

# Healthcare

Role	What do you do?	Qualifications needed
<p><b>A&amp;E Consultant</b></p>	<p>A&amp;E consultants are highly-qualified doctors who oversee the care of emergency patients. This may involve anything from minor cuts to major road traffic accidents, or critical illnesses such as stroke or cardiac arrest while many healthcare professionals are involved in caring for each individual patient, the A&amp;E consultant takes a lead role, ensuring that the right team, equipment and medication is prepared to respond to the needs of each patient.</p>	<p>Qualifying as an A&amp;E consultant is a relatively long process. After studying science A-levels at school (particularly Biology and Chemistry), the next step is a basic medical degree (the MBBS). This is followed by a two-year foundation programme to consolidate what you have learned at medical school, followed by another six-year programme in emergency medicine.</p>
<p><b>A&amp;E Nurse</b></p>	<p>A&amp;E nurses work in emergency departments in hospitals and are often the first point of contact for patients after they enter the hospital setting. Generally an A&amp;E nurse's first task is to assess the patient by talking to them about what happened and taking their vital signs such as blood pressure and temperature. Once the nurse has established what is wrong, they can make sure the patient is directed to the right place to get the best possible care. Throughout the patient's stay in the emergency department, the nurse will care for them.</p>	<p>To become a nurse you need to study a nursing degree, which could either be a three-year undergraduate nursing course (BSc) or a two-year Postgraduate Diploma (PGDip) after your first degree, followed by a dissertation. There are many different specialisms you can study, such as Adult Nursing, Child Nursing and Mental Health Nursing. Most courses, such as the ones offered by King's College London, will include a strong element of practice where you will gain first-hand experience of working with patients.</p>
<p><b>Dentist</b></p>	<p>Dentists diagnose and treat problems affecting the mouth and teeth. They work to prevent oral disease, promote oral health and restore tooth function in community, practice or hospital settings. From fillings and cosmetic crowns to saving or replacing teeth (and smiles) after traumatic injury life as a dentist combines the intellectual challenge of diagnostics and the technical challenges of surgery.</p>	<p>After studying science subjects at school, including Biology and Chemistry you should study for a Dentistry BDS. Dentistry is a caring profession and you may have to reassure nervous patients or treat small children, so the ability to empathise and build rapport, a calm, friendly manner and good communication skills are essential.</p>
<p><b>Dietician</b></p>	<p>Dietitians work alongside other healthcare professionals in a wide range of different settings, including hospitals, community settings, schools or policy advisory positions. In all their roles, they aim to improve people's health through assessing, modifying and monitoring their diet.</p>	<p>There are two main ways to qualify as a dietitian. After studying biology and chemistry at school - or in an Access or Foundation course at college - you can study a four-year university degree (Nutrition and Dietetics BSc). Alternatively, if you already have an undergraduate degree in a science discipline involving biochemistry, physiology or nutrition, you can study a postgraduate diploma or master's degree (Dietetics MSc, PG Dip).</p>
<p><b>Mental health nurse</b></p>	<p>Mental health nurses provide care and treatment to people with mental health conditions. This usually means working in the community, although they may also work in hospitals, schools, prisons and even the workplace.</p>	<p>If you are interested in becoming a mental health nurse, it helps if you have studied some biology and/or psychology at A-level, although this is not always essential. You will later need to study a degree in Mental Health Nursing, which could either be a three-year undergraduate nursing course (BSc) or a two-year Postgraduate Diploma (PGDip) after a first degree, followed by a dissertation.</p>



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Image credit: www.washingtonpost.com

# Healthcare



Image credit: Reader's Digest

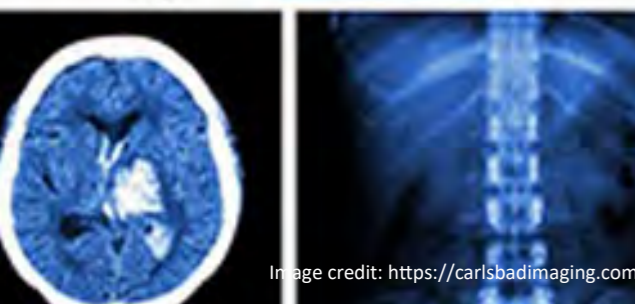


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<p><b>Pharmacist</b></p>	<p>The pharmacist's role is centred around providing safe medications to patients. This can take place in many sectors of healthcare: in hospital or in the community, but also in academia and in industry. Wherever they work, pharmacists are experts in medicine and use this to improve patients' lives.</p>	<p>If you would like to work as a pharmacist, first you need good A-level grades in maths and science, particularly chemistry. You then need to enter into a four- year undergraduate Master of Pharmacy programme (MPharm). After this degree programme you would need to do one year of pre-registration training.</p>
<p><b>Paramedic</b></p>	<p>Paramedics are often the first point of contact for anyone suffering from a medical emergency. While most of us are familiar with the image of paramedics working in the Ambulance Service, today's paramedics may also work in in a control room or telephone contact centre for 111 or 999, as part of a helicopter crew or even in a GP practice or a minor injuries unit. Paramedics also work in the British Military Forces, both as reservists and full-time.</p>	<p>To become a paramedic you will need to go to university to get either a foundation degree, a BSc or BSc Honours degree in Paramedic Science or Paramedic Practice. It is worth noting that the entry point to the paramedic profession is likely to be moved to BSc Honours level from 2020.</p>
<p><b>Physiotherapist</b></p>	<p>Physiotherapists work with patients to assist with a range of physical problems caused by issues such as ageing, disability, illness or injury. Taking a holistic approach and using techniques such as physical exercise, manual therapy and electrotherapy, physiotherapists aim to help patients restore movement and function required for an optimised quality of life.</p> <p>Alongside treatment of physical issues, physiotherapists also promote general good health and wellbeing, advising people on how to avoid injury and manage existing physical disabilities.</p>	<p>To become a qualified physiotherapist in the UK, you will need to study an approved university degree (BSc) in Physiotherapy at undergraduate level, which will enable you to become a qualified physiotherapist in the UK. Alternatively, if you've already completed an undergraduate degree in a relevant subject (such as biomedical science, psychology or sports science) you can study a two-year accelerated MSc course in physiotherapy, as an alternative route into the profession.</p>
<p><b>Radiologists and radiographers</b></p>	<p>Radiologists (qualified doctors) and radiographers (medical technologists) use imaging technology to diagnose, treat and monitor diseases and injuries and also helps to monitor the progress of patients undergoing treatment more effectively.</p> <p>Some of the better known types of technology used in hospitals include x-rays, computed tomography (CT) and magnetic resonance imaging (MRI).</p>	<p>To practice as a radiographer, you must complete an approved degree in diagnostic radiography. Degree courses take three or four years, full time or up to six years part means that you could do a different degree first!</p> <p>Courses cover anatomy, physiology and physics as well sociology, management, ethics and the practice and science of imaging. They all involve a lot of practical work with patients.</p>
<p><b>Speech and language therapist</b></p>	<p>The role of speech and language therapist (SLT) involves working with people — from babies to children, teenagers and adults — who have difficulties with communication, eating, drinking or swallowing.</p> <p>SLTs also work in many specialist areas, such as supporting people who stammer or have voice disorders, hearing impairments or neurological conditions)</p>	<p>You'll need to complete a degree in speech and language therapy. Undergraduate and Postgraduate Degree courses are offered at a variety of universities in the UK, although the exact name of the degree differs from one institution to another. You can find a list of these degree courses on the Royal College of Speech and Language Therapists website. If you did a postgraduate degree, you could do a different degree first!</p>

# Healthcare researcher careers

It isn't only practitioners who have a central role to play in healthcare; scientists and researchers are also critical elements of the health service. Through their research, patient care is improved. For instance, these 6 disciplines all have a direct impact on patient care, and you could study all of them as a course at university!

## 1. Biochemistry

Biochemistry is the science that allows us to understand what each of the components of a cell do, and how they communicate with each other. Essentially, it is the chemistry of biology. Many biochemists investigate the changes that take place in the body in the case of illnesses and medical conditions. For example, Professor Annalisa Pastore at King's College London and her team are carrying out research into Friedrich's Ataxia, a degenerative genetic disease that affects co-ordination, balance and speech. Her team has identified the mechanism that triages this disease by solving the structure of the gene product responsible for this illness. By developing an understanding of what causes illnesses such as Friedrich's Ataxia, Biochemists gain essential knowledge to help prevent, treat and ultimately cure these conditions.

## 2. Biomedical Engineering

Biomedical engineering is the application of classical engineering to solve healthcare problems. This involves using engineering techniques to develop new technologies to help with patient recovery and create specific treatments for individuals.

Some of the fascinating technologies developed by biomedical engineers include advances in robotics which can be used in the rehabilitation of patients with motor defects, including conditions such as stroke and cerebral palsy.



Image credit: www.engineersireland.ie

Exoskeletons, similar to those used in recent movies like Elysium, are used to provide patients with the additional power they need to carry out daily activities, such as walking, contributing to their rehabilitation process.

These and other new technologies are helping patients to build their strength on the road to recovery, as well as providing medical professionals with the equipment they need to deliver effective and efficient care.

## 3. Chemistry

Chemistry is the science of how molecules interact and react with each other. Chemists study the structure of molecules to understand and predict their chemical behaviour including the forces that bond them together.

Many chemists use their understanding of the properties of molecules to develop new drug molecules, for example, or to design new materials using nanoparticles and biopolymers. Chemists also create new detection methods *lot* use in medical diagnostics to identify disease markers or in environmental sciences to quantify atmospheric pollutants.

For example, Dr Sarah Barry and her team use their understanding of chemistry to investigate how bacteria synthesise complex molecules. Many of these naturally-produced molecules are in fact clinically-used antibiotics. Understanding how these molecules are made by bacteria will enable the development of new antibiotics to treat antibiotic resistant infections.

## 4. Molecular Genetics

Molecular genetics is the study of the processes whereby biological information is stored, copied, repaired and decoded to create protein and other molecules within cells and tissues.

This influential area of bioscience contributes significantly to expanding our understanding of biology and allows us to develop bespoke diagnosis, treatment and disease prevention for each patient based on their own genetic make-up.

Researchers in this area investigate how the genome and genes function at a molecular level. Some key areas of research include:

- the genetics of disease
- clinical application genetic diagnosis
- gene therapy
- genetic engineering
- Bioinformatics
- genomics.

## 5. Neuroscience

Neuroscience is fundamentally the science of understanding the brain and central nervous system of animals and humans. Our brains enable us to memorise things, endow us with emotions, intelligence and the ability to speak. As a neuroscientist, you can help discover exactly how this happens.

By looking at how single cells in the nervous system of a person or animal interact and signal to one another, neuroscientists can develop a greater understanding of what happens in the brain of patients suffering from neuro-psychiatric disorders such as autism, schizophrenia and depression.

This knowledge enables neuroscientists to make ground-breaking contributions to research helping to prevent these and other illnesses as well as to develop treatments for patients suffering from these debilitating conditions.

## 6. Pharmacology

Pharmacology is the study of the development of drugs for use in healthcare. For example, as a pharmacologist you would test a drug to see whether it was safe and effective in Petri dishes and in animals prior to evaluation in humans, to see whether the drug hits its target in the heart, brain or liver.

Many people confuse pharmacology with pharmacy, which involves the formulation of drugs into pills or liquids to be used by patients. Pharmacology is the step before that, including the initial design and evaluation of those drugs.

Whether working in an academic or industry environment, pharmacologists are involved in developing effective medication for every type of illness and injury.

