Royal College of Physicians

Research engagement toolkit

July 2015

Everyone in healthcare should be committed to ensuring that high-quality research becomes embedded in the core day-to-day work of the NHS, for the benefit of patients and the NHS as a whole. Engaging in research is intellectually rewarding, and is good for your patients, your hospital and your career. We want all physicians to enjoy what research engagement has to offer and to find the best way to fit research into their career; however, we know that it can be daunting and challenging, especially if you simply don't know where to start.

This toolkit, produced by the Royal College of Physicians (RCP) with support from the National Institute for Health Research (NIHR), aims to provide information to physicians that will help you get engaged in research in lots of different ways.

It provides:

- information about the range of research options and ways to be involved
- information about the different pathways into a career in research, no matter where you are starting from
- resources to support research-active physicians at all stages in their careers
- case study examples from research-engaged clinicians at all career stages.

We hope that this toolkit inspires you to explore what a career involving research might mean for you.

For enquiries relating to academic medicine and the RCP's work in this area, or if you would like to recommend additional resources that might enhance the toolkit, please contact:

> academicmedicine@rcplondon.ac.uk

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Introduction

Welcome to the RCP's research engagement toolkit, a resource that we hope you will find useful and inspiring. It aims to be a hub of information that will direct you to answers to all the questions that can be confounding when you are starting out in research.

One reason I am so passionate about encouraging physicians to engage in research is that I truly believe it holds something for everyone. There is obviously basic scientific research, but people often don't think of clinically based research, audit research and process research, which are also key. Moreover, you don't have to choose between clinical practice and research; there are many ways to combine them, and I have certainly done both over many years.

My own journey in research shows the unexpected turns that such a career can take. I started in research when I was a renal registrar at King's, where we were doing the country's first pancreatic transplants (all of which failed). I then became interested in diabetes and I started wanting to work in endocrinology; I thought I would go on and focus on diabetes as a specialist subject, but endocrinology was too fascinating. In the last 40 years, we have published about 350 research papers. Based on this experience, my top personal tips are as follows.

- It really is a misconception that it can ever be 'too late to get involved'.
- Getting a good mentor is very important – find someone who is enthusiastic and who has a solid track record.
- Find a specific area to hone in on – if you focus on becoming an expert in a niche subject, you will soon find that you know more about it than almost anyone on the planet.
- Don't be shy! Researchers love having people take an interest in their work and will be delighted to be approached by you for guidance.

'It became clear to me from an early stage that medicine is not static; it must continue to develop and evolve based on the best available evidence, and we are all responsible for generating this evidence.'

Sonia Szamocki, foundation year 2 doctor working in ophthalmology

Research is, of course, not always a bed of roses. You will almost certainly face challenges such as funding rejections along the way; dealing with these requires drive, dynamism, people skills, positive thinking and strategic planning. Of course, being a physician, you already have these in spades!

The UK has a long tradition of outstanding contributions to medical research, from discovering antibiotics to decoding the human genome, and it has a well-established system of research funding, world-leading institutions and our unique NHS, so there is no better place in the world to be a physician engaged in research. Make the most of this, and you will be helping your patients, your institution and your career, not to mention advancing medical knowledge. The dissemination of research is also huge fun – you will see parts of the world that you would never otherwise see, and you will meet and collaborate with new friends from all over the planet.

So have a browse of this toolkit to find lots of resources that will help you to get involved. It is here to help you and is designed to evolve over time, so if you have questions that are not answered here, we would be delighted to hear them so that we can continue to make it more relevant. Please email us at academicmedicine@rcplondon.ac.uk. Good luck!

Professor John Wass
Academic Vice President

A career involving research

Why engage in research?

There are so many reasons why you, your patients and the health system all benefit when you engage in research.

Improving patient care and service delivery

There is a lot of evidence to show that research-active trusts have better patient outcomes.[1] Obviously, participating in research provides patients with access to cutting-edge treatments, but the process of engaging in research will also make you more informed about the literature in your field. It will also hone many transferable skills that you can then bring to your practice – things that benefit all your patients, whether they are directly involved in your research or not. Moreover, a research-engaged hospital motivates staff, brings in financial income, attracts high-calibre doctors to work at your trust and raises the profile of your organisation.

Participating in high-quality research is not only beneficial to your patients and your organisation, but it also benefits the wider population and the health service as a whole by leading to the development of more effective, high-quality, cost-efficient treatments and healthcare delivery models. With increasing pressures on the health service, promoting innovation within the NHS is essential for the future of patient care.

Career enhancement

There are many ways that getting involved in research can benefit your career. As well as presenting an intellectual challenge and being highly rewarding, a career in research opens up many opportunities, including working abroad and travelling the world to present at conferences. Involvement in research looks good on your CV and may enhance your future career opportunities.

'Demonstrating proficiency in audit and research, as well as being able to critically appraise research, is a fundamental part of any job application. Personally, I feel that being involved in research allows you to invest in your chosen specialty, and gives you a reason to investigate, work on and write about a particular topic, and thereby to fundamentally understand it. It gives you a much broader and deeper insight into the specialty and, over time, it allows you to make your mark. Being involved with research allows you to get to know your specialty and the people working in it more intimately. I have tried to demonstrate that I am committed and reliable, and as a result I am finding that further opportunities pop up on a regular basis.'

Sonia Szamocki, foundation year 2 doctor working in ophthalmology

Professional development

Physicians are necessarily intelligent and analytical, and clinical practice hones many skills that make them suited to research, such as team working, communication and analytical thinking. Not everyone will choose to pursue a long-term career in research. However, any time spent in research is valuable because it will equip you with many skills, including an understanding of statistics, systematic reviewing and critical appraisal, and the ability to synthesise evidence and publish findings, which are useful throughout your career. It also provides skills that are transferable to clinical practice and directly benefit patient care, such as time management, prioritisation, team-working, communication and leadership, as well as engaging you with the cutting edge of your field.

Even if you choose not to incorporate research into your career, every doctor has a responsibility to understand how to critically appraise the evidence on which their clinical decisions are based, to interpret and clearly communicate statistics about risk to patients, to remain up to date with the evidence base and to disseminate research findings and innovations in the delivery of healthcare.

What types of research are there?

There are many different research areas, types and methodologies, offering a broad scope for you to discover your area of interest. For example:

- **basic scientific research (experimental medicine)** – discovering new drug therapies or understanding disease pathways
- **translational research** – turning early-stage innovations into improvements in human health and treatment
- **clinical research** – answering clinical questions about patient datasets and changing guidelines and clinical practice
- **health services research** – leading innovation in healthcare delivery to improve efficiencies in healthcare systems
- **health technology research** – leading innovations in information technology, such as wearables and telemedicine
- **epidemiological and public health studies** – understanding population health, advancing social policy and improving public understanding of health issues
- **medical education research** – advancing the design and delivery of educational interventions.

There are many different research methodologies, including:

- **laboratory benchwork**
- **randomised controlled trials**
- **observational studies**
- **systematic reviews**
- **qualitative research**.

How can physicians engage in research?

There are a wide range of research activities that physicians can engage in, depending on your skills and interests. For example:

- disseminating research findings
- recruiting patients to trials
- performing laboratory benchwork
- conducting systematic reviews
- being the lead investigator on a clinical trial
- leading your own research team
- developing new research methodologies.

The NIHR Clinical Research Network's campaign 'research people' is a series of videos that provide good insight into the range of research roles that are available for healthcare professionals.

'My advice to those who would like to pursue research is to go for it! There are increasing opportunities around foundation jobs and fellowships that give a taste of research so you can see whether it is for you. I'd also advise people to try out different areas – it's important to find the right niche, given the time and investment that you will be making.'

Jamie Read, ACF in medical education / geriatric ST2

Does a career in research come at the expense of clinical practice?

Definitely not! While some physicians commit significant time to research, it is very common to be involved in research alongside clinical practice. Clinical researchers are well placed to translate research into clinical practice and to think of new research questions that arise from their clinical observations and experience. The different ways of being involved in research that are listed above all take different time commitments, so you can find what's right for you: from leading research projects full time, right down to simply familiarising yourself with current trials in your field so that you can be a prolific recruiter of patients – which doesn't take you out of the clinic at all.

'My ACF experience has enabled me to share my skills from industry and to bring a unique perspective to medicine, which I've seen from bench to bedside.'

Catherine McGrath, ACF in rheumatology (ST3)

Eligibility requirements

The good news is that there are no strict entry criteria for engaging in research. If you have an enquiring, analytical mind and enjoy solving problems, you are likely to find a career in research rewarding. Physicians naturally possess many of the key skills that are needed for a successful research career, including team working, good communication skills, self-discipline and motivation, and the rest can be learned!

'I would encourage anyone with any interest in clinical research to apply for academic training posts and not feel daunted or intimidated by others. You will acquire all the skills you need along the way and at the start of your clinical academic journey, all you need is to be interested and to believe in yourself.'

Ahmed Rashid, NIHR academic clinical fellow (GP ST4)

Don't be put off if you have no prior experience – there are some skills needed in research that are different from those used in clinical practice, but you'll be supported to learn these or have access to people who already have them. There are opportunities to attend courses to develop specific skills or to complete higher qualifications within your research training. However, you do not need to command all research skills, for example statistics; research groups are composed of individuals with diverse and complementary skill sets.

You do not need a PhD to engage in research. Ultimately, if you aspire to conduct your own research and to lead your own research team, you will be supported to complete a PhD through your research training, but otherwise you will not necessarily need one at all.

How can I find out more about a career in research?

If you are interested in getting involved in research but you are not sure what type of research you are interested in, or if you would like more experience before applying for a grant or research training, spend time with your local research group or academic department and speak to other clinicians who are engaged in research; they will be happy to provide insights and share their experiences.

Conferences and courses are a great way to network and find out more about a career in research. They also offer an opportunity to present a poster or give a presentation in your chosen specialty. Some relevant conferences are listed below.

- The National Student Association of Medical Research Conference is an opportunity for medical students to present their work and find out more about a career in research.
- The UK Foundation Programme Office / Wellcome Trust Academic Foundation Trainees Conference provides foundation doctors with an insight into post-foundation academic training opportunities and how to apply. Speakers include leading academics and representatives from funding bodies, as well as current academic doctors in training.
- The Academy of Medical Sciences holds workshops and events all over the UK for:
  - clinical academic trainees – to provide information about navigating the clinical academic training pathway and developing a research career
  - biomedical researchers – to provide advice and information on developing a research career
  - postdoctoral researchers – to develop practical skills and network with senior colleagues.
- The Royal College of Physicians (RCP) Research and Academic Medicine Committee organises regular scientific updates and events for members at all career stages who are interested in an academic career. More information can be found on the RCP events pages.

The NIHR Clinical Research Network's (CRN's) clinical research zone on *The Guardian* website and their interactive magazine *INSIGHT* provide a wealth of up-to-date articles and resources that enable you to explore how exciting and fulfilling a career in research can be and to think about how you might like to contribute.

Twitter is a great place to explore what is going on with research, and to find out about cutting-edge research developments, events and opportunities for funding. A few organisations to follow include:

- the Medical Research Council (@The_MRC)
- the Wellcome Trust (@wellcometrust)
- the Association of Medical Research Charities (@AMRC)
- the Academy of Medical Sciences (@acmedsci)
- NIHR Research (@OfficialNIHR)
- NIHR Clinical Research Network (@NIHRCRN).

Standard and alternative training pathways into a career involving research

It's never too late to get involved in research – there are many entry routes into research training at all stages throughout your career.

Medical students

If you know that you wish to combine your clinical career with research, there are plenty of opportunities to get experience as a medical student. You can get involved through student-selected modules, intercalated BScs (with the potential to extend to a PhD), student research societies, working with local research groups and summer internships. This will enable you to explore your interest, provide an introduction to research methodology and create opportunities for you to present your work at conferences. Arrange to talk to someone in the specialty that you are interested in who is interested in research and has a track record, and offer to get involved in their work. Although it is not essential, a track record of high academic performance, attaining a first-class degree with distinctions or honours, winning prizes, presenting at conferences or publishing work as a student will make you more competitive in your application for an academic foundation programme (AFP).

'I was exposed to the usual analysis of biomedical research papers in medical school, but my interest in research was not ignited until I investigated research in medical education. I was fortunate that my medical school placed a large emphasis on qualitative research into education, something that I found especially fascinating because I was experiencing the benefits of this research first hand as a medical student.'

Jamie Read, ACF in medical education / geriatric ST2

'Getting involved in research as an undergraduate or junior doctor can seem almost impossible, but it is much easier than it seems. All you need to do is find someone who is actively involved in good-quality research and just go and talk to them. You can email them, grab them in the corridor or go to a conference and speak to them at the end of their talk. If they are active researchers, they will have several projects waiting to go but nobody to do them (I know we do!).'

Dr Graham Heap, academic clinical fellow in gastroenterology and honorary clinical research fellow

Useful resources for students

- The National Student Association of Medical Research is a student society for medical students who are interested in research. It offers a mentorship programme and provides an up-to-date list of student research prizes and competitions.
- The UK Medical Students' Association has a bank of research projects for students to get involved in and provides information about research studentship opportunities, funding, student research prizes and competitions.
- AcaMedics offers a bank of research projects for students to participate in, and supports students to present at conferences and publish their work.
- The Wellcome Trust offers a summer internship programme that funds students to complete a 6–8-week project between university terms.

Trainees

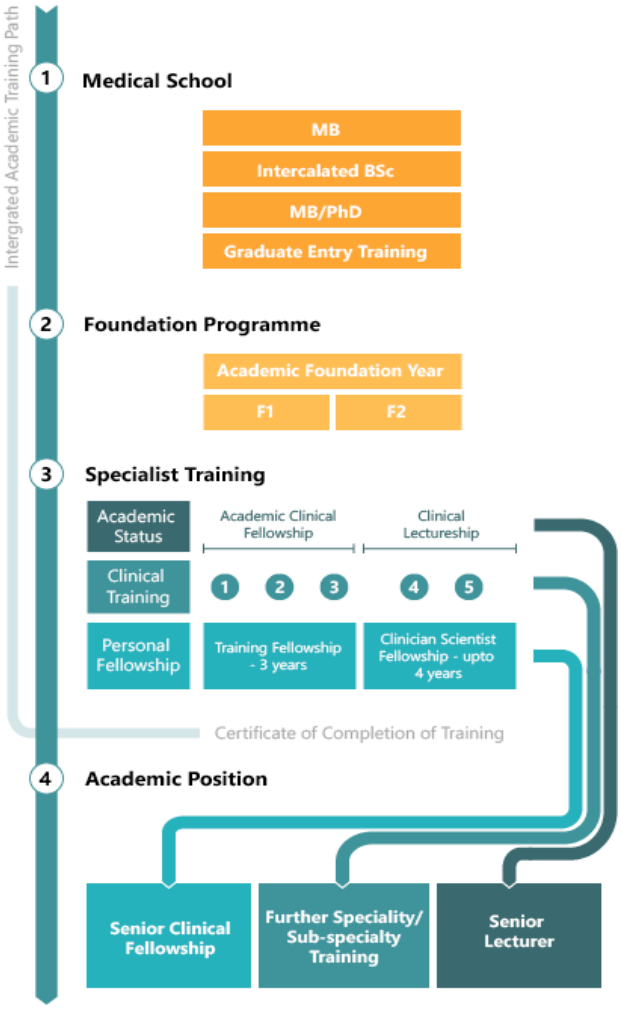
Integrated academic training pathways

Integrated academic training pathways offer formal training in research alongside clinical training. The UK Foundation Programme's *Rough guide to the academic foundation programme* provides a comprehensive overview of both the Academic Foundation Programme (AFP) and the post-AFP academic career pathways in the four nations of the UK.

'I took a very personal route to medicine: a degree and PhD in chemistry, followed by several years in the pharmaceutical industry making tablets and vaccines. Eventually, I wanted to know why they worked and I wanted to be able to prescribe them. During a 6-year medical degree in the Czech Republic, I kept asking questions, and publishing a research article as an undergraduate served to whet my appetite for more. I am now in the third year of an ACF, and applying for a transitional research fellowship that will reinvigorate my rusty research skills and bring me up to date. After that, a whole spectrum of opportunities that will benefit patients awaits.'

Catherine McGrath, ACF in rheumatology (ST3)

Fig 1 Training pathways



'Through my interests, I was able to become involved in some small-scale research projects, and I then undertook an academic F2 post in medical education. This allowed me to formalise my research role and expand my knowledge of medical education, which was complemented by undertaking a certificate in education. This has subsequently developed into a master's project that I am undertaking this year.'

Jamie Read, ACF in medical education / geriatric ST2

England

In England, the NIHR Integrated Academic Training Programme enables doctors to combine research with clinical practice. The pathway is designed to be flexible and can be joined or rejoined at various points. Once you are in an integrated pathway, movement between the different stages of the pathway is encouraged and supported. Entry to the scheme is through open, competitive recruitment at each stage, ie you do not need to have completed the first stage (Academic Foundation Programme) to apply for the next stage of the pathway.

- The Academic Foundation Programme presents newly qualified doctors with the opportunity to spend up to 4 months in academia.
- Academic clinical fellowships (ACFs) enable trainees to spend 25% of their time during specialty training developing research skills and being supported to prepare an application for a PhD. The ACF is for a maximum of 3 years (4 years for GPs). Trainees will then be supported to apply for a PhD funded by NIHR, the Medical Research Council, the Wellcome Trust or other charities / funding bodies.
- Having completed a PhD, academic trainees can apply for an academic clinical lectureship (ACL), which allows trainees to spend 50% of their time undertaking research while completing specialty training over 4 years.
- Those who wish to continue on an academic path and to lead research can apply for a 5-year Clinical Scientist Award, which bridges the gap between completing specialist training and gaining a more senior research post, such as a senior clinical research fellow or honorary consultant.

You can find more information about the academic training programme on the NIHR Trainees Coordinating Centre's website or from your local education and training board (LETB).

Scotland

There are no ACF or equivalent posts in Scotland. The Scottish Clinical Research Excellence Development Scheme (SCREDS) provides doctors with opportunities for academic training throughout their post-AFP career.

The NHS Education for Scotland website provides further information about the Scottish academic training programme.

Northern Ireland

Trainees in Northern Ireland are eligible to apply for ACFs and ACLs from ST3+. More information about clinical academic training in Northern Ireland can be found on the Northern Ireland Medical and Dental Training Agency website.

Wales

The Welsh Clinical Academic Track Fellowship (WCAT) programme provides run-through lectureship training posts for post-AFP trainees in Wales. For further information about the posts and how to apply, visit the WCAT website.

Alternative pathways

Don't be put off if you are not on an integrated academic training pathway – there are many routes into a career in research. You can pursue independent research jobs, fellowship schemes or PhDs at all career stages alongside your clinical role. Research jobs are advertised on medical recruitment websites such as the Medical Schools Council job website and NHS Jobs, as well as in medical journals, including BMJ Careers' university research and fellowships section, and *New Scientist*, as well as the websites of the major medical research charities and individual universities and trusts.

It can be challenging to negotiate time out from clinical practice, but securing funding can help. To get started, speak to academics at your local university, your hospital research and development department or research group to find out what is going on in your field of interest and to find a research-active mentor to support you through the application process.

'It took me a while to get involved in research, having not shown much interest in medical school, but as I got more interested in public health, I surprised myself by enjoying learning the practical applications of statistics – it was rather addictive!'

Tamsin Newlove-Delgado, doctoral research fellow and specialty registrar in public health

If you are interested in research and want to explore your interest before pursuing a formal research position, research collaboratives are a great way of getting involved in research as a medical student or trainee. Research collaboratives provide a framework within which students and trainees, with different levels of experience, can contribute to large-scale audits and clinical trials. By bringing together interested students and trainees into one collaborative research group, they are able to use the natural trainee network to establish multi-centre studies, which can achieve larger numbers and therefore more significant results. There are different ways you can contribute, from assisting with data collection, through to developing and leading your own research project that can be rolled out across your research collaboratives' region and beyond. Studies are published 'on behalf of the collaborative', and all contributors are acknowledged on PubMed as members of the collaborative. A number of research collaboratives now exist across the UK; the National Research Collaborative brings together all trainee research collaboratives in the UK and Ireland.

'Trainee-led research and audit collaborative groups aim to increase research opportunities for clinical trainees while facilitating large-scale, multi-centre projects that impact on current practice. Key to all their models is recognition of trainee contribution. This may manifest in a number of ways: from publication of contribution lists on websites and in appendices of articles, to the inclusion of every trainee contributor in an article's authorship list.'

Tom Clarke, consultant in adult critical care and anaesthesia

'My out-of-programme post gave me an excellent opportunity to gain experience in a wide variety of research settings, including study design and setup, attendance at regional and national meetings, and assisting with publications that stemmed from the research carried out in the department.'

Tim Kemp, ST6 in infectious diseases and general medicine

Useful resources for trainees

- The annual British Medical Association (BMA) Clinical Academic Trainees' Conference gives academic trainees opportunities to network and have their questions answered by leading clinical academics.
- The Academy of Medical Sciences' Spring Meeting for Clinician Scientists in Training is a cross-specialty event designed to bring clinical academic trainees together to present their work, build relationships and network with senior scientists.
- The BMA Conference of Medical Academic Representatives (COMAR) provides an opportunity each year for medical academics from across the UK to meet to discuss key issues, share experiences and set priorities for the BMA Medical Academic Staff Committee for the coming year.
- The NIHR Trainees Coordinating Centre runs an annual 2-day national trainee meeting for all NIHR-funded trainees. This meeting allows trainees to present their work, to network, to hear from senior NIHR health researchers and to learn more about the NIHR.
- The NIHR and the Medical Research Council host an annual free Symposium for Early Career Research Methodologists. The symposium is composed of expert talks and interactive sessions about the future of methodology research, and opportunities to network with (and seek advice from) senior researchers and funders.

Consultants

It doesn't matter if you have had no prior research experience – it is never too late to get involved in research. Many top researchers established themselves later in their careers. There are many grants and fellowships open to consultants to take time out of clinical practice for research training, leading research projects or pursuing further degrees (see the 'Alternative pathways' section above). Taking time out of clinical practice to undertake research does not result in a pay cut; clinical academics receive parity of pay compared with clinical colleagues.

Recruiting into a portfolio study is a good way to initially dip into the research world. The NIHR Clinical Research Network provides support to consultants who haven't gone through formal academic training pathways, to design, develop and lead clinical trials. You can then get in touch with the national programme.

Of course there are never enough hours in the day, and time is a common barrier faced by new consultants wanting to engage in research. The RCP supports the recommendations of the Academy of Medical Royal Colleges, which recommends that consultants should have 2.5 SPAs in their job plans devoted to supporting professional activities such as audit, teaching, continuing professional development (CPD), research, appraisal, assessment of trainees, clinical governance and service development. In negotiating this with your trust, they are more likely to support you if you can demonstrate benefits for the organisation, so have a think about the following:

- What transferable skills will you develop and how will your patients benefit from them?
- Will you bring in funding?
- Will you raise the hospital's profile by publishing results?
- Will the project provide opportunities for others to develop their skills?
- Will it be a 'good news story' that they can promote on their website etc?
- Will it create opportunities for collaboration and learning from other clinics?

The BMA can help support you in negotiating your contract.

Research activity in your locality

How can I find out what research is going on in my area?

Local research groups

A good first step is to speak to local academics in your university or organisation, to find out what research is being conducted in your area of interest. If you do not already have a link with a lab or research group, look online to find their contact details and areas of interest. Researchers generally love talking about their work and are delighted to have new people take an interest in research, so don't be shy! They will welcome you approaching them.

League tables

The research activity league table, published annually by the NIHR Clinical Research Network and hosted by *The Guardian*, provides a good overview of research activity by geographical area. The league table shows the number of clinical research studies that took place in each NHS organisation over the last full year, and the number of patients who took part in studies. It allows NHS organisations to compare their performance with other organisations of the same size and type, so you will be able to see how your trust is performing in research and to identify projects that interest you.

Clinical research networks

Another great way of finding out what research is happening near you is to get in touch with your local clinical research network. These networks have been established in England, Scotland, Wales and Northern Ireland to provide the infrastructure to support the delivery of clinical studies, to create a research environment in which high-quality research can thrive, and to attract, develop and retain the best research professionals.

England

In England, the NIHR provides the infrastructure to support health research. The NIHR coordinates a vast range of centres, units, facilities and networks that work together to conduct leading-edge research for patients. Get in touch with them, according to your area of research interest, to get involved today!

- The NIHR Clinical Research Network is composed of 15 local clinical research networks that support clinical research across 30 clinical specialties. You can search the network to find research in your area.
- There are 11 NIHR Biomedical Research Centres and 20 NIHR Biomedical Research Units across the UK that conduct and support translational research to transform scientific breakthroughs into life-saving treatments for patients.
- NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) undertake high-quality applied health research. The 13 NIHR CLAHRCs primarily focus on research targeted at chronic disease and public health interventions.
- Translational Research Partnerships foster early collaboration between leading researchers and the life sciences industry in the development of new drugs and other interventions, to ensure that scientific ideas are applied to patient need.
- Translational Research Collaborations in dementia and rare diseases support discoveries and translational research in these areas.
- Two Patient Safety Translational Research Centres support research that is focused on improving the safety, quality and effectiveness of NHS services.
- Nineteen Clinical Research Facilities for Experimental Medicine support collaboration between basic and clinical scientists to help speed up the translation of advances in research into improvements in healthcare.
- Fourteen Experimental Cancer Medicine Centres speed up the process of cancer drug development and the search for cancer biomarkers.
- Eight Healthcare Technology Co-operatives work collaboratively with industry to develop concepts for new medical devices, healthcare technologies and technology-dependent interventions.
- Four Diagnostic Evidence Co-operatives support research on *in vitro* diagnostic medical devices.
- The Medical Research Council / NIHR National Phenome Centre studies the phenome, to determine how the environment and genes combine to affect biochemical processes that lead to disease.
- The NIHR BioResource is a panel of thousands of volunteers, both with and without health problems, who are willing to be approached to participate in research studies.
- The NIHR National Biosample Centre provides biosample processing, storage and retrieval services.
- The NIHR Health Informatics Collaborative brings together five of the country's leading NHS trusts with large NIHR Biomedical Research Centres, to make NHS clinical data more readily available to researchers, industry and the NHS community.

Wales

In Wales, the National Institute for Social Care and Health Research (NISCHR) provides the health research infrastructure. The NISCHR supports the design and delivery of high-quality research studies across Wales through:

- NISCHR Clinical Research Centre
- NISCHR Regional Research Networks
- NISCHR Academic Health Science Collaboration
- Biomedical Research Centre and three Biomedical Research Units
- NISCHR Registered Research Groups
- Infrastructure Support Groups
- Trials Units
- direct funding to NHS organisations.

Scotland

In Scotland, the Scottish Government Chief Scientist Office coordinates seven topic-specific clinical research networks. These networks provide infrastructural and funding support for a range of studies across these specialty areas; generic support is available for research outside these seven areas.

- Children's Research Network (ScotCRN)
- Cancer (SCRN)
- Dementia (SDCRN)
- Diabetes (SDRN)
- Mental health (SMHRN)
- Primary care (SPCRN)
- Stroke (SSRN).

Northern Ireland

The Northern Ireland Clinical Research Network (NICRN) provides research infrastructure as part of the UK Clinical Research Network. The NICRN coordinates clinical research across trusts and academic organisations, maintains a portfolio of network studies and assists with all aspects of study delivery. The network coordinating centre is based at the Royal Victoria Hospital, Belfast, and coordinates nine NICRN areas of interest (cardiovascular, primary care, children's, respiratory, critical care, stroke, dementia, diabetes and vision).

UK Clinical Trials Gateway

The NIHR's UK Clinical Trials Gateway provides information about most clinical research trials running in the UK and is searchable by research topic or geographical location. It aims to enable patients and clinicians to locate trials of interest and contact the researchers involved.

Getting involved in research

How do you find a supervisor?

A supervisor is an experienced academic who provides guidance and support throughout your research project, from planning to publication.

Top tips for finding a research supervisor [2,3]

Track record

- Work with those who are successful. Find out about their track record – how many of their research projects have resulted in high-impact publications and international presentations?
- Ask trainees who have previously worked with your prospective supervisor about their experiences. Did they complete their degrees? Did they get presentations and publications? How did they progress in their academic careers? How many trainees have they had experience of supervising?

Working relationship

- Your choice of supervisor is intimately linked with your project. Choose a supervisor with similar interests to your own and who you get on well with – you will be spending a lot of time together and their interests will soon be your interests.
- What is their approach to ownership and authorship of published work?

Availability

- A clinician supervisor may work well if your project is clinically based, but they may be around less, owing to clinical commitments. A scientist may be able to supervise you more directly, but a senior research scientist may have a number of other commitments and projects. A combination often works best, and you should seek support and mentorship from the most appropriate individuals, irrespective of their professional background.

Working environment

- Whether you are undertaking basic science research or allied health research, visit the laboratory or research department and consider the following.
  - Do you like the set-up?
  - What projects are other team members working on, and how will your project fit in?
  - Is there a precedent for medics being part of the research group?
  - Are training and support available?
  - What is the size of the research group and how do they work together? Will you fit in?
  - What is the size of the facilities – is there room for you?
  - Do they collaborate with other research groups?
  - Importantly, is there a good research culture?

And remember!

- Don't be shy about approaching someone – researchers love to talk about their work and are delighted when new people want to contribute to advancing medical knowledge. Even if they are not the right fit for you, researchers will not mind putting you in touch with a colleague or acquaintance who might be.

'Like most medical students who do a BSc, I was given the opportunity to choose a research project. With my first poster under my belt, I felt confident enough to approach my clinical supervisors to ask whether there were any research audit opportunities. Most were extremely forthcoming and supportive, and suggested various projects that I might like to get involved with, some of which I am still working on 5 years later.'

Sonia Szamocki, foundation year 2 doctor working in ophthalmology

'Collaborative work is just that; any success that I have had has been due to the success of the group rather than me as an individual within it.'

Tom Clarke, consultant in adult critical care and anaesthesia

'The most enjoyable and productive time of my career so far highlighted for me the importance of conducting research in a friendly, supportive and collaborative environment.'

Pearse Keane, NIHR clinician scientist and consultant ophthalmologist

How do you choose a research project?

If you don't already have a clinical question that you wish to answer, here are some great places to start:

1 Discuss your interests with your supervisor or research group. While it is preferable to develop your own ideas, they may have a project in mind that they've not yet had the capacity to conduct to get you started.

2 Take a look at the James Lind Alliance's database of priority research questions, devised via a process of thorough consultation with patients who have actually experienced the relevant conditions.

3 Read systematic reviews of your topic of interest to identify unanswered or further research questions.

4 Browse the NIHR Horizon Scanning website, which provides information about emerging health technologies that may have a significant impact on patients or the provision of health services in the near future.

It is important that you have a genuine interest in the research area – you may spend months, or even years, of your life working on it and it may be frustrating at times.

'I would urge anyone choosing a project not to be afraid to design one yourself, rather than simply picking one from the list. You will learn a great deal about planning a feasible project by yourself and bringing resources together.'

Sonia Szamocki, foundation year 2 doctor working in ophthalmology

Developing a research question

Research proposals must have a clearly defined research question. Important points to consider when developing a research question include the following.

- How important is the question? Why is the research needed? How will it add value?
- Why does the research need to be done now?
- Who is interested in the answer – will it get funded/published? Target your research questions to match the interests and strategic priorities of the funding panel that you are applying to.
- Is there a viable solution to the problem?
- Has it been done before? (A literature review will enable you to establish gaps in the literature and will highlight institutions that are already working in your area of interest.)
- What is the potential scientific, social and economic impact of your research?
- What is the benefit to patients? Demonstrating maximum benefits to patients is important. Check out the James Lind Alliance's database to find out if any work has been done to map the research questions that patients consider to be a priority in your area of interest. How will it translate into policy and have an impact on healthcare in practice?
- Is it cost-effective? Value for money is paramount in the research world – demonstrate how your research will have an impact and add value.
- What study design will you use?
- How will you involve patients and the public in your research? The NIHR RDS PPI Handbook provides useful information about how to involve patients and the public in research.
- What time and resources are needed to complete the research in the time period?
- Do you have the right team to deliver the research?
- Does it align with your long-term career goals?

'Despite the challenges, I have found it immensely satisfying to pursue my own research questions and to use new skills.'

Tamsin Newlove-Delgado, doctoral research fellow and specialty registrar in public health

'Decide what specialties you enjoy and focus on those, it will be far easier to complete a project that you are genuinely interested in.'

2 Getting your project started

Developing a research proposal

A research proposal is a detailed plan outlining your proposed research project, supported by evidence from the literature and results from pilot studies. A research proposal is written to convince others that you have a good research idea, that you have a good understanding of the relevant literature, that you are competent to conduct the research and that you have the appropriate methodology and resources to complete the research. It should address what you plan to achieve, why you want to and how you are going to do it.

How to write a research proposal

There are many different reasons for writing a research proposal, including applying for research funding, gaining permissions (such as ethics approval), or as part of an application for a PhD programme or fellowship. The type of proposal that you write will change accordingly and depends on the type of research study that you plan to undertake.

In general, a research proposal should have sufficient information to convince the reader that you have an important research idea; make sure the aim of your research is clearly stated at the beginning of your proposal, and present a clearly defined research question.

You need to demonstrate that you are able to deliver the research by presenting a comprehensive and feasible research plan, describing every methodological step, the resources required, the cost implications, consideration of ethics and funding, and realistic timescales. Importantly, you need to anticipate any potential problems and state how you would deal with them.

The quality of your research design will be assessed; you need to convince the reader that your methodological approach is appropriate, high quality and will achieve results.

The quality of your written proposal will also be assessed. Make sure you write it so a lay member of a panel can understand it, be clear and concise, and remember to spell check!

Support for writing a research proposal

Start off by seeking advice from your supervisor and senior researchers who have submitted successful applications in your area of interest.

Check what local guidance is available – individual hospitals and universities often produce their own guidance to writing research proposals.

The NIHR Research Design Service provides expert advice on all aspects of writing a research proposal. If you are proposing a clinical trial, it is strongly advised that you consult your local Clinical Trials Unit to help develop your proposal.

It is crucial that your research proposal will 'work' in the NHS environment. The NIHR Clinical Research Network provides free, confidential advice on the feasibility of research proposals and advises that you get in touch as early as possible. The NIHR Clinical Research Network Funder Engagement Programme works with funders to ensure that the research they fund will work in the clinical environment. Many funder application forms now ask for evidence or confirmation that the NIHR Clinical Research Network has been consulted. Researchers receiving funding from these organisations are automatically eligible for consideration of Clinical Research Network support for study delivery.

Vitae, a website that provides resources and support for researchers, has produced a useful online guide to writing a research proposal.

A simple Google search will also reveal many individually produced guides to writing research proposals and example proposals for your review. For example, 'How to write a research proposal' or the 'Proposal Writer's Guide' for researchers with little or no experience in writing research proposals and 'The Art of Grantsmanship', which provides a useful timeline to plan writing your research proposal and addresses common pitfalls.

Applying for funding

Funding is available for all research, from research training fellowships to PhD bursaries or senior clinical research posts. Applying for funding can be confusing because there are many different types of funding available and a plethora of different funding bodies, all with different eligibility criteria, application processes and deadlines. However, there are comprehensive guides and support available to help you through every step of the funding application process.

The important thing to realise is that this all takes time. The process may take several months – please bear this in mind and allow enough time.

'I was fortunate that I did not have to apply for additional funding, as the project was run in conjunction with existing projects in the department and did not require too many additional resources.'

Sonia Szamocki, foundation year 2 doctor working in ophthalmology

Another thing to think about when you are starting out is whether there are ways to carry out your project without having to apply for new funding. Sometimes, if you find the right research team to become involved with, you will be able to utilise existing resources by carrying out your project as an additional activity within an existing one.

Funding opportunities

Specific funding opportunities are always changing, so it is best to keep an eye on all major funders for announcements. Some of the main ones are listed below.

Government funding

- The Department of Health provides nearly £1 billion a year to help fund health research projects, mostly through the Department of Health's policy research programme and the National Institute for Health Research (NIHR).

Research councils

- Medical Research Council
- Biotechnology and Biological Sciences Research Council

Research charities

- The Royal Society
- Wellcome Trust
- The Academy of Medical Sciences
- Association of Medical Research Charities
- Medical Research Foundation
- BMA

Specialty-specific charities

- British Heart Foundation
- Cancer Research UK
- Diabetes UK
- Arthritis Research UK
- Alzheimer's Research UK
- Age UK
- Stroke Association

Think tanks

- The Health Foundation
- The King's Fund
- The Nuffield Trust

Royal colleges and specialty societies

- These often offer prizes, grants, fellowships, travel grants and funding to attend conferences. For example, the RCP offers several research fellowships as part of its commitment to improve clinical standards and to support clinicians in their research work in a variety of specialty areas. Refer to the websites of the appropriate professional societies related to your specialty or areas of research focus for information about funding opportunities.

Local hospital research and development departments/ laboratories/universities/LETB

Your original medical school

Industry, including pharma and private healthcare companies

Guidance for applying for research funding

The NIHR has recently produced a funding opportunities booklet, which provides comprehensive information about the NIHR's research funding and career development opportunities. The NIHR also provides support for researchers applying for NIHR research funding and for other open national peer-reviewed funding programmes.

The National Cancer Research Institute has produced an easy-to-navigate pictorial guide to research funding opportunities for surgeons. Many of the funding schemes are open to applications from all specialties and for research areas other than cancer.

Writing a successful funding application

Applications for funding are different according to the funding body you apply to. Most funding processes involve submission of an electronic application form, following which you may be invited to interview in front of a funding panel.

Top tips for writing a funding application

- **Allow yourself time.**
- **Read the guidelines before you begin.**
- **Keep it simple and focused.**
- **Present a high-quality study design and evidence that you can deliver it.**
- **Tailor the application to the funding panel you are applying to.**
- **Discuss your application with colleagues before submitting it.**
- **Provide and justify detailed costings.**

Leave plenty of time to complete the application

Start your application early, as it is likely to take much longer than you anticipate to complete it. The application form is often lengthy and you may require input from several colleagues to complete all of the sections.

Read the guidelines carefully before you begin

The guidance notes that accompany the application form are designed to help you complete it and are well worth a read. Establish what needs to be submitted and when. Some funders ask for hard copy as well as electronic applications, to arrive by the same submission deadline. Some funders ask for a one-page summary of the research proposal to be submitted ahead of your application. Make sure you are reading the latest version of their guidance and read the instructions carefully!

Research your funding sources

Speak to your supervisors who have made successful applications, to discuss which funding opportunities would be most appropriate for you to apply for. Your organisation may already have established relationships with certain funding bodies.

Many grants are specialty and topic specific, so read all online guidance carefully to understand what can and can't be funded before embarking on an application.

Write a clear, focused research question

Research proposals must be focused and succinct with a clearly defined research question. Make sure you target your research questions to match the interests and strategic priorities of the funding panel that you are applying to. Refer to our guidance in the section above on 'Developing a research question' on page 11.

Present a high-quality study design

Research funders are looking for the highest standards, and the quality of your research design will be assessed. You need to demonstrate that you are able to deliver the research. Think carefully about the time and resources needed to complete the research successfully.

Ask a colleague to read it

Ask your supervisor and colleagues for comments, and be prepared to make changes. Reading colleagues' successful submissions is also helpful.

Keep it clear and simple

The key to a successful research proposal is to communicate your message in the clearest way possible in the available space. Remember that the panel is likely to contain lay members and researchers who are not experts in your area, so your proposal needs to be easy for them to understand too.

Don't be disheartened if your application is not successful

With no experience of writing or researching, don't expect to get everything first time. If you don't get it right away, discuss with your supervisor and try again.

Support for writing funding applications

There is lots of support available for all stages of funding applications, from writing and submitting your application through to advice for funding panel interviews. Please see the 'Support for writing a research proposal' section above.

Tips for applying for a research fellowship

If you are applying for a fellowship, be enthusiastic. The panel are investing in you to be a future leader in the research world, so demonstrate to them how you will apply the skills that you develop through the fellowship to your future career in research, as well as showing your skills and commitment.

Funding applications – an insight

Five tips from Andrew Carson-Stevens, GP, NIHR health services and delivery research chief investigator, patient safety research lead at the Primary and Emergency Care Research Centre in Wales and the inaugural visiting professor of healthcare improvement at the Department of Family Practice, University of British Columbia:

'Securing your first big project grant can be time-consuming, fraught with many rejections before success, and require a lot of pre-work even just to apply. It's competitive, and the funders have a big responsibility to allocate finite resources. So don't wait for your big break, work for it; here are some ideas to prepare you to maximise resilience for the challenges and opportunities ahead:

1 **Got an idea? Apply for 'corn seed' funding** to help nurture a small idea into a larger one. The preliminary findings can be used to inform your plans for the next big proposal, as well as to reassure grant peer reviewers that you have evidence for the strong degree of belief in your proposal.

2 **Got a vision? Articulate the goals you expect to achieve** and work backwards from each goal and identify the key concepts (and accompanying ideas) that you think are needed to achieve the vision. Ensure that every member of your team can identify how his or her work helps to achieve the vision.

3 **Got no money to hire researchers? Be resourceful and plan creatively** to enable you to achieve your goals. Students and junior doctors can make insightful, hardworking research assistants. Be clear about what is expected from them. Have courage to be flexible with their schedule and consider how to determine whether they are on or off track. Have curiosity to learn what can realistically be achieved by your volunteers, ranging from half a day (one clinical session) and upwards, by testing out: different tasks, different complexity, the skill set required, the level of clinical training. Learn from failures, and have a process for capturing the learning.

4 **Identify and nurture talent.** Medicine has no shortage of very good people, although not everyone gets the support they need to be brilliant. Give those who are supporting you the same opportunities that you had or even wished you had. Negotiate funds where possible for them to attend seminars, present posters and oral presentations at conferences, and encourage them to write first drafts of manuscripts and assume the responsibility of first author. Consciously make the effort to determine their strengths and weaknesses – try them out in different roles and responsibilities that will enable the team to be productive, where they will willingly contribute 110% and where they can find autonomy to grow further and work towards independence. This process is time-consuming but very rewarding.

5 **Surround yourself with experienced mentors** from research, education, policy and other subject disciplines. Identify who you enjoy thinking with, and those you feel you can trust with your ideas that will one day change the way medicine is practised to deliver safer, better quality care for patients. Be a student for life, embrace humility and find enjoyment in being challenged.'

Applying for ethics approval

When to apply for ethics approval

Any health-related research that involves humans, their tissue or their genetic material and/or data must be reviewed by a research ethics committee before you can start. Ethics approval is a legal requirement and cannot be applied for retrospectively.

If you are conducting research in an NHS setting, you will require NHS ethics approval. The Health Research Authority (HRA) has developed a checklist to determine whether NHS Research Ethics Committee approval is required.

If your study does not fall within these areas, it will still have ethical implications and require approval from a university ethics committee. Any research conducted in an NHS trust will also require approval from the trust to assess the feasibility and risks of practically delivering the study within the trust.

It is important to provide information about ethics approval on all research publications.

'Research has always been an integral part of my career. Although it can drive you mad, it can also help to keep your sanity in a hectic and unpredictable clinical world. Being asked to give a lecture at an international meeting or being asked to write a state-of-the-art review by a major journal can be life-affirming moments that make you feel that you are more than just another cog in the wheel of an anonymous machine.'

Charles Ferro, NIHR fellow, consultant nephrologist and honorary reader in renal medicine

How to apply for ethics approval

All research ethics approvals are processed centrally via the HRA. The HRA website provides guidance on which review bodies you will need to apply to for approval.

The Integrated Research Application System (IRAS) is a single online system for applying for permissions and approvals for health and social care research in the UK. Researchers can use this system to apply for all the necessary permissions for their research (including ethical approval, clinical trial authorisation and NHS R&D approval), instead of duplicating information in separate application forms for each review body.

The IRAS website contains extensive guidance to support you in completing your application form, including a free e-learning module to familiarise yourself with the application process.

Once you have submitted your ethics form electronically through the IRAS, your application is not complete until you have booked a meeting with the Research Ethics Committee for review. Follow the 'New Booking and Submission Processes: step-by-step guide' to submit your ethics form and book a meeting on the IRAS website.

Top tips for applying for ethics approval

- Get in contact with your university or hospital research and development team before starting the application process. They will be happy to provide guidance and review your application before you submit it, to check that everything has been completed correctly, and to authorise and sponsor the application.
- Start early: filling in ethics forms can be a long-winded process, but is a necessary requirement before you can commence your study.
- Use the IRAS checklist to ensure that you submit a complete application form with all the required supporting documents. Be aware that some review bodies have additional submission procedures.
- Every research project presents different ethical issues that need to be considered. Key principles to consider in any ethics application include:
  - informed consent
  - right to withdraw
  - confidentiality
  - data protection
  - safety risks / harm reduction for both participants and researchers
  - what will you do if something goes wrong or you discover an unexpected result?
- Write a clear, concise research proposal in language that a lay member of an ethics committee can understand.
- Attend the Research Ethics Committee meeting and be prepared to answer questions to provide further information about your study.

Useful resources

The NIHR Clinical Research Network provides free good clinical practice training, which prepares researchers to uphold the ethical and practical standards to which all clinical research should be conducted. This is a key requirement for anyone involved in the conduct of clinical research.

Additional information

From December 2015, the process of applying for ethics approval will change. HRA approval will be required for research in the NHS to commence in England. It is a new process comprising assessment of regulatory compliance and related matters by dedicated HRA staff, as well as a review by a research ethics committee. HRA approval will replace the local research and development approval. The new system will simplify the approvals process, making it easier for research studies to be set up. By removing duplication of reviews of research by NHS support teams, the NHS will be freed up to focus on delivering research. Further information and answers to FAQs about the roll out of the new system are available on the HRA website.

3 Delivering your project

Support for research delivery

The NIHR has many services that provide support and advice to researchers for study delivery, from helping set up clinical studies quickly, to helping ensure the trials progress, and providing support for translating the results into clinical practice. The research delivery pathway illustrates all the ways that the NIHR can help.

Your local NIHR Clinical Research Network can help with many aspects of study delivery, by:

- providing research training for healthcare professionals
- providing funding for workforce, resources and study delivery costs
- providing skilled research support staff who can help to identify and gain consent from patients eligible for trials, and monitor patients as they progress through the study
- providing support for applying for permission to run a clinical study in the NHS
- helping to secure protected time for NHS staff to conduct research.

See the full offer that the NIHR Clinical Research Network makes to researchers and find out if your study is eligible for NIHR Clinical Research Network Support.

Researchers running clinical trials are encouraged to engage with a UKCRC Registered Clinical Trials Unit (CTU) early in the process to help design and run high-quality trials. The CTUs bring together the different experts needed to undertake a clinical trial, including clinicians, statisticians and trial managers. They offer expertise and advice, and participate throughout the research process, from initial development of research ideas and preparing funding applications, through to project delivery and publishing the results.

'There are plenty of hurdles to overcome – finding the time to complete the work is always the biggest challenge and there are always exams and work commitments that get in the way. Other challenges include accessing accurate and complete data, and IT problems; I am yet to be involved in a project where this was not the case! But to some extent, these challenges can be mitigated by careful planning, and although research is often time-consuming, rarely goes to plan and involves a great deal of flexibility, it is enormously enjoyable!'

Sonia Szamocki, foundation year 2 doctor working in ophthalmology

Research skills development and training

There are no specific skill requirements for getting involved in medical research. Your research group and supervisor will support you to develop the necessary competencies to deliver high-quality research through your research projects.

There are also lots of opportunities to seek further training in research skills. Many universities, royal colleges, specialty societies and research bodies offer research skills courses, training and further degrees in research methodologies. These range from broad introductions to courses in specific skills, methodologies or research areas. They are delivered in a variety of modalities, from 1-day training sessions to week-long courses, online learning modules and further degrees such as postgraduate certificates (PG Certs), diplomas or PhDs.

Specific training courses are always changing, so it is best to keep an eye out for opportunities in your area of interest. Below, we have picked a few to demonstrate the wide range available. A simple Google search will reveal many more national courses. Speak to your supervisor to find out what is on offer locally.

'My involvement in research has opened many doors. One of the major advantages has been the additional skills that I've gained as a doctor. In particular, it has improved my teaching and learning skills, and my analytical and writing abilities have also benefited.'

Jamie Read, ACF in medical education / geriatric ST2

Introductory courses to research

- Many universities offer courses on starting out in research, eg the 2-day Papworth research skills course and the 4-day Imperial College introductory course on starting out in research.

Course for active researchers

- The NIHR Clinical Research Network provides training in good clinical practice, information governance and informed consent to healthcare professionals engaged in research.
- The Wellcome Trust also offers a variety of courses, conferences, workshops and summer schools to develop specialist research skills.

Courses for advanced researchers

- The University of Oxford and the Wellcome Trust, among others, conduct courses for advanced researchers in a wide range of topics, from managing your relationship with your supervisor to human genome analysis.
- The Academy of Medical Sciences' skills workshops for postdoctoral researchers are an opportunity to develop practical skills that are essential for successful research careers and will help you bridge the gap between research training and an independent research career.

Training in research methods

- The NIHR Research Methods Programme offers support for the development of expertise in research methods, including statistics, clinical trials, health economics, operational research and modelling.
- The NIHR funds master's studentships in economics of health and medical statistics, and the London School of Hygiene and Tropical Medicine run an introductory course in epidemiology and medical statistics.
- The University of Sheffield Biomedical Research Summer Programme offers a 3-week residential introduction to laboratory research, and the University of Warwick 2-week laboratory skills intensive course provides the opportunity to learn vital and fundamental laboratory skills in biomedical science.
- The National Clinical Guideline Centre runs courses on critical appraisal and systematic reviews and meta-analysis in action.
- The library at your local hospital or university will provide training in literature searching and systematic reviews.

Training in specific research areas

- Research training is available in different topic areas such as Health Informatics offered by the University of Manchester, The Association for the Study of Medical Education 'Conducting Medical Education Research' course, or the Imperial University course in Translational Research skills or Biomedical research.

Other resources

- The Royal Society of Medicine has an interesting feature called 'Resource of the month', which is compiled by experienced library staff. It highlights online resources that many doctors may find interesting and can use to support their research.
- Attending conferences is another great way to support your further professional development and gain new skills as a researcher, as well as to make contacts in a specialty that interests you. Most have special rates for trainees, and some even offer free places for students, or grants to attend.

Mentoring and supervision

A career in research is rewarding and fulfilling; however, at times it can be challenging, so it is important that you have a good supervisor and academic mentor. Mentors can:

- act as a sounding board for ideas
- provide support, encouragement and constructive challenge
- signpost to relevant information and resources
- provide guidance, eg with funding and ethics applications
- provide careers advice.

The Academy of Medical Sciences coordinates a highly regarded mentoring programme for academic trainees. It also provides mentoring resources and information about starting a mentoring scheme at your local institution.

The RCP is currently running a pilot academic mentoring scheme – get in touch if you are interested in finding out more. Further details will be updated following evaluation of the scheme. Many of the other royal colleges and specialty societies offer academic mentoring programmes. Enquire with your relevant organisation for further information.

Also, many universities have an academic mentoring scheme. Enquire locally for further information.

'Surround yourself with experienced mentors … identify who you enjoy thinking with, and those you feel you can trust with your ideas. Be a student for life, embrace humility and find enjoyment in being challenged.'

Andrew Carson-Stevens, GP and NIHR health services and delivery research chief investigator

Getting your research published

Getting your research published is important to disseminate the findings of your research and promote translation into clinical practice. It is also an important step in your career and can help your future funding applications. How you write and what you present will depend on the type of research and the journal that you are approaching. Start by speaking to your supervisors, who will have experience of publishing in your area of research and will be able to help you get started.

'Don't be deterred by repeated rejections from journals and grant awarding bodies. Console yourself by remembering that major scientific breakthroughs were invariably brought about by determined individuals who would not be put off by the conventional wisdom of the day.'

Charles Ferro, NIHR fellow, consultant nephrologist and honorary reader in renal medicine

Your NIHR Clinical Research Network can provide guidance on writing up your research, getting published and disseminating the results.

BMJ Learning offer an online module on how to write a research paper and get it published. It includes background information on how journal editors assess research papers, advice on how to avoid the common mistakes that researchers make when structuring their article, how to sell your paper to a journal editor and how to respond to rejection.

The Equator Network website provides a useful list of resources to help you produce high-quality research publications, including advice for writing up your research, recommendations about where to publish and tips on how to get published.

The Guardian has produced an interesting article, which consults editors from top academic journals and collates 17 'top tips' about how to get published in an academic journal.

Presenting your research

Presenting your work at conferences and events is another important way of sharing your research and inviting critique and challenge from, and constructive conversation with, leading academics. There are many different academic conferences held locally, regionally, nationally and internationally across all specialties and research areas, all year round. There are a variety of ways that you can present, from a poster presentation to speaking in a seminar, facilitating a workshop or giving the keynote lecture.

Don't be put off if you don't feel that you have enough research experience to give a presentation – academics love to support new researchers and help you to develop your ideas, and will help with the presentation. You may feel more comfortable starting off by presenting a poster, which gives you the opportunity to present your work and answer questions in a smaller, chaired poster session and to experience what a conference is like, to build the confidence to apply the following year to give an oral presentation.

To hear about upcoming conferences, events and opportunities to present:

- speak to your supervisor and mentor (who will not only advise you which conferences to apply to, but will also be able to help you write abstracts)
- keep an eye out for adverts in research journals
- sign up to the mailing lists and Twitter accounts of the main research bodies and specialty societies in your area of research interest.

How to create a research culture in your trust

There is evidence that research-active organisations promote better outcomes for their patients, by offering patients early access to effective new treatments and by creating a culture that leads to improved care.[1] Engaging in research can generate income for your trust, which can support further innovations and patient care activities. Research-active trusts find it easier to attract leading doctors and establish a positive reputation. There is also evidence showing that clinical research is important to patients and the public. A recent survey conducted on behalf of the NIHR Clinical Research Network shows that 93% of people say it is important for them that the NHS is a place where the life sciences industry can carry out clinical research and develop new treatments.[4]

'Setting up a research programme at yet another hospital was a massive undertaking. Thankfully, I have very supportive renal colleagues, as well as cardiology colleagues who had an interest in kidney disease. From humble beginnings with a single British Heart Foundation (BHF) project grant and a research fellow, we have now built up this group to be internationally recognised and attract millions of pounds of competitive research funding.'

Charles Ferro, NIHR fellow, consultant nephrologist and honorary reader in renal medicine

Case-study examples

For a research and innovation culture to flourish, it must be actively cultivated by creating space for it and supporting it, providing opportunities for its implementation, and providing staff education and encouraging them to engage with it. We have collated exemplar organisations that have implemented a research and innovation strategy to tackle real and perceived barriers to clinical research and have successfully embedded research into their core business. The examples highlight the factors that contributed to success and the impact that it has had on their trusts, in terms of both research performance and patient outcomes.

The RCP Future Hospital report[5] recognised the importance of developing a strong research culture in trusts, to increase research activity and performance. A Future Hospital case study from Tees, Esk and Wear Valleys NHS Foundation Trust explores how the trust worked with the NIHR to transform their research culture and increase their research activity tenfold over 3 years.

The NIHR Clinical Research Network is keen to identify and share good research practice and recognise those trusts and clinical commissioning groups (CCGs) already making great strides in developing research capability within their organisations. To this end, the NIHR Clinical Research Network established the – HSJ Clinical Research Impact Award – a jointly sponsored award with the *Health Services Journal* for organisations that demonstrated a step change in research culture.

Portsmouth Hospitals NHS Trust won the *HSJ* Clinical Research Impact Award 2014.

- Greta Westwood, deputy director of research, explains how staff are supported to develop their own research and how the culture benefits patients. Watch *The Guardian* interview here.

Sussex Partnership NHS Foundation Trust won the *HSJ* Clinical Research Impact Award 2013 for 'going above and beyond' in introducing new initiatives to maximise the impact of research through an organisation-wide approach.

- Dr Mark Hayward, director of research, and Dr Kay Macdonald, strategic director of therapies, gave an interview about why Sussex Partnership was determined to make clinical research everyone's business. Watch *The Guardian* interview here.
- Tanya Telling, research and development manager, and Clara Strauss, research fellow, share how Sussex Partnership implemented the new initiatives. Watch the BrightTALK presentation here.

Southampton University Hospitals NHS Trust won the 2012 Progressive Research Culture Award for work undertaken to develop clinical research activity across the trust.

- Cliff Shearman, associate medical director, R&D, and Heidi Nield, assistant director of research, explained why providing opportunities and supporting staff to engage in research is important to University Hospital Southampton. Watch *The Guardian* interview here.

In primary care, Danetre Medical Practice was highly commended for achieving a step change in research activity and implementing strategies to make clinical research an integral part of what this general practice does on a daily basis.

- Watch a recorded webinar of Jo Gilford, managing partner, and Laura Hopwood, research nurse, describing their journey to make research a core activity of GP services.

All these videos have been taken from the NIHR Clinical Research Zone, which is hosted on *The Guardian* Healthcare Professionals Network web pages and provides a wealth of resources, information and up-to-date news about research activity in the UK and how to get involved.

Top tips to help support your trust to become more research active

What can you do to expand the research culture in your organisation? The NIHR Clinical Research Network website has lots of suggestions to get you started.

The NIHR Clinical Research Network recently published an article in *The Guardian*, written by top researchers who share their top tips about how to embed research at the heart of your trust. Read the article in full here.

Patient and public involvement in research

Patient and public involvement in research is a requirement of all research studies and is an indicator of quality research. To generate improvements that meaningfully benefit patient care, patients must be at the heart of research, advising and informing research design and contributing to the measurement of improvements. The Wellcome Trust has produced a film highlighting the benefits of patient and public engagement in research.

Patients want to be involved in research. A survey by the NIHR Clinical Research Network found that 95% of people said it was important to them that the NHS carries out clinical research, 9 out of 10 people (89%) would be willing to take part in clinical research and only 3% would not consider it at all. Patient perspectives can be a powerful driver for clinicians to engage in research.

Even if you are not actively recruiting patients to trials or leading research, if patients ask you about research, you need to be able to answer their questions, know about opportunities for them to engage in clinical trials and know where to direct them to obtain further information.

'Quality research and quality clinical care go hand in hand, and so being at the cutting edge of a subject means that I know my patients are getting the best care available.'

Charles Ferro, NIHR fellow, consultant nephrologist and honorary reader in renal medicine

Opportunities for patients to get involved in research

'As with most things these days, time and money are the major challenges facing any potential researcher. However, there are more opportunities now than ever before, especially for those who want to carry out research that is directly relevant to patient care.'

Charles Ferro, NIHR fellow, consultant nephrologist and honorary reader in renal medicine

Patients can get involved in research by:

- offering advice and experience to researchers
- helping to identify research priorities
- participating in a focus group / completing a questionnaire as part of a research study
- being recruited into a clinical trial
- as members of a research project advisory group
- influencing study protocol design
- influencing research study design
- helping to design patient information leaflets or other research materials
- helping a research funding body decide how to allocate money for research
- recruiting other patients into clinical trials
- as co-applicants on a research project
- helping to deliver research, eg by interviewing research participants
- helping to disseminate research findings.

What is the patient experience of research?

The NIHR 'Research changed my life' and 'Patient stories' campaigns share inspirational stories from patients, families and carers whose lives have been transformed by clinical research.

Some of the benefits that patients gain from participation in clinical research include:

- a better understanding or management of their condition
- additional contact and partnership with their health professionals
- altruistically being able to give something back to the NHS and contribute to better treatments.

How to involve patients in research

Information for patients

The NIHR provides a comprehensive guide for patients, highlighting all the ways that they can get involved in research. It provides links to videos of people talking about being part of a clinical trial, how they made the decision to take part, what was involved and what their experience was like.

An organisation called INVOLVE, funded by the NIHR, provides information about ways in which people can contribute to research without taking part in a trial. There is evidence that when patients and the public are involved in the way that research is designed, funded and managed, it's more likely to produce results that improve healthcare practice.

People in Research is a web resource run by INVOLVE that helps to put members of the public in touch with organisations and researchers who want to actively involve people in clinical research.

The NIHR actively promotes patient and public involvement in clinical research and has developed resources for patients and the public that provide information on clinical trials.

Further information about patient and public involvement can be found on the NHS Choices website.

Information for doctors

The NIHR provides a wide range of advice and support for doctors about how to make patient involvement in your research easier and more effective, and how to generate a patient-led research culture at your trust.

The Wellcome Trust also provides guidance for involving patients in research.

Recruiting patients into studies

The NIHR Clinical Research Network Study Portfolio provides links to opportunities to recruit into other people's studies.

The UK Clinical Trials Gateway provides access to a large range of easy-to-understand information about clinical research trials running in the UK. It is designed to enable patients and doctors to locate and contact trials of interest to patients.

The NIHR has developed a tool to help patients find studies of interest to them, called 'Find a clinical research study'.

Useful links

Visit the following websites for further information about medical research.

- The RCP research and academic medicine
- The NIHR
- The NIHR Clinical Research Network
- The Academy of Medical Sciences
- The Medical Research Council
- The Association of Medical Research Charities
- The UK Clinical Research Collaboration
- The Wellcome Trust
- NHS Medical Careers
- Academic Health Science Networks

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