

## Medical engineering

Medical engineering refers to the process of checking medical equipment to make sure it's working properly and is safe to use.

Hospitals use an increasingly wide range of medical equipment in order to deliver healthcare services. This ranges from simple devices such as nebulisers to deliver treatment for [respiratory](#) <sup>[1]</sup> patients through to sophisticated [radiotherapy](#) <sup>[2]</sup> linear accelerators for cancer treatments and other cutting-edge technologies.

*"Patients are always your top priority so you need to be willing to help others. It shows that you are caring and compassionate." Aqab Hussain, dental engineer*

[Read Aqab's story](#) <sup>[3]</sup>



# Working life

All medical equipment needs to be checked to ensure it is working correctly and safe for patients and it is the role of healthcare science staff working in medical engineering to do this.



It isn't just safety checks and maintenance, though. In medical engineering, you'd also get involved with the entire equipment lifecycle, including:

- acceptance testing of new equipment
- introducing equipment and devices into service
- advising on the correct use of equipment
- addressing patient safety issues
- safely disposing of old devices

Medical engineering is a really exciting and varied role where you'll use your expertise in electronic or mechanical engineering to undertake these activities and perhaps become involved in modifying or constructing equipment as well.

As a practitioner you'll be undertaking a hands-on role with medical devices, working with a wide range of equipment commonly encountered in the hospital environment. You might specialise in certain types of equipment such as that used in renal or [radiotherapy](#) <sup>[2]</sup> treatment, for example.

As a clinical scientist you can specialise in medical device risk management and governance <sup>[4]</sup> where the role will be more focused on the effective management of equipment, for example ensuring equipment is replaced in a timely fashion and that risks associated with the use of equipment are minimised. Both roles complement each other and collectively contribute to patient health and wellbeing.

It isn't just safety checks and maintenance.

"Every day, I carry out different, challenging tasks. It involves everything from repairs, servicing, fault finding, electrical safety testing on dental chairs and hospital appliances."

Read Aqab's story in full. <sup>[5]</sup>

## Who will I work with?

Clinicians increasingly rely on the skills of healthcare science staff in medical engineering and so you will regularly liaise with other scientists <sup>[6]</sup>, nurses <sup>[7]</sup>, doctors and healthcare professionals as part of a multi-disciplinary team, all working for the benefit of the patient.

## Want to learn more?

- Find out more about the entry requirements, skills and interests required to enter a career in medical engineering <sup>[8]</sup>
- Find out more about the training you'll receive for a career in medical engineering <sup>[9]</sup>

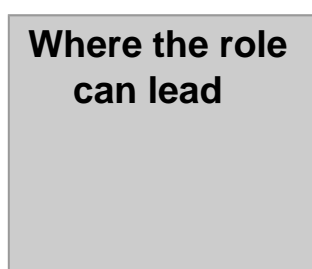
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Most jobs in the NHS are covered by the Agenda for Change (AfC) <sup>[10]</sup> pay scales. This pay system covers all staff except doctors, dentists and the most senior managers. As a healthcare science practitioner, you'd usually start on band 5, with opportunities to progress to more senior positions. Trainee clinical scientists train at band 6 level, and qualified clinical scientists are generally appointed at band 7. With experience and further qualifications, including Higher Specialist Scientist Training <sup>[11]</sup>, you could apply for posts up to band 9.

Staff will usually work a standard 37.5 hours per week. They may work a shift pattern. Terms and conditions of service can vary for employers outside the NHS.

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## Expand / collapse

With further training or experience or both, you may be able to develop your career further and apply for vacancies in areas such as further specialisation, management, research, or teaching.

Healthcare science staff often work at the forefront of research and innovation, so that patients are continually receiving the very best healthcare. For example, in medical engineering, healthcare science staff are developing new breast screening technology which could be safer than traditional mammogram x-rays.

## Job market and vacancies

### Expand / collapse

### Job market

In November 2018, there were 6,123 clinical scientists registered with the Health and Care Professions Council <sup>[12]</sup>.

The NHS Scientist Training Programme (STP) <sup>[13]</sup> and Higher Specialist Scientist Training (HSST) <sup>[11]</sup> attract many more applicants than there are places and so there is considerable competition for places.

### Finding and applying for jobs

When you're looking for job or apprenticeship vacancies, there are a number of sources you can use, depending on the type of work you're seeking.

Check vacancies carefully to be sure you can meet the requirements of the person specification before applying and to find out what the application process is. You may need to apply online or send a CV for example.

For the STP <sup>[13]</sup> and HSST <sup>[11]</sup>, there is an annual recruitment cycle. Applications usually open in early January for the intake in the following autumn, and should be made through the National School of Healthcare Science's website <sup>[14]</sup>, where you can also find information about the programmes and the recruitment process.

Key sources relevant to vacancies in the health sector:

- vacancies in organisations delivering NHS healthcare can be found on the NHS Jobs website

- [15]
- opportunities in the Civil Service can be found on the Civil Service Jobs website [16]
- vacancies in local government can be found on the Local Government Jobs website [17] and the Jobs Go Public website [18]
- vacancies for apprenticeships and traineeships appear on the Gov.uk website [19]

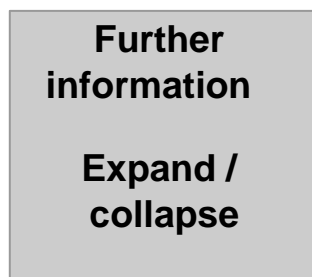
As well as these sources, you may find suitable vacancies in the health sector by contacting local employers directly, searching in local newspapers and by using the Universal Jobmatch tool [20].

Find out more about applications and interviews [21].

Volunteering is an excellent way of gaining experience (especially if you don't have enough for a specific paid job you're interested in) and also of seeing whether you're suited to a particular type of work. It's also a great way to boost your confidence and you can give something back to the community.

Find out more about volunteering and gaining experience [22].

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For further information about a career in medical engineering, please contact:

- Academy for Healthcare Science [23]
- Health and Care Professions Council [24]
- Institution of Physics and Engineering in Medicine [25]
- National School of Healthcare Science [14]
- UCAS [26]

## Other roles that may interest you

- Clinical or medical technology in medical physics [27]
- Medical device risk management and governance [28]
- Health records staff [29]
- Audiology [30]

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**Source URL:** <https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/physical-sciences-and-biomedical-engineering/medical-engineering>

### Links

[1] <https://www.healthcareers.nhs.uk/glossary#Respiratory>

[2] <https://www.healthcareers.nhs.uk/glossary#Radiotherapy>

[3] <https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/physical->

sciences-and-biomedical-engineering/medical-engineering/real-life-story-aqab  
[4] <https://www.healthcareers.nhs.uk/explore-roles/physical-sciences-and-biomechanical-engineering/medical-device-risk-management>  
[5] <https://www.healthcareers.nhs.uk/explore-roles/physical-sciences-and-biomechanical-engineering/medical-engineering/real-life-story-aqab-hussain>  
[6] <https://www.healthcareers.nhs.uk/explore-roles/physical-sciences-and-biomedical-engineering>  
[7] <https://www.healthcareers.nhs.uk/explore-roles/nursing>  
[8] <https://www.healthcareers.nhs.uk/explore-roles/physical-sciences-and-biomechanical-engineering/medical-engineering/entry-requirements>  
[9] <https://www.healthcareers.nhs.uk/explore-roles/physical-sciences-and-biomechanical-engineering/medical-engineering/training>  
[10] <https://www.healthcareers.nhs.uk/about/careers-nhs/nhs-pay-and-benefits/agenda-change-pay-rates>  
[11] <https://www.healthcareers.nhs.uk/i-am/working-health/nhs-higher-specialist-scientific-training>  
[12] <http://www.hcpc-uk.org>  
[13] <https://www.healthcareers.nhs.uk/i-am/considering-or-university/not-studying-health-related-degree/nhs-scientist-training-programme>  
[14] <http://www.nshcs.hee.nhs.uk/>  
[15] <http://www.jobs.nhs.uk>  
[16] <https://www.civilservicejobs.service.gov.uk/csr/index.cgi>  
[17] <http://www.lgjobs.com/>  
[18] <http://www.jobsgopublic.com/>  
[19] <https://www.gov.uk/apply-apprenticeship>  
[20] <https://www.gov.uk/jobsearch>  
[21] <https://www.healthcareers.nhs.uk/career-planning/offering-career-support/training-and-teaching-resources-young-people/application>  
[22] <https://www.healthcareers.nhs.uk/i-am/secondary-school-or-fe-college/gaining-experience>  
[23] <http://www.ahcs.ac.uk>  
[24] <http://www.hcpc-uk.org/>  
[25] <http://www.ipem.ac.uk/>  
[26] <http://www.ucas.com>  
[27] <https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/physical-sciences-and-biomedical-engineering/clinical-or-medical-technology-medical-physics>  
[28] <https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/physical-sciences-and-biomedical-engineering/medical-device-risk-management-and-governance>  
[29] <https://www.healthcareers.nhs.uk/explore-roles/wider-healthcare-team/roles-wider-healthcare-team/health-records-staff>  
[30] <https://www.healthcareers.nhs.uk/explore-roles/physiological-sciences/audiology>