DRAMS

DUNDEE RESEARCH AND ACADEMIC MEDICINE SOCIETY

# How to Get Involved in Medical Research

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# What is Research?

Research is defined as the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions. Research in the medical field aims to expand the knowledge available in medicine, to find better ways to treat and prevent disease, to develop guidelines for best practices and to ensure high-quality patient care. Research encompasses many forms, ranging from hypothesis testing, and observation studies that leads to theory generation, to validation of theories by rigorous methodologies.

# Why get involved in research?

- Develop research skills such as report writing, data collection, data analysis, critical thinking, and critical analysis
- Develop soft skills such as project and time management, teamwork, problem-solving, communication and discipline - skills that are essential in clinical practice!
- Helps you build a competitive CV
- To show commitment in a specific specialty along with the improvement of practice of that speciality
- Allows you to score higher for specialty training portfolio assessments
- Trigger and develop your interest for discovery in Science and Medicine
- Contribute to the body of clinical or scientific knowledge available
- Opportunity for travel

# Types of Research

## (basic classification, non-exhaustive)

## 1. Laboratory-based Research

**Laboratory-based projects can be categorized into wet or dry labs.**

**Wet labs** (experimental labs) involves the use of chemicals, drugs, biological matter that are tested and analyzed using water, direct ventilation, and specialized piped utilities.

**Dry labs** involve the use of computers to execute mathematical analysis, modelling and simulations.

## 2. Translational Research

Translational research, also referred to as bench-to-bedside, involves the practice of using information from basic science research to create solutions for medical conditions.

## 3. Clinical Research

Clinical research tests the safety and efficacy of medications, devices and diagnostic products and involves direct patient contact. Clinical trials are a form of clinical research. Clinical research can also involve analysis of large data sets to generate, test and validate theories, and does not involve direct contact with research participants.

## 4. Audits and Quality Improvement

Audits and quality improvement projects aim to improve the practice of medicine by identifying problems in practice and suggesting changes for improvement.

# Where do I start?

## Field of Interest

Knowing where to begin can be tricky, especially when you are still uncertain of which specialty you want to go into and what type of research interests you.

First, begin with the end in mind. What kind of doctor would you like to be? Would you prefer to end up in public health or surgery? If you could see yourself doing public health, then you would probably want to think about conducting an epidemiological study. Whereas if you think you like surgery, get yourself involved in surgical-related research.

Alternatively, think about all the body systems you have learnt in medical school. Do you find yourself curious about a certain disease in that system? Your curiosity is an indication of your interest, and you could start from there.

If you still have no idea where to start, have a look at the available projects such as the DCAT Vacation Studentship (more on this below) project list and see which types of projects appeal to you. It is well worth just having a go at research as most students find the experience extremely rewarding, even if the project was not related to their favourite medical specialty. It doesn't matter if you change your mind later about your field of interest, as the skills learnt are all transferable.

# Where do I start?

## Goal Setting and Expectations

This is probably one of the most important things to consider before diving in. Defining what you want to achieve out of a project is important for you to keep track of your progress. You could set a wide variety of goals, from understanding the research methodology in general, to understanding statistics or developing laboratory skills. It all depends on what you want for yourself. It is important that you define these goals before approaching a supervisor, as it will help them help you narrow down your options for research. For example, if your aim is to get an overview of research, then your supervisor could help you arrange experiences with various experts of that department to help you get a taster of the different types of research they conduct. On the other hand, if you already know that you want to work on laboratory skills, then you would focus on just that for your project.

It is important to note that getting involved in a project by itself does not necessarily guarantee you a publication. Therefore, you might want to consider discussing your expectations with the potential supervisor beforehand.

# Supervisors

## Getting in Touch

Once you have narrowed down your field of interest, look at the people working in that field and see if any of the work they do would be something that you would like to partake in. To get in touch with them, you could e-mail the department outlining your interest in their work. If you don't get a reply, try to e-mail again or even call. Persistence is key. It won't hurt to have your academic CV on standby, as they might request for one. Alternatively, you could try networking with researchers at conferences and see if there are any opportunities for you in their department.

Some projects may need significant attention and time which is not feasible when you are studying full-time. It may be good to consider pursuing a project full-time during summer holidays.

DRAMS hosts multiple events in various formats all year round to provide students with exposure to academic staff. These events are also great opportunities to learn more about the work being done at our medical school. We highly encourage student dialogue with staff or guest speakers at our events and this is a great opportunity to potentially arrange a project!

If you are having trouble reaching out to a supervisor, there are more formal ways of getting involved in research such as applying for a DCAT Vacation Studentship, a Student-Selected Component (SSC) or a BMSc intercalated degree.

# When to do research?

- **Integrated projects in the Curriculum (SSCs, 4th year Projects)**
- **Intercalated research year (i.e. BMSc)**
- **Summer internships (DCAT Vacation Studentships)**

## Integrated Projects in the Curriculum

### Student-Selected Components (SSCs)

Throughout your medical curriculum at the University of Dundee, you will have the option to complete SSCs. Some staff-designed SSCs are researched-based and will require you to complete a project. Alternatively, you could also self-propose an SSC (SPSSC) and complete your own research project. For this, you will have to find your own supervisor and discuss what is feasible within your SSC timeframe.

- Y1, https://medblogs.dundee.ac.uk/ssc/year-1/how-do-i-ssc/
- Y2-3, https://medblogs.dundee.ac.uk/ssc/all-programme-information/

### 4th Year Projects

While 4th year projects are not formally integrated into the curriculum anymore (beginning academic year 20/21), you can still consider pursuing a project as the time allocated for 4th year projects will be self-study time. Find a supervisor and discuss what is feasible given the work load you have during 4th year.

# When to do research?

## BMSc Intercalated Degree

Choosing to take a year off from medicine to study in an intercalated degree is another option for gaining some research experience, especially if you wish to further pursue your interest in a particular subject area. Many courses on offer involve an honours project, which is where you will get to spend 3-4 months working on a supervised research project. Unlike the other pathways towards a research experience, you will be formally required to present findings through various formats: thesis, oral presentation, and poster presentation. Aside from the length of time and coursework requirements, the experience doing research in an intercalated degree is relatively similar to a vacation studentship project. Intercalated degree courses typically have contributions from science and clinical academic staff, giving you the opportunity to choose from a wide range of projects from basic sciences to projects with a clinical focus. The course may also have a more structured approach to teaching you various academic skills. However, many of the skills are most effectively acquired by doing. Apart from research skills, doing a BMSc is also a great way of learning how to present your work at conferences and getting involved in potential publications.

https://www.dundee.ac.uk/medicine/study/ug/bmsc/

# When to do research?

## Summer Internships

Dundee Clinical Academic Track (DCAT) Vacation Studentships are a great way to get involved in research projects. Projects usually last 6-8 weeks over summer and there are bursaries of £200-250/week available from the University as well as external bodies. You will have the opportunity to rank your preference from a list of available projects. Applications open twice per academic year; more information can be found at

http://dcat.cmdn.dundee.ac.uk/medical-students/dcat-vacation-studentships

# Other Opportunities

## Clinical and Academic Research Scheme (CARS)

The Clinical and Academic Research Scheme (CARS) was created by DRAMS to facilitate student participation in research projects. We help students source various projects ranging from laboratory work to quality improvement projects and audits within a large array of specialties.

More information about this student-led scheme can be found at dundeedrams.com under Research Opportunities.

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Follow us on social media platforms to check out our upcoming events and opportunities. Our events also provide you with the opportunity to network with other students who have done research alongside their medical school studies.

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