American Association for Cancer Research provides access to those interested in the research area rather than that of clinical practice. The society publishes numerous professional journals as well as supporting professional conferences with emphasis on the latest findings on the subject.

DAILY TASKS AND TECHNOLOGY

The first interaction between the cancer patient and a physician may involve either the routine examination consisting of the general physical or results of preliminary tests, or concerns about physical changes such as presence of a lump, physical symptoms, or unusual bruising or bleeding. At this stage the physician is likely a general practitioner rather than a specialist. The physician will likely recommend a biopsy or other further testing, which can include computed tomography (CT) scans or magnetic resonance imaging (MRI) if the tumor is internal.

If tests for cancer are positive, the patient will be referred to a specialist, an oncologist trained in that particular specialty—breast, lung, or colon cancers for example. The oncologist is likely associated with either a private or a university hospital. Once the examination is completed and the type and extent of the cancer is confirmed, the oncologist will determine the best procedures to be followed.

In most situations a team, rather than any single individual, is involved in treating the disease. If the tumor is solid and localized, a surgeon or surgical oncologist will determine the optimal means of removing the tumor.

Following removal of the tumor, the surgical team—which now may include a medical oncologist if chemotherapy is necessary, or radiation oncologist if that is the course to follow—will make further recommendations for additional treatment. Depending upon the site

of the tumor and the likelihood that is has metastasized (spread), the team will recommend either radiation treatment or a course of chemotherapy. Radiation therapy, carried out by a technician trained in the process, will take place in the hospital. The program of chemotherapy, the length of which is dependent upon the type and extent of cancer, may take place in the form of an outpatient. Follow-up examinations and monitoring of patient health will continue until the disease has been resolved; the prognosis is dependent on numerous factors, including the type of cancer, metastasis, and the response of the disease to treatment.

Famous First

Around 400 BCE, Hippocrates is said to have named masses of cancerous cells *karkinos*—Greek for crab. About 47 CE, the Greco-Roman philosopher Aulus Celsus wrote an important encyclopedia of medicine. He named the masses *cancer*, because that's the Latin equivalent of crab. In the 2nd century CE, the Greek physician Galen used *oncos* (Greek for swelling) to describe all tumors, reserving Hippocrates' term *carcinos* for malignant tumors. Galen also used the suffix -*oma* to indicate cancerous lesions. It is from Galen's usage that we derive the modern word oncology.

Source: http://cancerfilms.org/blog/how-cancer-got-its-name/

EARNINGS AND EMPLOYMENT OUTLOOK

Despite misrepresentations of the increasing incidence of cancer—with the exception of those cancers that are smoking-related—most cancers are chronic diseases of older persons. As the population ages, the incidence of certain cancers will also increase. Consequently, oncology as a field and the employment outlook for trained oncologists will continue to be highly positive.

Salary levels will likely increase as well, subject to several interrelated factors. The issue of health and medical care in the United States will likely continue to generate controversy in the upcoming decade, with possible implications related to salaries affected by Medicare and Medicaid programs being part of that equation. Other factors will also have an impact on average salaries. Oncologists working in the private sector—private practice or employment in hospitals associated with universities—will likely continue to earn more than those in the public domain. The location of the practice will also have an effect on salary levels. Oncologists working in larger cities or in states located on the coasts will encounter higher costs of living, with increased salary compensation as a result. Improved technology, however, continues to provide access to medical information even for physicians living in smaller cities or towns, often locations for newer medical facilities. Average salaries in these areas, including the Midwest, where cost of living is lower, will also be lower.

Related Occupations

Hematologist

Hematologists are specialists in diseases of the blood, which can include leukemia and lymphomas.

Pathologist

Pathologists are physicians trained in the diagnosis of diseases, with emphasis on characteristics of cells and tissues.

Radiation Therapist

Radiation therapists, while not necessarily physicians, may specialize in radiation therapy of tumors, working as part of a team in treatment of some forms of cancer.

Oncology Nurse

Trained in a nursing program, oncology nurses address the day-to-day treatment and monitoring of cancer patients.

Geneticist

Geneticists are trained in the study of the underlying genetics of diseases such as cancer, and may also provide counseling or advice in dealing with genetic predisposition to the disease.

Radiochemist

Radiochemists specialize in use of radiotherapy in diagnosis (cancer imaging) or treatment of disease.

Molecular Biologist

Usually a PhD rather than a physician, a molecular biologist may choose to study the underlying causes of cell abnormalities.

Fast Fact

With the proper treatment, the outlook for kids and teens with leukemia is quite good. Most childhood leukemias have very high remission rates, with some up to 90 percent. Remission means that doctors see no cancer cells in the body. Most kids are cured of the disease. This means that they're in permanent remission

Source: kidshealth.org

Conversation With . . .
ALLISON O'NEILL, MD

Clinical Director, Pediatric Solid Tumor Program
Dana-Farber Cancer Institute and Boston Children's Hospital
Boston, Massachusetts
Pediatric Oncologist and Physician-Scientist
15 years

1. What was your individual career path in terms of education/training, entry-level job, or other significant opportunity?

When I enrolled at Yale University in New Haven, CT, as an undergraduate, I had a pretty good sense that I wanted to be a physician. I was enamored by science, but also wanted to take advantage of the rich course offerings at Yale. I double- majored in East Asian studies and Biology, learning to speak Mandarin along the way.

After college I went to Albert Einstein School of Medicine in New York City. During my hospital rotation late in medical school I spent time on a small pediatric ward. The children and teenagers had a variety of diagnoses, but it was the opposition of patients with common pediatric conditions and life-threatening cancer that caught my attention

I will never forget how stoic, mature and resilient the cancer patients were. One 15-year-old girl in particular impressed me with her courage. I felt this was a population I could learn from.

After my four years of medical school was complete, I became a resident in the pediatrics program for three years. Following my residency, I applied for and received a three-year fellowship in hematology/oncology through a joint program at Dana-Farber Cancer Institute and Boston Children's Hospital.

I am board certified in both general pediatrics and in hematology/oncology. All M.D.s also must pass these licensing exams in the state where they practice.

I recognized very early that I was interested in caring for patients with solid tumors and doing research in this area. While leukemia is a cancer of the blood, solid tumors arise from solid organs in the body as well as connective tissues (muscle, fat etc). in the body including the muscles, fat and connection between the tissues.

My particular specialty, within solid tumors, is in the care of patients with liver tumors, such as hepatoblastoma and hepatocellular carcinomas that are rare in children and require a lot more study.

As part of my job, I have dedicated time to expand the liver tumor program at Dana-Farber and Boston Children's Hospital.

My research time is focused on developing therapeutic antibodies and clinical trials for children. In addition, I see patients in the clinic one day a week and am available throughout the week for consultation on their cases.

2. What are the most important skills and/or qualities for someone in your profession?

Attention to detail. Intellectual curiosity. Learning never stops. It's important to be a good listener and a very good communicator. You need to inspire trust and establish a bond with the family as well as your young patient.

3. What do you wish you had known going into this profession?

I had a pretty good idea this field would be rigorous. You don't appreciate how rigorous it is until you're doing it. It's a personal commitment in terms of time, energy and work hours. But it's where I belong.

4. Are there many job opportunities in your profession? In what specific areas?

We're slowly and gradually doing a better job of caring for pediatric cancer patients. The goal is to cure kids. There are jobs in their field in a variety of areas: doctors, nurses, clinical research coordinators and social workers, to name a few.

5. How do you see your profession changing in the next five years? How will technology impact that change, and what skills will be required?

So much has changed in the past few decades, thanks to research into the genetic traits of tumors and chromosomal abnormalities. Individually targeted treatments have made a big difference in survivorship. In the future there's going to be a lot more focus on diminishing the toxic side effects of treatment, so people can live longer and healthier lives.

6. What do you enjoy most about your job? What do you enjoy least about your job?

What I like best is interacting with children and establishing meaningful relationships with families. I stay in touch with the families of children who have passed away and who have lived and gone on to graduate from high school or college. It's incredible I get to be part of that.

There's a tremendous amount of administrative work. It's important—everybody who cares for the patient needs to be able to read the clinical notes. But it translates to a lot of time-consuming paperwork.

7. Can you suggest a valuable "try this" for students considering a career in your profession?

Shadow a physician in the hospital or a physician scientist in the lab. Just be aware that visiting a pediatric oncology unit can be very intense. They will see patients around their own age who are very sick. High school career or internship programs may allow them to establish a mentorship with people who are in the field.

MORE INFORMATION

American Association for Cancer Research
615 Chestnut Street, 17th Floor,
Philadelphia, PA 19106-4404
http://www.aacr.org/

American Board of Internal Medicine
10 Walnut Street, Suite 1700,
Philadelphia, PA 19106
http://www.abim.org/

American Board of Radiology
5441 E. Williams Circle
Tucson, AZ 85711-7412
http://www.theabr.org/

American Society of Clinical Oncology
2318 Mill Road, Suite 800
Alexandria, VA 22314
http://www.asco.org/

Society of Surgical Oncology
85 W. Algonquin Road, Suite 550
Arlington Heights, IL 60005
http://www.surgonc.org/