

Critical care science

Critical care science is about caring for patients who are critically ill.

As a healthcare scientist specialising in critical care, you have an expert knowledge of [physiology](#) ^[1] and technology and the role they play in critical care.



You'll be responsible for a range of life support monitoring and therapeutic systems

Working life

As a healthcare scientist specialising in critical care, you'll work as part of a multi-professional team delivering care to critically ill patients.

You'll provide scientific expertise across several areas and be responsible for a range of life

support monitoring and therapeutic systems. To do this, you'll need specialist knowledge and understanding of relevant and up-to-date clinical, scientific and technical principles and practice and their application to broad areas of patient care (including complex and often non-routine intervention).

You'll perform a number of key roles, such as:

- undertaking complex scientific and clinical roles, including those working directly with patients
- providing advice to medical, nursing and other staff working in a critical care setting about the safe and effective use of critical care technologies (spanning monitoring and supporting critically ill patients, diagnostic and therapeutic techniques)
- providing a first-line maintenance and troubleshooting service supporting the critical care team at the bedside with respect to all aspects of medical technology within the relevant areas, including:
 - ventilators
 - renal replacement therapy equipment
 - physiological measurement monitors etc
- establishing and managing satellite laboratories and point-of-care testing, covering areas such as blood gases, co-oximetry, electrolytes, metabolites, and haematology including coagulation profiles
- setting up and providing a renal replacement therapy service within the critical care areas, including setting up equipment and contributing to patient care programs
- providing software and hardware support for electronic patient databases in critical care; areas providing scientific support for the transfer and transport of critically ill and anaesthetised patients.

You're also likely to be involved in:

- the [quality assurance](#) [2] of diagnostic and therapeutic techniques and technologies including decontamination systems
- providing on-call services as a lone worker requiring autonomous working, including emergency call-outs to any critical care area, supporting patients on life support systems, and troubleshooting equipment essential to the safe running of each area
- the planning, delivery and evaluation of teaching, learning and assessment in areas of practice for staff working in a critical care environment and the wider health setting
- analysing and reviewing scientific, technical and medical literature
- clinically evaluating new critical care technologies and managing their introduction into clinical use.

Who will I work with?

You will work as part of a team that includes doctors specialising in intensive care medicine [3], nurses [4], medical engineers [5] and healthcare science staff working in renal technology [6].

Want to learn more?

- Find out more about the entry requirements, skills and interests required to enter a career in critical care science [7]
- Find out more about the training you'll receive for a career in critical care science [8]

- ## Pay and conditions

Most jobs in the NHS are covered by the Agenda for Change (AfC) ^[9] pay scales. This pay system covers all staff except doctors, dentists and the most senior managers. Trainee clinical scientists train at band 6 level, and qualified clinical scientists are generally appointed at band 7. With experience and further qualifications, 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.

- ## Where the role can lead

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 critical care science, you might be involved in evaluating the use of [ultrasound](#) ^[10] in the diagnosis and treatment of lung conditions.

- ## Job market and vacancies

Job market

In November 2018, there were 6,123 clinical scientists registered with the Health and Care Professions Council ^[11].

The NHS Scientist Training Programme (STP) ^[12] attracts many more applicants than there are places and so there is considerable competition for places.

Finding and applying for jobs

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 ^[12] 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 ^[13], where you can also find information about the programme and the recruitment process.

Once qualified, vacancies in organisations delivering NHS healthcare can be found on the NHS Jobs website ^[14]

You may also find suitable vacancies in the health sector by contacting local employers directly and searching in local newspapers.

Find out more about applications and interviews ^[15].

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 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 ^[16].

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Further information

For further information about a career in critical care science, please contact:

- Academy for Healthcare Science ^[17]
- Health and Care Professions Council ^[18]
- National School of Healthcare Science ^[13]
- Society of Critical Care Technologists ^[19]

Other roles that may interest you

- Emergency medicine ^[20]
- Operating department practitioner ^[21]
- Clinical bioinformatics health informatics ^[22]
- Cellular sciences ^[23]

Source URL: <https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/physiological-sciences/critical-care-science>

Links

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

[2] https://www.healthcareers.nhs.uk/glossary#Quality_assurance

[3] <https://www.healthcareers.nhs.uk/explore-roles/intensive-care-medicine>
[4] <https://www.healthcareers.nhs.uk/explore-roles/nursing> [5] <https://www.healthcareers.nhs.uk/explore-roles/physical-sciences-and-biomechanical-engineering/medical-engineering>
[6] <https://www.healthcareers.nhs.uk/explore-roles/physical-sciences-and-biomechanical-engineering/renal-technology> [7] <https://www.healthcareers.nhs.uk/explore-roles/physiological-sciences/critical-care-science/entry-requirements-skills-and-interests>
[8] <https://www.healthcareers.nhs.uk/explore-roles/physiological-sciences/critical-care-science/training-development-and-registration> [9] <https://www.healthcareers.nhs.uk/about/careers-nhs/nhs-pay-and-benefits/agenda-change-pay-rates> [10] <https://www.healthcareers.nhs.uk/glossary#Ultrasound>
[11] <http://www.hcpc-uk.org> [12] <https://www.healthcareers.nhs.uk/i-am/considering-or-university/not-studying-health-related-degree/nhs-scientist-training-programme> [13] <http://www.nshcs.hee.nhs.uk/>
[14] <http://www.jobs.nhs.uk> [15] <https://www.healthcareers.nhs.uk/career-planning/planning-your-career/applications-and-interviews> [16] <https://www.healthcareers.nhs.uk/i-am/secondary-school-or-fe-college/gaining-experience> [17] <http://www.ahcs.ac.uk> [18] <http://www.hcpc-uk.org/>
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[22] <https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/clinical-bioinformatics/clinical-bioinformatics-health-informatics> [23] <https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/life-sciences/cellular-sciences>