

Real-life story - Jessica Johnson

Jessica wanted a career where she could use her love of physics to make a difference to people's lives. She found that career in medical physics.

Jessica Johnson

Clinical Scientist (Medical Physics: Imaging with Ionising Radiation)

Employer or university

Cambridge University Hospitals NHS Foundation Trust

Salary range

£25k-£35k

clinical scientist headshot

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How I got into the role

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I'd always been interested in healthcare but I didn't want to be a doctor. I had worked with children with special needs while at school and wanted a career where I could work with people. I wanted to use my love of physics to make a genuine difference to people's lives.

During my physics degree, a lecture on medical imaging really opened my eyes to the world of medical physics. After completing my degree, I studied for a masters in Medical Physics and Biomedical Engineering. I also had two part-time jobs to fund it!

After completing my Master's degree, I applied to the NHS Scientist Training Programme (STP) ^[1] and was lucky enough to be selected. In my second year of my training I chose to specialise in imaging with ionising radiation ^[2], and in particular, nuclear medicine. It offered the patient contact, which I absolutely love, alongside some challenging but exciting physics and research. I've now qualified as a registered Clinical Scientist.

What I do

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Nuclear medicine uses radioactive drugs for a wide range of medical conditions, including cancers, renal failure, or heart disease. Our radioactive tracers are usually injected into patients, but some are inhaled, drank or swallowed in capsule form. As part of my job I will check patient tests, fix any equipment problems and administer therapies.

I also ensure that work practices using radioactive materials are safe for staff, patients and their loved ones. This is especially true when handling large quantities of radiation for therapy work. The types of work I do involving patient therapies are varied. One day I might be spending three hours in an angiography theatre, surrounded by surgeons and nurses, and the next it could be something as simple as giving a patient a single pill to treat their condition.

I make time to read journals and publications to keep up-to-date with new techniques or research. I also routinely run quality control tests on our scanners to ensure that they are working to particular standards for patient imaging.

As part of my training, I completed a second Master's including a project looking into imaging of patients with metal hip implants. As part of this, I came up with my own simulation for me to use in the scanner. It was a plastic container filled with a radioactive solution.

At the end of a day on duty, I visit my therapy patients on the ward, take some measurements to check their radioactivity levels while keeping my fingers crossed there are no emergencies! I can on occasion be called to respond to an emergency, like an overflowing radioactive drain, or to clean up radioactive contamination in a room or a person. When a person has suspected or is known to have radioactive contamination on them, they will be monitored, decontaminated and possibly scanned on our whole body counter. This is a great piece of equipment, constructed from parts of an old warship. We like to recycle!

The best bits and challenges

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One of the best bits about my job is working with and helping patients. The day I got signed off to administer my first therapy without supervision is still one of the proudest moments of my career. It is especially satisfying when patients thank you for the care they have received. It makes it all worthwhile.

One of the challenges is getting the word out about medical physics. We are doing something about it though. I am involved with the Institute of Physics and Engineering in Medicine (IPEM) ^[3] which gives me the chance to speak at national conferences and to organise events myself. I have also represented medical physics at events at the Science Museum and the House of Lords. These have been brilliant and very inspiring.

Top tips for others

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If I had to sum up the skills and attributes needed for medical physics in three words, it would be personable, pragmatic and organised. You'll need all of these for a career in medical physics. You also have to think outside of the box.

Most days are pretty hectic so you need to be prepared to be pulled in different directions. Don't expect to be sat at your desk all day. Overall, if you find science and research rewarding while applying your knowledge to improve (or save) patients' lives, then this could be the career for you.

Life outside work

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For several years I was a coxswain at my university boat club, which certainly developed my communication skills and harnessed my drive to succeed. Training at 6am up to six times a week definitely required some commitment, which is now very important to my job. It also required me to think on my feet and problem solve.

I generally manage to maintain a good work-life balance, especially as my training allowed me to meet lots of friendly people while doing my Master's degree who I'm still in touch with now.

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[1] <https://www.healthcareers.nhs.uk/i-am/considering-or-university/not-studying-health-related-degree/nhs-scientist-training-programme> [2] <https://www.healthcareers.nhs.uk/explore-roles/physical-sciences-and-biomedical-engineering/imaging-ionising> [3] <https://www.ipem.ac.uk/>