

How to get involved in research as a medical student

Participating in research gives students great skills and opportunities. **Anna Taylor** and **Sarah Purdy** explain how to get started

Students often go into medicine because of a desire to help others and improve patients' physical and mental wellbeing. In the early years of medical school, however, it can seem as if you are not making much difference to patient care. Involvement in research can provide exciting opportunities to work as part of a team, improve career prospects, and most importantly add to the evidence base, leading to better outcomes for patients.

Research is usually multidisciplinary, including clinical academics (medical doctors who spend part of their working life doing research), nurses, patients, scientists, and researchers without a medical background. Involvement in such a team can improve your communication skills and expand your understanding of how a multidisciplinary team works.

Participating in research can also help you to develop skills in writing and critical appraisal through the process of publishing your work. You may be able to present your work at conferences—either as a poster or an oral presentation—and this can provide valuable points for job applications at both foundation programme and core training level. This is particularly important if you are considering a career in academia. You will also develop skills in time management, problem solving, and record keeping. You might discover an area of medicine in which you are keen to carry out

further work. For some people, getting involved in research as a medical student can be the first step in an academic career.

Kyla Thomas, National Institute for Health Research clinical lecturer in public health at the University of Bristol, says: “My first baby steps into a clinical academic career started with a research project I completed as a medical student. That early involvement in research opened my eyes to a whole new world of opportunities that I never would have considered.

“Importantly, participating in undergraduate research sets students apart from their colleagues. Applying for foundation posts is a competitive process and it is a definite advantage if you have managed to obtain a peer reviewed publication.”

Getting involved with research projects

Although it is possible to do research at medical school, it is important to be realistic about how much free time you have. It might be possible to set up your own research project, but this will require substantial planning in terms of writing research protocols, gaining ethical approval, and learning about new research methodologies. Other opportunities for research that make less demands on your time include:

- Intercalated degrees—these often have time set aside for research in a specific area, so it is important to choose your degree





Box 1: Questions to ask yourself before starting research

What are you interested in? There is no point getting involved in a project area that you find boring.

How much time do you have available? It is crucial to think about this before committing to a project, so that your supervisor can give you an appropriate role.

What do you want to get out of your research experience? Do you want a brief insight into research? Or are you hoping for a publication or presentation?

Do you know any peers or senior medical students who are involved in research? Ask them about their experiences and whether they know of anyone who might be willing to include you in a project.

Box 2: Research output

Publication—This is the “gold standard” of output and usually consists of an article published in a PubMed ID journal. This can lead to your work being cited by another researcher for their paper, and you can get up to two extra points on foundation programme applications if you have published papers with a PubMed ID.

Not all research will get published, but there are other ways to show your work, such as presenting at conferences:

Oral presentation—This involves giving a short talk about your research, describing the background, methods, and results, then talking about the implications of your findings.

Poster presentation—This involves creating a poster, usually A1 or A2 in size, summarising the background, methods, and results of your research. At a conference, presenters stand by their poster and answer questions from other delegates.

Electives and summer holidays can provide dedicated time for research, either within the United Kingdom or in another country

according to what you might like to do for your dissertation (for example, laboratory-based work in biochemistry, or qualitative research in global health. Some subjects may have options in both qualitative and quantitative research).

- Student selected components or modules can provide a good opportunity to be involved in an ongoing study or research project. If you have a long project period, you might be able to develop your own small project.

- Electives and summer holidays can also provide dedicated time for research, either within the United Kingdom or in another country. They can allow you to become established in a research group if you're there for a few weeks, and can lead to a longstanding relationship with the research group if you work with them over your medical school career.

If you don't know what to do, contacting the Student Audit and Research in Surgery (STARSurge),¹ the National Student Association of Medical Research (NSAMR),² or your medical school's research society may be a good place to start. The INSPIRE initiative,³ coordinated by the Academy of Medical Sciences, gives support and grants to help students take part in research. Some UK medical schools have small grants for elective and summer projects, and organise taster days for students to get an idea of different research areas.

You may be able to access other grants or awards to support your research. Some royal colleges, such as the Royal College of General Practitioners and the Royal College of Psychiatrists, offer bursaries to students doing research in their holidays or presenting at conferences. Other national organisations, such as the Medical Women's Federation, offer bursaries for elective projects.

Box 3: What can students offer research teams?—Views from researchers



“Medical students come to research with a ‘fresh eyes’ perspective and a questioning mindset regarding the realities of clinical practice which, as a non-medic myself, serves to remind me of the contextual challenges of implementing recommendations from our work.”

Alison Gregory, senior research associate, Centre for Academic Primary Care, University of Bristol, UK.



“Enthusiasm, intelligence, and a willingness to learn new skills to solve challenges—bring those attributes and you’ll be valuable to most research teams.”

Tony Pickering, consultant anaesthetist and Wellcome Trust senior research fellow, University of Bristol, UK.

Box 4: Different types of research

Research aims to achieve new insights into disease, investigations, and treatment, using methodologies such as the ones listed below:

Qualitative research—This can be used to develop a theory and to explain how and why people behave as they do.⁴ It usually involves exploring the experience of illness, therapeutic interventions, or relationships, and can be compiled using focus groups, structured interviews, consultation analysis,⁵ or ethnography.⁶

Quantitative research—This aims to quantify a problem by generating numerical data, and may test a hypothesis.⁷ Research projects can use chemicals, drugs, biological matter, or even computer generated models. Quantitative research might also involve using statistics to evaluate or compare interventions, such as in a randomised controlled trial.

Epidemiological research—This is the study of the occurrence and distribution of disease, the determinants influencing health and disease states, and the opportunities for prevention. It often involves the analysis of large datasets.⁴

Mixed methods research—This form of research incorporates both quantitative and qualitative methodologies.

Systematic reviews—These provide a summary of the known evidence base around a particular research question. They often create new data by combining other quantitative (meta-analysis) or qualitative (meta-ethnography) studies. They are often used to inform clinical guidelines.

Contacting researchers

Most universities have information about their research groups on their websites, so spend some time exploring what studies are being carried out and whether you are interested in one of the research topics.

When contacting a member of the research group, ask if they or someone else within their team would be willing to offer you some research experience. Be honest if you don’t have any prior experience and about the level of involvement you are looking for, but emphasise what it is about their research that interests you and why you want to work with them. It’s important to have a flexible approach to what they offer you—it may not initially sound very exciting, but it

will be a necessary part of the research process, and may lead to more interesting research activity later.

Another way to make contact with researchers is at university talks or lectures. It might be intimidating to approach senior academics, but if you talk to them about your interest they will be more likely to remember you if you contact them later on.

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Box 5: Stages of research projects

Project conception—Come up with a hypothesis or an objective for the project and form the main research team.



Write the research protocol—Produce a detailed description of the methodology and gain ethical approval, if needed.



Carry out the methodology by collecting the data.



Analyse the data.



Decide on the best way to disseminate your findings—for example, a conference presentation or a publication—and where you will do this.



Write up your work, including an abstract, in the format required by your chosen journal or conference.



Submit. For conference abstracts, you may hear back swiftly whether you have been offered the chance to present. Publication submissions, however, must be peer reviewed before being accepted and it can take over a year for a paper to appear in print.

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